

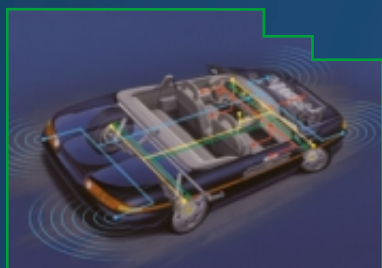
tyco / *Electronics*

GLOBAL AUTOMOTIVE DIVISION

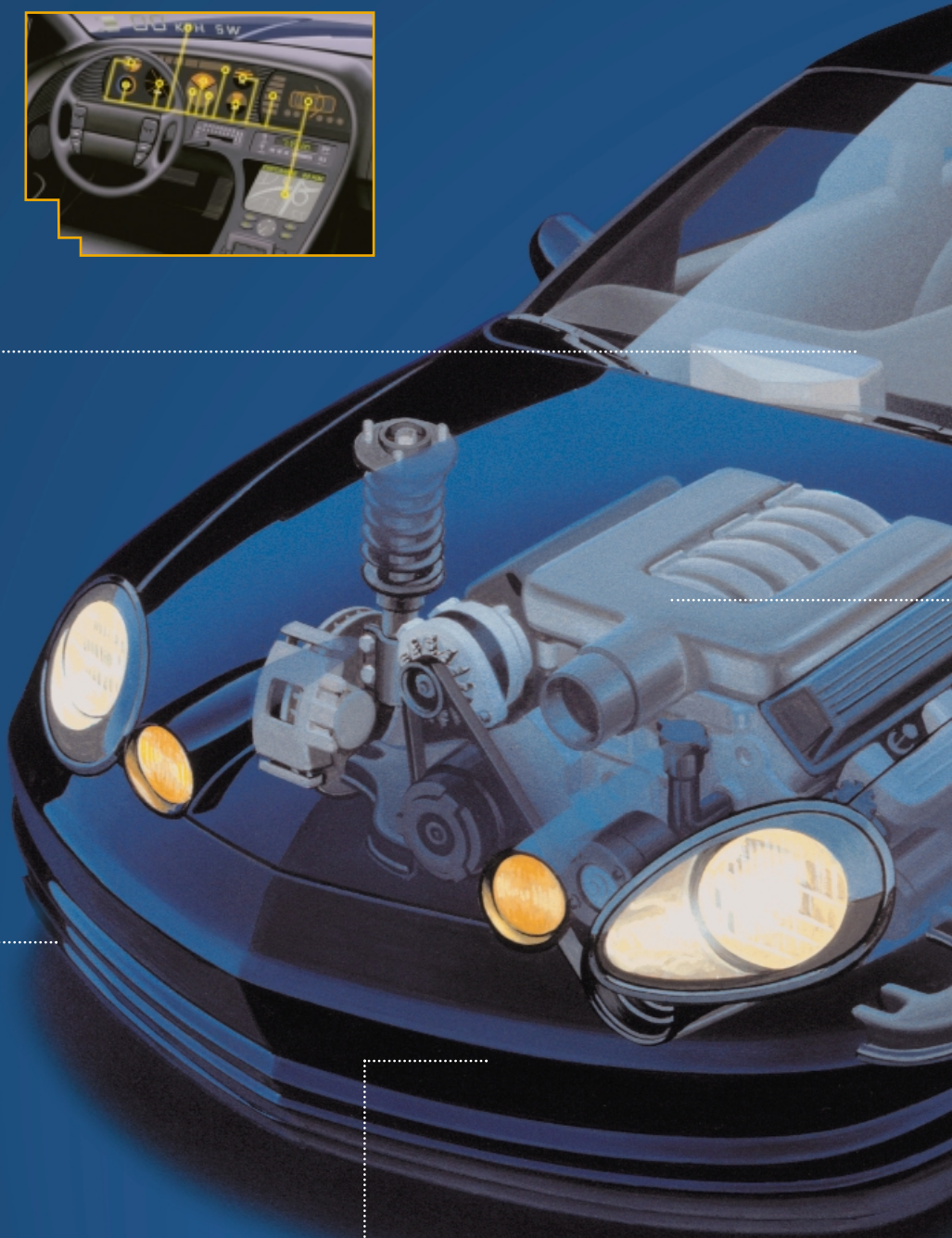


**Micro Quadlok
Interconnection System**

▶ Driver Information



▶ Safety Systems

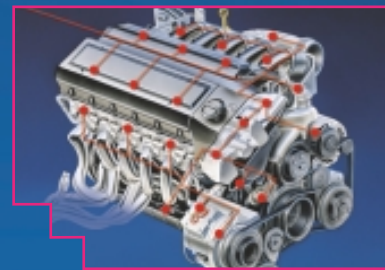


▶ Body

THE 7 APPLICATION AREAS

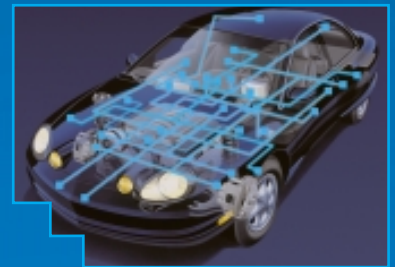


▶ Convenience

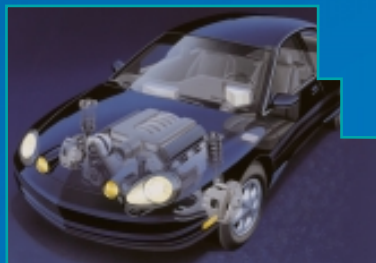


▶ Powertrain Systems

▶ Security



▶ Chassis Systems





► **Powertrain Systems**

1. Motormanagement

In the future, the requirements for a 'responsible' fuel consumption and legal emission limits will be even tighter than today's. At the same time the car manufacturers have to meet increasing requirements from the customers concerning higher and safer performance. An improved engine and powertrain management will help them to meet these challenges.

A whole series of abbreviations is used to identify new high-tech developments, such as TBI (Throttle Body Injection), MPI (Multi Point Injection) or Full EM (Fully-integrated digital Engine Management). As a result of the described developments, individual mechanical components are gradually being replaced by "drive by wire"-Systems. Sensors and electronically controlled ignitions will control the fuel supply, air flow and circulation of the exhaust gasses.

Tyco Electronics is extremely familiar with the special requirements of the engine environment: Our connector sealing systems protect the electrical connections from the influence of gasses and liquids in the engine compartment. Special contact systems defy corrosion caused by contact vibration. Tyco Electronics employs the advancements in the Mechatronics technology, for the development of shaped Connecting instruments, that simplify the connection of electronic systems with several components.

New connector systems for the engine environment will connect many sensors, control instruments and actuators. Once more the Mechatronics technology has shown the way, with the development of intelligent connectors for the new generation of actuators.

Tyco Electronics is also developing solutions for High-Density-seals, using our experience with various technologies and products.

2. Powertrain Management Systems

Also for powertrain systems the electrical share is increasing. Manual drive housings with electronic couplings are already common in heavy trucks with many speeds, and are increasingly built in smaller cars.

Tyco Electronics has developed a complete range of specific connector solutions in this field and offers contact systems that meet all requirements for the powertrain control. This includes special mating devices, based on modular and hybrid concepts. Depending on the version, these connectors are suitable for cable core diameters of 0.2 to 3 mm² – from two, to several hundreds of contacts.

► Chassis Systems

For chassis systems the requirements for the electronics are very special: high pole connectors are required, which are small at the same time. Our new connector systems for control equipment and sensors enhance the performance and the quality of the ride stabilization (DSC3/ESP/TRUST) resp. – control of the active shock absorbing and comfort electronics – e.g. for the electronic adjustment of the mirrors and seats.



Whether transverse, longitudinal or rotation acceleration sensors, steering angle sensors or sensor controlled head light control – the individual electronic components and control devices of modern chassis are increasingly networked.

Chassis Systems

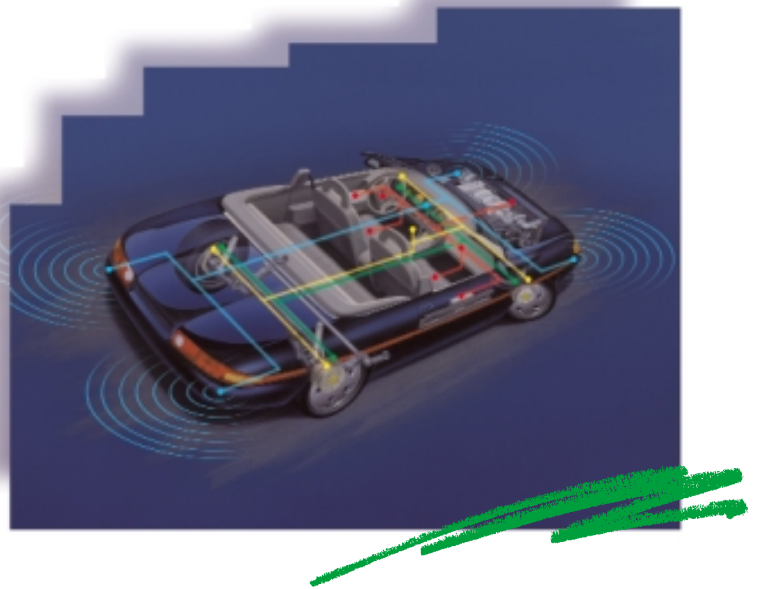
► Safety Systems

Safety systems of all kinds are a particularly important application area for intelligent systems in the automotive technology. Within a foreseeable period of time, all cars, from the luxurious limousine to the economical small car, will be fitted with intelligent systems that will help save lives.

Anti-lock brakes (ABS) help to prevent accidents, while other systems – e.g. airbags or safety belt pre-tensioners – reduce the risk of injuries, should an accident occur. The increasing implementation of these and similar systems, that register for example the presence of the passengers sets higher requirements concerning the precise coordination of the multiple electronic systems.

The passenger safety is improved even more by intelligent navigation control, distance warning systems and blind spot control. After an accident GPS and automatic telephone dialing will call for immediate help at the accident site.

The Tyco Electronics connector products for the automotive industry are extremely suitable for safety systems such as airbags and seatbelt pre-tensioners. Flexible flat cable (FFC), cable for the driver airbag as well as discrete cable lead assemblies are used. All these Tyco Electronics components are thoroughly tested for their quality.



In addition Tyco Electronics has extensive technological competence in the field of wireless technologies (High frequency and microwave applications). Tyco Electronics offers radar sensors and the suitable connectors – sealed and unsealed, wire to pc board, pc board to pc board – for airbags, seatbelt pre-tensioner systems, and ABS/ASR-Systems. Tyco Electronics is the ideal strategic partner, in order to develop and implement customer specific modules.

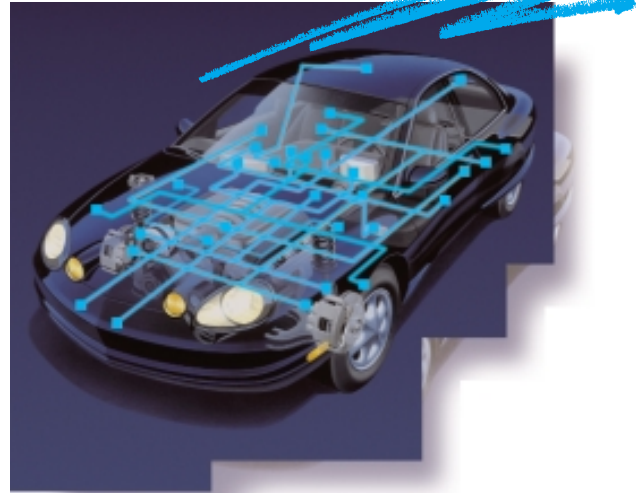
Safety Systems

Security

▶ Security

Crime is a serious problem all over the world and vehicle theft occurs not only in large cities but also in small areas. Therefore break-in and theft warning systems will receive more attention in the automotive industry. Now already an immobilizer is included in almost any new car.

The Tyco Electronics Products are most suitable for both systems. In addition Tyco Electronics also offers solutions in the field of wireless technology (Radar applications). Tyco Electronics is the reliable partner for safe technologies.



▶ Body

In a world wide co-operation with various producers and suppliers, Tyco Electronics develops and produces innovative solutions for body applications. This enabled for example the current introduction of a new generation of headlights in the market: HID (High Intensity Discharge) headlights enable driving at night with a light similar to daylight without blinding oncoming traffic. This because the angle of the light beam is automatically adapted to the actual weight distribution in the vehicle. Despite the high voltage required on HID headlight connectors are extremely compact and are available in shield versions or with integrated electronic components.



Body

▶ Driver Information

Many high-tech electronic systems, that improve comfort, increase the active and passive safety and facilitate communication and navigation, are currently fitted into cars.

Examples of these systems are

- Automatic climate control,
- Airbags,
- Seatbelt pre-tensioning systems,
- Anti-lock brake systems,
- Traction control,
- Collision warning systems and
- (Satellite) Navigation systems.

Now these systems are becoming increasingly common and the demands of the driver concerning the performance and easy access to the status information of these systems is also increasing. Therefore more electronic displays will be used.

These displays will offer more information than the standard information of normal dashboards. They will show the status of the safety and comfort systems mentioned, the information provided by the navigation, communication and maintenance systems.

Connector systems for the auto cockpit of the future must be increasingly advanced in order to meet the requirements for faster signal transfer, reduced mass and reduced cost.

Tyco Electronics already plays a key role in the connector technology for dashboards and in the development of contact systems for the cockpit of the future.

Driver Information



THE 7 APPLICATION AREAS



► Convenience

For some people their car is just a means of transport. For others it is a mobile communication center.

With the help of the Tyco Electronics Technologies you can get comfortable in that environment, for example by programming driver specific settings for the seat, mirror and air conditioning.

Digital technology offers the basis for revolutionary developments in car phones and car entertainment systems. The use of radio data and traffic management systems, linked to the current digital telephones and CD-players, is just an example of this.

Digital electronics will simplify the integration of various functions. The data transfer via plastic fiber-optics and high-performance multiplexer connections will play an important role in this field.

Telephone, Radio and GPS-Navigation instruments and the related electronics fittings will require more refined connector systems. The technology of speech recognition will help drivers to concentrate on critical tasks and they will no longer need to be distracted by operating the telephone or functions of the dashboard. Emergency services are automatically called via the car phone when sensors detect an accident.

Convenience

TYCO ELECTRONICS “TECHNOLOGY PORTFOLIO”

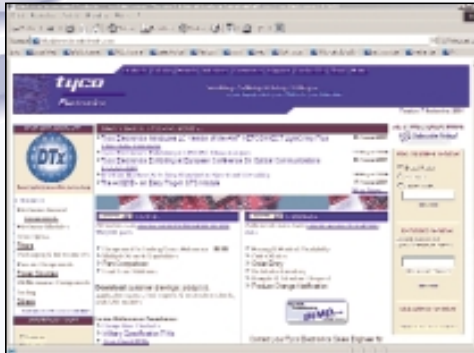


- Connector Systems / Electromechanical Components
- Circuit Protection Devices
- Magnetics
- Resistors and Inductors
- Sealing Systems
- Thermal Management / Cooling Systems
- Relays
- Switches
- Fiber Optics (passive / active)

- Wireless Components
- Antennas, GPS Antennas, Integrated Antenna Systems
- Printed Circuit Board Technologies
- Electronic Modules
- Power Systems
- Heat Shrink Tubing
- Wire & Cable
- Identification
- Racks and Panels

- Touch Screens
- Smart Cards / Leadframes
- Application Tooling
- Sensors
- Clock Springs
- TDI – Battery Assemblies
- Networking Installation and Services
- Crompton Small Motors (20–1500 W)

TYCO ELECTRONICS "AT YOUR SERVICE"



Internet Homepage

www.tycoelectronics.com

www.tycoelectronics.com/automotive

Electronic Internet Catalog

www.catalog.tycoelectronics.com

Tyco Electronics Online

The Tyco Electronics Website is more than merely an Internet-guide. It is an innovative and interactive source for application tips, product update and technical information.

With our StepSearch-Software you can easily surf through all of our product lines.

Product Information Center (PIC)

You can rely on our PIC Team's support.

Our experienced staff is an additional information source, and the team has been particularly trained to answer your technical questions.

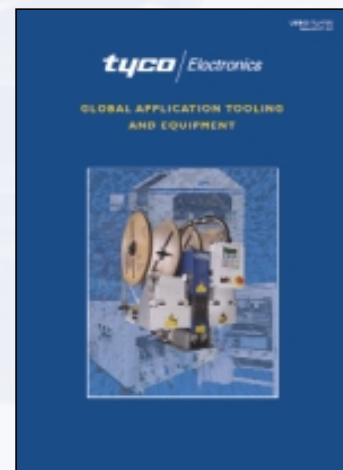
To reach our PIC, please contact your local Tyco Electronics organization.



Product and Machine Literature

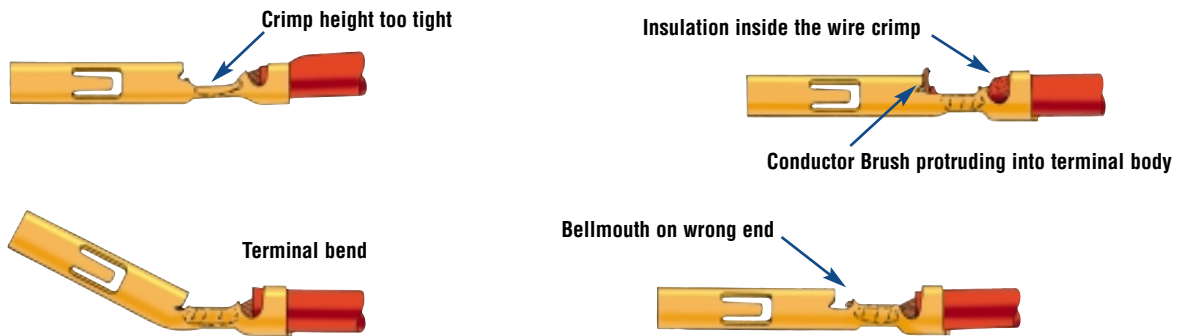
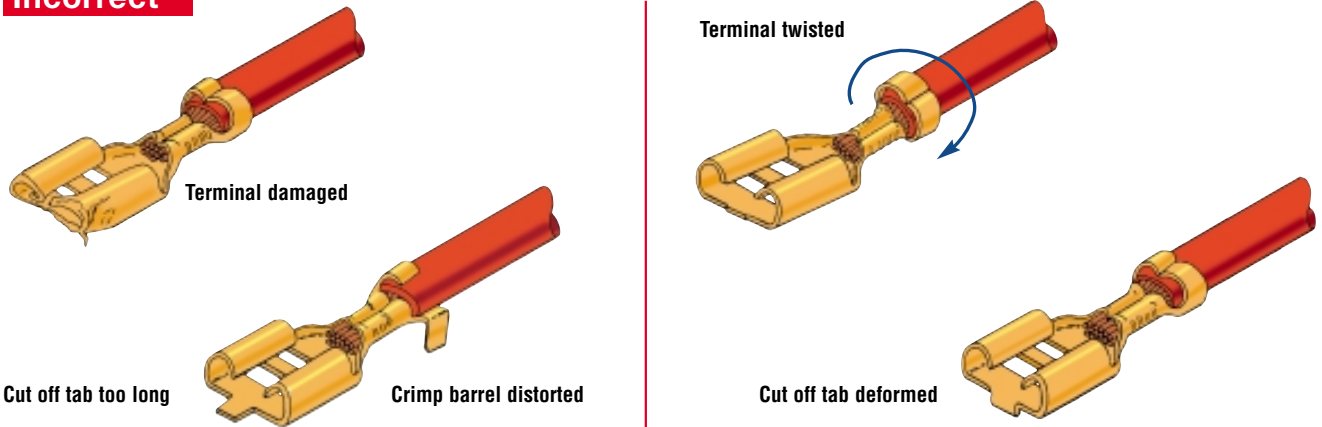
For more information about Tyco Electronics' Global Automotive Division and its wide range of products we offer you a variety of literature such as product databooks and a lot of product specific brochures.

For databooks and product brochures please contact your local Tyco Electronics organization.

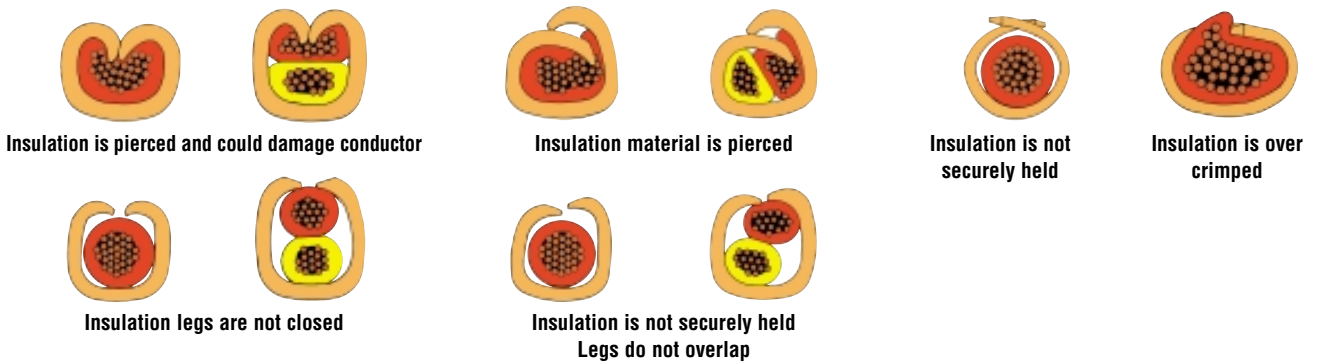


Quality Guidelines

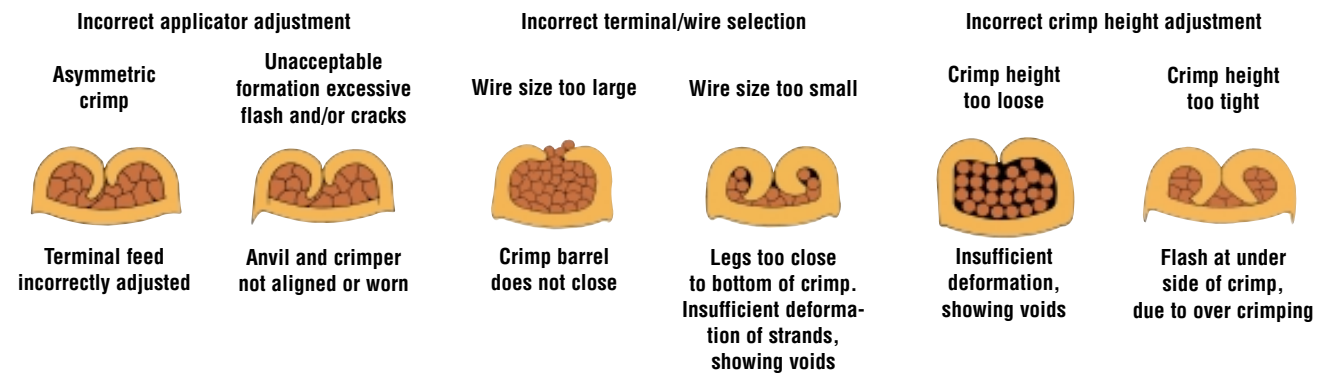
Incorrect



INSULATION CRIMP

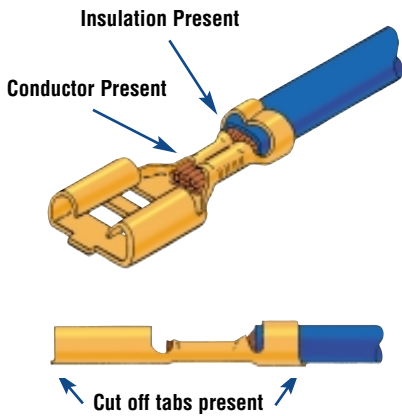


WIRE CRIMP

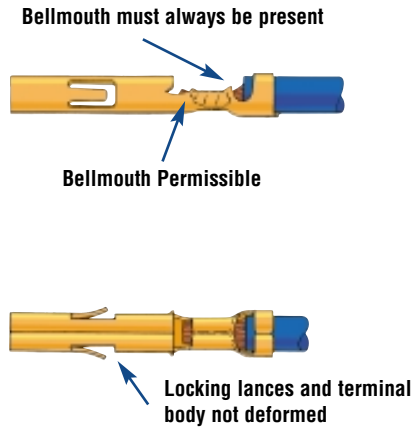


Quality Guidelines

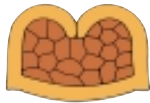
Correct



WIRE CRIMP



Correct selection of wire, terminal and applicator



Crimp barrel is closed, legs support each other



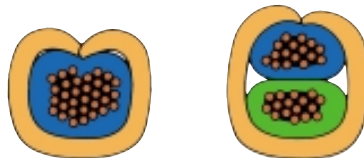
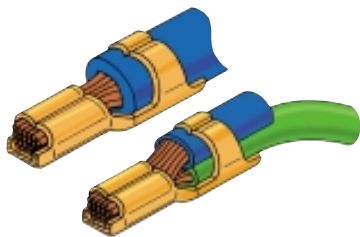
Sufficient gap between legs and bottom of crimp

All strands are equally distributed and deformed

INSULATION CRIMP

Correct Insulation Diameter, Applicator and Terminal

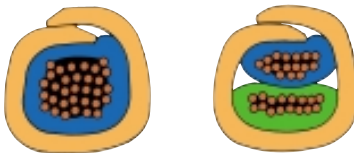
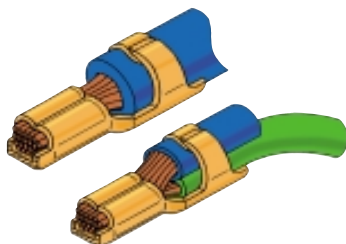
F-CRIMP



Insulation is securely held
Crimp barrel closed

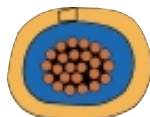
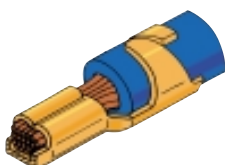
For double wire applications with different size wires always place wire with smallest outer diameter in the bottom

OVERLAP CRIMP



Insulation is securely held
Legs overlap

WRAP OVER CRIMP

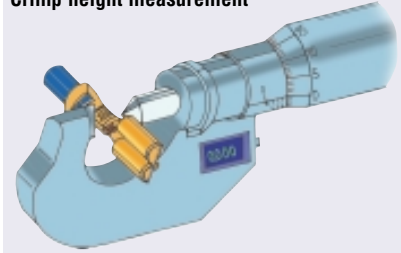


Insulation securely held
Legs must pass each other

Test

WIRE CRIMP

Crimp height measurement



Crimp heights and tolerances

For crimp height tolerances for any given contact, please refer to the relevant application specification.

Examples:

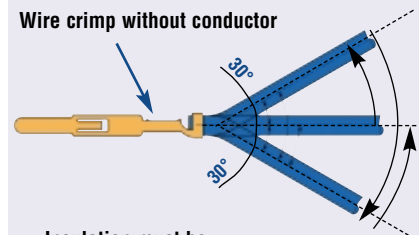
Contact	Part No.	Wire Range (mm ²)	Tolerance (mm)	Application Spec.
MQS	962885 962886	0.2-0.5	±0.03	114-18025
JPT	927775	0.5-1.0	±0.05	114-18050
JPT	927773	1.5-2.5	±0.05	114-18050

Digital Crimp Height Micrometer
(0.001 mm increments) acc. to DIN ISO 9001
Part No. 547203-1



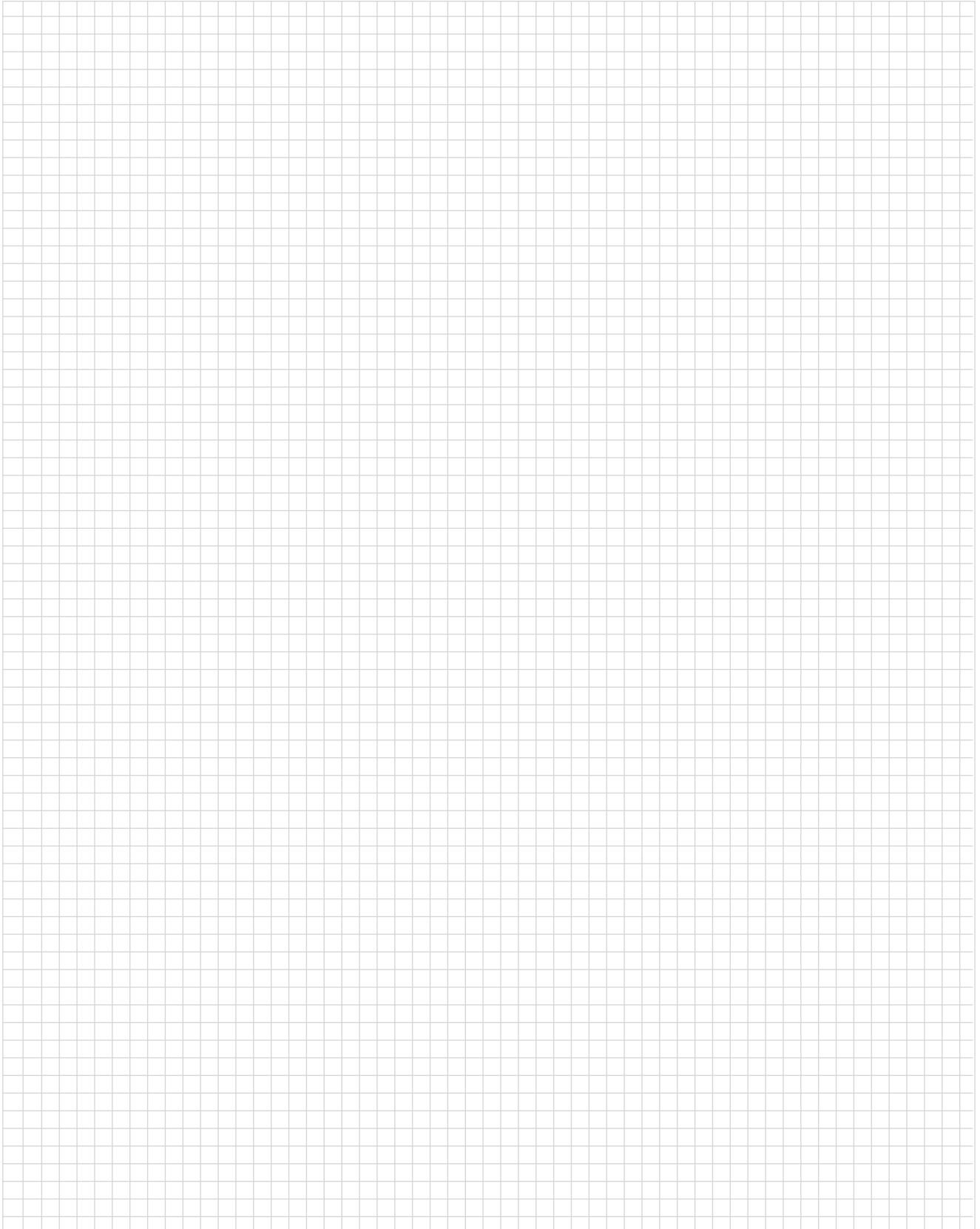
INSULATION CRIMP

Wire crimp without conductor



Insulation must be securely held after bend test

Engineering Notes



AWG Conversion Table (Average Value)

AWG Code	Diameter (Inch)	Diameter (mm)	F (mm ²)
000000	0.5800	14.733	170.0
00000	0.5165	13.13	135.0
0000	0.4600	11.684	103.8
000	0.4096	10.40	79.0
00	0.3648	9.27	67.5
0	0.3249	8.25	53.4
1	0.2893	7.34	42.2
2	0.2576	6.55	33.7
3	0.2294	5.82	26.6
4	0.2043	5.18	21.0
5	0.1819	4.62	16.9
6	0.1620	4.115	13.25
7	0.1443	3.66	10.25
8	0.1285	3.26	8.34
9	0.1144	2.90	6.6
10	0.1019	2.59	5.27
11	0.0907	2.30	4.15
12	0.0808	2.05	3.3
13	0.0720	1.83	2.63
14	0.0641	1.63	2.08
15	0.0571	1.45	1.65
16	0.0508	1.29	1.305
17	0.0453	1.14	1.01
18	0.0403	1.02	0.79
19	0.0359	0.91	0.65
20	0.0320	0.81	0.51
21	0.0285	0.72	0.407
22	0.0253	0.64	0.32
23	0.0226	0.57	0.255
24	0.0201	0.51	0.205
25	0.0179	0.455	0.162
26	0.0159	0.40	0.125
27	0.0142	0.36	0.102
28	0.0126	0.320	0.08
29	0.0113	0.287	0.0646
30	0.0100	0.254	0.0516
31	0.0089	0.226	0.04
32	0.0080	0.203	0.0324
33	0.0071	0.180	0.0255
34	0.0063	0.160	0.02
35	0.0056	0.142	0.0158
36	0.0050	0.127	0.0127
37	0.0045	0.114	0.01
38	0.0040	0.101	0.008
39	0.0035	0.089	0.0062
40	0.0031	0.079	0.0049
41	0.0028	0.071	0.00395
42	0.0025	0.064	0.00321
43	0.0022	0.056	0.00246
44	0.00198	0.050	0.00196
45	0.00176	0.045	
46	0.00157	0.040	
47	0.00140	0.036	
48	0.00124	0.031	
49	0.00110	0.028	
50	0.00099	0.025	

Conversion Tables

Most of the wire size ranges are mentioned in mm², as well as the insulation diameters which are in many cases only in mm's.

We therefore included the conversion tables on pages 14 and 15.

Please note that wire and insulation sizes are for guidance only.

Consult the customer drawing for precise detail.

FLK/FLR Cable

FLK and FLR stand for German DIN (72551) abbreviations.

FLK means:

In German:

- Fahrzeug Leitung Kunststoff

In English:

- Vehicle Cable Plastic

FLR means:

In German:

- Fahrzeug Leitung Reduziert

In English:

- Thin Walled Cable (reduced insulation thickness)

Remark: Starting from 0.03 mm² (AWG 32) a wire can be crimped

Conversion Table – Inch/mm

Inch	0	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0	0	0.0254	0.0508	0.0762	0.1016	0.1270	0.1524	0.1778	0.2032	0.2286
0.010	0.2540	0.2794	0.3048	0.3302	0.3556	0.3810	0.4064	0.4318	0.4572	0.4826
0.020	0.5080	0.5334	0.5588	0.5842	0.6096	0.6350	0.6604	0.6858	0.7112	0.7366
0.030	0.7620	0.7874	0.8128	0.8382	0.8636	0.8890	0.9144	0.9398	0.9652	0.9906
0.040	1.0160	1.0414	1.0668	1.0922	1.1176	1.1430	1.1684	1.1938	1.2192	1.2446
0.050	1.2700	1.2954	1.3208	1.3462	1.3716	1.3970	1.4224	1.4478	1.4732	1.4986
0.060	1.5240	1.5494	1.5748	1.6002	1.6256	1.6510	1.6764	1.7018	1.7272	1.7526
0.070	1.7780	1.8034	1.8288	1.8542	1.8796	1.9050	1.9304	1.9558	1.9812	2.0066
0.080	2.0320	2.0574	2.0828	2.1082	2.1336	2.1590	2.1844	2.2098	2.2352	2.2606
0.090	2.2860	2.3114	2.3368	2.3622	2.3876	2.4130	2.4384	2.4638	2.4892	2.5146
0.100	2.5400	2.5654	2.5908	2.6162	2.6416	2.6670	2.6924	2.7178	2.7432	2.7686
0.110	2.7940	2.8194	2.8448	2.8702	2.8956	2.9210	2.9464	2.9718	2.9972	3.0226
0.120	3.0480	3.0734	3.0988	3.1242	3.1496	3.1750	3.2004	3.2258	3.2512	3.2766
0.130	3.3020	3.3274	3.3528	3.3782	3.4036	3.4290	3.4544	3.4798	3.5052	3.5306
0.140	3.5560	3.5814	3.6068	3.6322	3.6576	3.6830	3.7084	3.7338	3.7592	3.7846
0.150	3.8100	3.8354	3.8608	3.8862	3.9116	3.9370	3.9624	3.9878	4.0132	4.0386
0.160	4.0640	4.0894	4.1148	4.1402	4.1656	4.1910	4.2164	4.2418	4.2672	4.2926
0.170	4.3180	4.3434	4.3688	4.3942	4.4196	4.4450	4.4704	4.4958	4.5212	4.5466
0.180	4.5720	4.5974	4.6228	4.6482	4.6736	4.6990	4.7244	4.7498	4.7752	4.8006
0.190	4.8260	4.8514	4.8768	4.9022	4.9276	4.9530	4.9784	5.0038	5.0292	5.0546
0.200	5.0800	5.1054	5.1308	5.1562	5.1816	5.2070	5.2324	5.2578	5.2832	5.3086
0.210	5.3340	5.3594	5.3848	5.4102	5.4356	5.4610	5.4864	5.5118	5.5372	5.5626
0.220	5.5880	5.6134	5.6388	5.6642	5.6896	5.7150	5.7404	5.7658	5.7912	5.8166
0.230	5.8420	5.8674	5.8928	5.9182	5.9436	5.9690	5.9944	6.0198	6.0452	6.0706
0.240	6.0960	6.1214	6.1468	6.1722	6.1976	6.2230	6.2484	6.2738	6.2992	6.3246
0.250	6.3500	6.3754	6.4008	6.4262	6.4516	6.4770	6.5024	6.5278	6.5532	6.5786
0.260	6.6040	6.6294	6.6548	6.6802	6.7056	6.7310	6.7564	6.7818	6.8072	6.8326
0.270	6.8580	6.8834	6.9088	6.9342	6.9596	6.9850	7.0104	7.0358	7.0612	7.0866
0.280	7.1120	7.1374	7.1628	7.1882	7.2136	7.2390	7.2644	7.2898	7.3152	7.3406
0.290	7.3660	7.3914	7.4168	7.4422	7.4676	7.4930	7.5184	7.5438	7.5692	7.5946
0.300	7.6200	7.6454	7.6708	7.6962	7.7216	7.7470	7.7724	7.7978	7.8232	7.8486
0.310	7.8740	7.8994	7.9248	7.9502	7.9756	8.0010	8.0264	8.0518	8.0772	8.1026
0.320	8.1280	8.1534	8.1788	8.2042	8.2296	8.2550	8.2804	8.3058	8.3312	8.3566
0.330	8.3820	8.4074	8.4328	8.4582	8.4836	8.5090	8.5344	8.5598	8.5852	8.6106
0.340	8.6360	8.6614	8.6868	8.7122	8.7376	8.7630	8.7884	8.8138	8.8392	8.8646
0.350	8.8900	8.9154	8.9408	8.9662	8.9916	9.0170	9.0424	9.0678	9.0932	9.1186
0.360	9.1440	9.1694	9.1948	9.2202	9.2456	9.2710	9.2964	9.3218	9.3472	9.3726
0.370	9.3980	9.4234	9.4488	9.4742	9.4996	9.5250	9.5504	9.5758	9.6012	9.6266
0.380	9.6520	9.6774	9.7028	9.7282	9.7536	9.7790	9.8044	9.8298	9.8552	9.8806
0.390	9.9060	9.9314	9.9568	9.9822	10.0076	10.0330	10.0584	10.0838	10.1092	10.1346
0.400	10.1600	10.1854	10.2108	10.2362	10.2616	10.2870	10.3124	10.3378	10.3632	10.3886
0.410	10.4140	10.4394	10.4648	10.4902	10.5156	10.5410	10.5664	10.5918	10.6172	10.6426
0.420	10.6680	10.6934	10.7188	10.7442	10.7696	10.7950	10.8204	10.8458	10.8712	10.8966
0.430	10.9220	10.9474	10.9728	10.9982	11.0236	11.0490	11.0744	11.0998	11.1252	11.1506
0.440	11.1760	11.2014	11.2268	11.2522	11.2776	11.3030	11.3284	11.3538	11.3792	11.4046
0.450	11.4300	11.4554	11.4808	11.5062	11.5316	11.5510	11.5824	11.6078	11.6332	11.6586
0.460	11.6840	11.7094	11.7348	11.7602	11.7856	11.8110	11.8364	11.8618	11.8872	11.9126
0.470	11.9380	11.9634	11.9888	12.0142	12.0396	12.0650	12.0904	12.1158	12.1412	12.1666
0.480	12.1920	12.2174	12.2428	12.2682	12.2936	12.3190	12.3444	12.3698	12.3952	12.4206
0.490	12.4460	12.4714	12.4968	12.5222	12.5476	12.5730	12.5984	12.6238	12.6492	12.6746
0.500	12.7000									
Inch	0	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009

Conversion Table – Inch/mm (continued)

Inch	0	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.500	12.7000	12.7254	12.7508	12.7762	12.8016	12.8270	12.8524	12.8778	12.9032	12.9286
0.510	12.9540	12.9794	13.0048	13.0302	13.0556	13.0810	13.1064	13.1318	13.1572	13.1826
0.520	13.2080	13.2334	13.2588	13.2842	13.3096	13.3350	13.3604	13.3858	13.4112	13.4366
0.530	13.4620	13.4874	13.5128	15.5382	13.5636	13.5890	13.6144	13.6398	13.6652	13.6906
0.540	13.7160	13.7414	13.7668	13.7922	13.8176	13.8430	13.8684	13.8938	13.9192	13.9446
0.550	13.9700	13.9954	14.0208	14.0462	14.0716	14.0970	14.1224	14.1478	14.1732	14.1986
0.560	14.2240	14.2494	14.2748	14.3002	14.3256	14.3510	14.3764	14.4018	14.4272	14.4526
0.570	14.4780	14.5034	14.5288	14.5542	14.5796	14.6050	14.6304	14.6558	14.6812	14.7066
0.580	14.7320	14.7574	14.7828	14.8082	14.8336	14.8590	14.8844	14.9098	14.9352	14.9606
0.590	14.9860	15.0114	15.0368	15.0622	15.0876	15.1130	15.1384	15.1638	15.1892	15.2146
0.600	15.2400	15.2654	15.2908	15.3162	15.3416	15.3670	15.3924	15.4178	15.4432	15.4686
0.610	15.4940	15.5194	15.5448	15.5702	15.5956	15.6210	15.6464	15.6718	15.6972	15.7226
0.620	15.7480	15.7734	15.7988	15.8242	15.8496	15.8750	15.9004	15.9258	15.9512	15.9766
0.630	16.0020	16.0274	16.0528	16.0782	16.1036	16.1290	16.1544	16.1798	16.2052	16.2306
0.640	16.2560	16.2814	16.3068	16.3322	16.3576	16.3830	16.4084	16.4338	16.4592	16.4846
0.650	16.5100	16.5354	16.5608	16.5862	16.6116	16.6370	16.6624	16.6878	16.7132	16.7386
0.660	16.7640	16.7894	16.8148	16.8402	16.8656	16.8910	16.9164	16.9418	16.9672	16.9926
0.670	17.0180	17.0434	17.0688	17.0942	17.1196	17.1450	17.1704	17.1958	17.2212	17.2466
0.680	17.2720	17.2974	17.3228	17.3482	17.3736	17.3990	17.4244	17.4498	17.4752	17.5006
0.690	17.5260	17.5514	17.5768	17.6022	17.6276	17.6530	17.6784	17.7038	17.7292	17.7546
0.700	17.7800	17.8054	17.8308	17.8562	17.8816	17.9070	17.9324	17.9528	17.9832	18.0086
0.710	18.0340	18.0594	18.0848	18.1102	18.1356	18.1610	18.1864	18.2118	18.2372	18.2626
0.720	18.2880	18.3134	18.3388	18.3642	18.3896	18.4150	18.4404	18.4658	18.4912	19.5166
0.730	18.5420	18.5674	18.5928	18.6182	18.6436	18.6690	18.6944	18.7198	18.7452	18.7706
0.740	18.7960	18.8214	18.8468	18.8722	18.8976	18.9230	18.9484	18.9738	18.9992	19.0246
0.750	19.0500	19.0754	19.1008	19.1262	19.1516	19.1170	19.2024	19.2278	19.2532	19.2786
0.760	19.3040	19.3294	19.3548	19.3802	19.4056	19.4310	19.4564	19.4818	19.5072	19.5326
0.770	19.5580	19.5834	19.6088	19.6342	19.6596	19.6850	19.7104	19.7358	19.7612	19.7866
0.780	19.8120	19.8374	19.8628	19.8882	19.9136	19.9390	19.9644	19.9898	20.0152	20.0406
0.790	20.0660	20.0914	20.1168	20.1422	20.1676	20.1930	20.2184	20.2438	20.2692	20.2946
0.800	20.3200	20.3454	20.3708	20.3962	20.4216	20.4470	20.4724	20.4978	20.5232	20.5486
0.810	20.5740	20.5994	20.6248	20.6502	20.6756	20.7010	20.7264	20.7518	20.7772	20.8026
0.820	20.8280	20.8534	20.8788	20.9042	20.9296	20.9550	20.9804	21.0058	21.0312	21.0566
0.830	21.0820	21.1074	21.1328	21.1582	21.1836	21.2090	21.2344	21.2598	21.2852	21.3106
0.840	21.3360	21.3614	21.3868	21.4122	21.4376	21.4630	21.4884	21.5138	21.5392	21.5646
0.850	21.5900	21.6154	21.6408	21.6662	21.6916	21.7170	21.7424	21.7678	21.7932	21.8186
0.860	21.8440	21.8694	21.8948	21.9202	21.9456	21.9710	21.9964	22.0218	22.0472	22.0726
0.870	22.0980	22.1234	22.1488	22.1742	22.1996	22.2250	22.2504	22.2758	22.3012	22.3266
0.880	22.3520	22.3774	22.4028	22.4282	22.4536	22.4790	22.5044	22.5298	22.5552	22.5806
0.890	22.6060	22.6314	22.6568	22.6822	22.7076	22.7330	22.7584	22.7838	22.8092	22.8346
0.900	22.8600	22.8854	22.9108	22.9362	22.9616	22.9870	23.0124	23.0378	23.0632	23.0886
0.910	23.1140	23.1394	23.1648	23.1902	23.2156	23.2410	23.2664	23.2918	23.3172	23.3426
0.920	23.3680	23.3934	23.4188	23.4442	23.4696	23.4950	23.5204	23.5458	23.5712	23.5966
0.930	23.6220	23.6474	23.6728	23.6982	23.7236	23.7490	23.7744	23.7998	23.8252	23.8506
0.940	23.8760	23.9014	23.9268	23.9522	23.9776	24.0030	24.0284	24.0538	24.0792	24.1046
0.950	24.1300	24.1554	24.1808	24.2062	24.2316	24.2570	24.2824	24.3078	24.3332	24.3586
0.960	24.3840	24.4094	24.4348	24.4602	24.4856	24.5110	24.5364	24.5618	24.5872	24.6126
0.970	24.6380	24.6634	24.6888	24.7142	24.7396	24.7650	24.7904	24.8158	24.8412	24.8666
0.980	24.8920	24.9174	24.9428	24.9682	24.9936	25.0190	25.0444	25.0698	25.0952	25.1206
0.990	25.1460	25.1714	25.1968	25.2222	25.2476	25.2730	25.2984	25.3228	25.3492	25.3746
1.000	25.4000									
Inch	0	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009



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THE PRODUCTS



Body			Car Industry		
Body			Car Industry		
Body			Car Industry		
Body			Car Industry		



~~Powertrain
Systems~~



~~Chassis
Systems~~



~~Safety
Systems~~



~~Security~~

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THE PRODUCTS



~~Body~~



~~Driver Information~~



~~Convenience~~



~~Car Industry~~



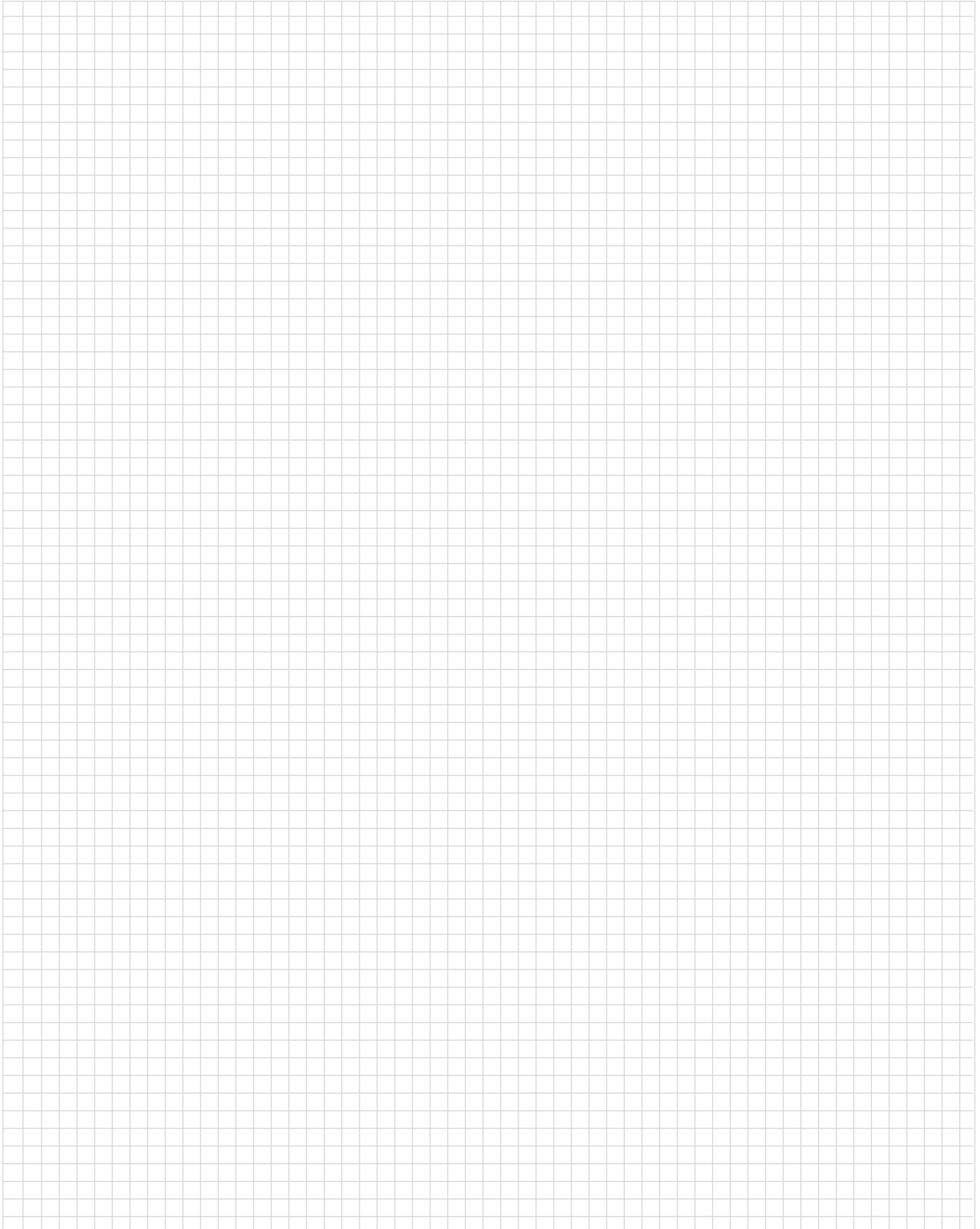
~~Truck Industry~~



~~Other Industry~~

Body	Driver Information	Convenience	Car Industry	Truck Industry	Other Industry
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●

Engineering Notes



Introduction



Product Description

The Micro Quadlok System combines the features of high packing density, robust construction and highest functional requirements.

In spite of its miniaturized design, it fulfills all requirements for a contact system suitable for use in automobiles and covers a wide range of application sectors in both waterproof and non-waterproof areas.

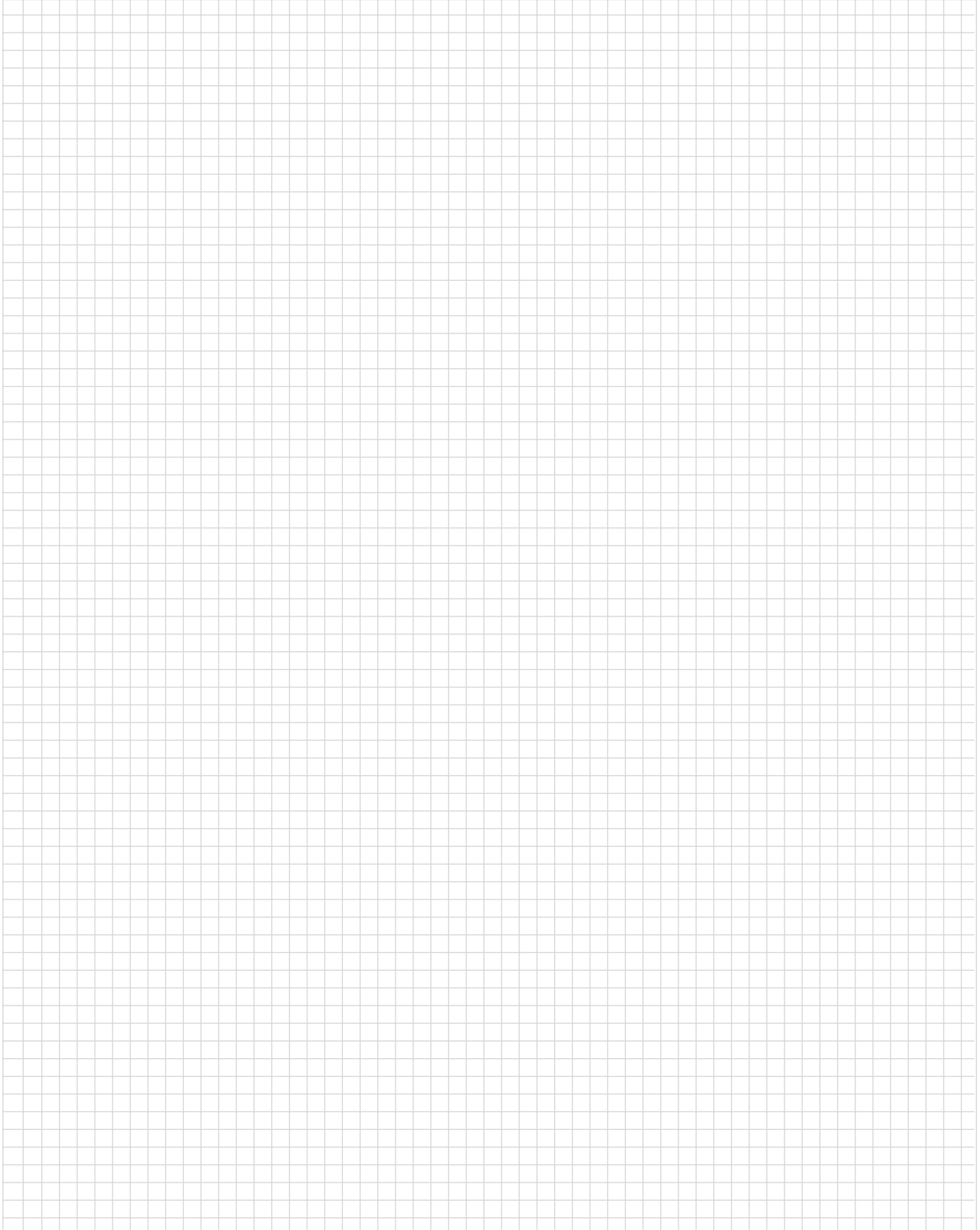
The electrical contact is made by a square pin with an edge length of 0.63 mm. The socket contact has four contact points and the electrical contact is made with all four surfaces of the pin.

The special feature of the Micro Quadlok System is the separation of the main functions; the internal contact body provides all electrical and electromechanical functions, while the superimposed steel cantilever spring protects and retains the contact.

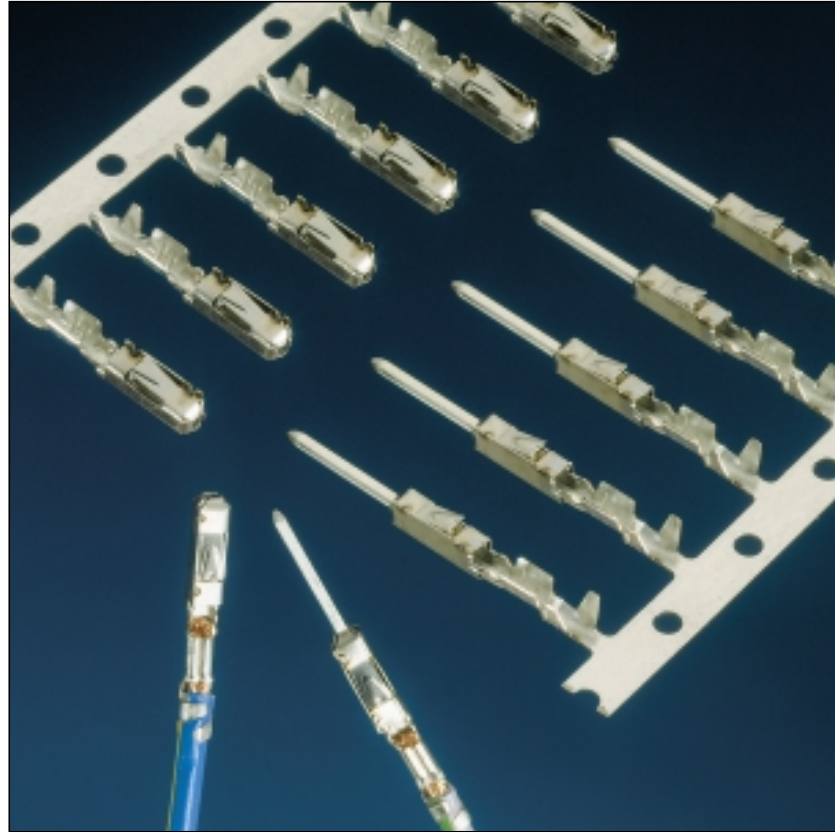
Application

The Contact System MQS is designed for electronic and electrical applications in motor vehicles, where vibration and mechanical stress can, in the long-term, affect the quality of conventional contact systems.

Engineering Notes



Introduction



With the design of the Micro Quadlok System (MQS) in the centerline 2.54 mm, we developed a new automobile suitable contact system. The positive features of existing contact systems – high packing density and at the same time high load of current carrying capacity, robust design and safe handling – were consistently implemented. Consequently, the receptacle contact and pin contact are able to be inserted safely into the contact cavity and latch in with a clear click.

The contacts with four contact points on a 0.63 x 0.63 mm pin contact and reaches at this point a maximum load of current carrying capacity of up to 7.5 A at 80 °C.

Based on the plug uniform base centerline of 2.54 mm, the Quadlok system ranges from Micro Quadlok and Micro Power Quadlok to Power Quadlok which can be subjected to more stress. With the whole number multiplication of the centerline from 2.54 mm, the circuit board designer achieves a high level of freedom on designing the layout.

The contact design is based on the proven separation of the protection and stop function on one hand which is taken over by the enclosed cantilever spring. The electrical and electro-mechanical characteristics on the other hand, are secured by the inner contact body.

By this means of task sharing, the implemented contact material can be applied usage specifically and optimally.

The system as a whole is, by this means, protected for a long time against fatigue under vibration and mechanical load.

During the development of the Quadlok contact, strict attention was paid that the locking points of the second contact locking are each found at the same level.

Receptacle Contacts

Technical Features

Material

Contact: CuNiSi
Pin Contact: Copper-Alloy
Cantilever Spring: Stainless Steel

Contact Finish:

Tin plated, silver plated,
gold plated

Conductor Binding:

Crimp Technology/
Insulation Displacement

Wire Size Range:

0.14–0.75 mm²
Single Wires (FLR)

Current Carrying Capacity:

Up to 7.5 A at 80 °C

Temperature Range:

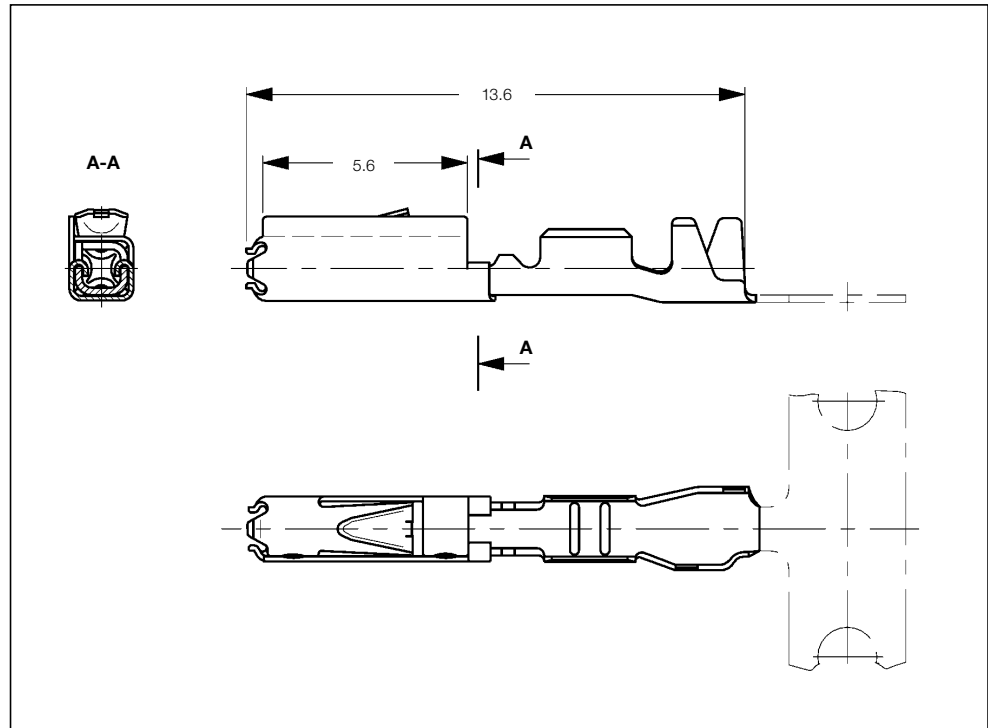
–40 °C ... +120 °C (tin plated)
–40 °C ... +130 °C (silver plated)
–40 °C ... +140 °C (gold plated)

Centerline:

2.54 x 2.54 mm Standard
4.0 x 4.0 mm SWS Standard
4.0 x 3.5 mm SWS Staggered

Mating Cycles:

20 tin plated
20 silver plated
100 gold plated



Special Applications:

Inmoldable Pin Contact,
Insulation Displacement
Receptacle Contact,
Receptacle Contact with
Short Circuit Area

Table Drawings:

929454 (Receptacle Contact)
929453 (Pin Contact)

Product Specification:

108-18030

Application Specification:

114-18021 Standard
114-18025 SWS System

Insertion and Extraction Tool:

Part No. **6-1579007-0**

Standard Receptacle Contacts

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 539635-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.14–0.22	–	0.9–1.2	tin plated	1355717-1	13,000	1355718-1	500	1426402	1528009	5-1579001-2
			gold plated	1355717-5	13,000	1355718-5	500			
0.20–0.50	–	0.9–1.6	tin plated	928999-1	13,000	963726-1	1,000	1238043*	1528035*	539682-2
			gold plated	928999-5	13,000	963726-5	1,000			
			silver plated	928999-6	13,000	963726-6	1,000			
0.50–0.75	–	1.6–1.9	tin plated	963715-1	10,000	963729-1	500	1238051	1528037	3-1579001-5
			gold plated	963715-5	10,000	963729-5	500			
			silver plated	963715-6	10,000	963729-6	500			

*) **Applicator:** Part No. **1426459** and **1528313** for use with 0.2 mm² wire

Single Wire Sealing System

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 539635-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.20–0.50	–	0.9–1.6	tin plated	962885-1	9,000	963727-1	500	1426108	1528022	539685-2
			gold plated	962885-5	9,000	963727-5	500			
			silver plated	962885-6	9,000	963727-6	500			
0.50–0.75	–	1.6–1.9	tin plated	965906-1	9,000	965907-1	500	1426123	1528071	5-1579001-1
			gold plated	965906-5	9,000	965907-5	500			
			silver plated	965906-6	9,000	965907-6	500			

Receptacle Contacts (continued)

MQS Receptacle Contacts with Short Circuit Area

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers						
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Applicator		Hand Tool 539635-1 with Die Set
								Standard	Fine Adjust	
0.20–0.50	–	0.9–1.6	gold plated	968893-1	13,000	1355988-1	500	1238043*	1528035*	539682-2
0.50–0.75	–	1.6–1.9	gold plated	1452013-1	10,000	1452014-1	500	1238051	1528037	3-1579001-5

*) Applicator: Part No. **1426459** and **1528313** for use with 0.2 mm² wire

MQS Clean Body Receptacle Contacts with Short Circuit Area

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers						
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Applicator		Hand Tool 539635-1 with Die Set
								Standard	Fine Adjust	
0.20–0.50	–	0.9–1.6	gold plated	1241918-1	13,000	1241919-1	500	1238043*	1528035*	3-1579001-5
0.50–0.75	–	1.6–1.9	gold plated	1241920-1	10,000	1241921-1	500	1238051	1528037	3-1579001-5

*) Applicator: Part No. **1426459** and **1528313** for use with 0.2 mm² wire

MQS Clean Body Receptacle Contacts

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers						
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Applicator		Hand Tool 539635-1 with Die Set
								Standard	Fine Adjust	
0.20–0.50	–	0.9–1.6	pre-tin plated	968220-1	12,000	968220-7	500	1238043*	1528035*	539682-2
			gold plated	968220-5	12,000	968220-8	500			
0.50–0.75	–	1.6–1.9	pre-tin plated	968221-1	10,000	968221-7	500	1238051	1528037	3-1579001-5
			gold plated	968221-5	10,000	968221-8	500			

*) Applicator: Part No. **1426459** and **1528313** for use with 0.2 mm² wire

MQS Flexible Flat Cable (FFC) Receptacle Contacts

Wire Size Range* (mm ²)	Insulation Diameter*		Material and Finish	Part Numbers						
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Applicator		Hand Tool
								Standard	Fine Adjust	
–	–	–	pre-tin plated	929387-1	12,500	929388-1	500	–	–	–
–	–	–	pre-tin plated	968987-1**	14,000	968988-1	500	–	–	–

*) Depending on Foil

***) Special Application: Short Components

Insertion and Extraction Tools are available upon request.

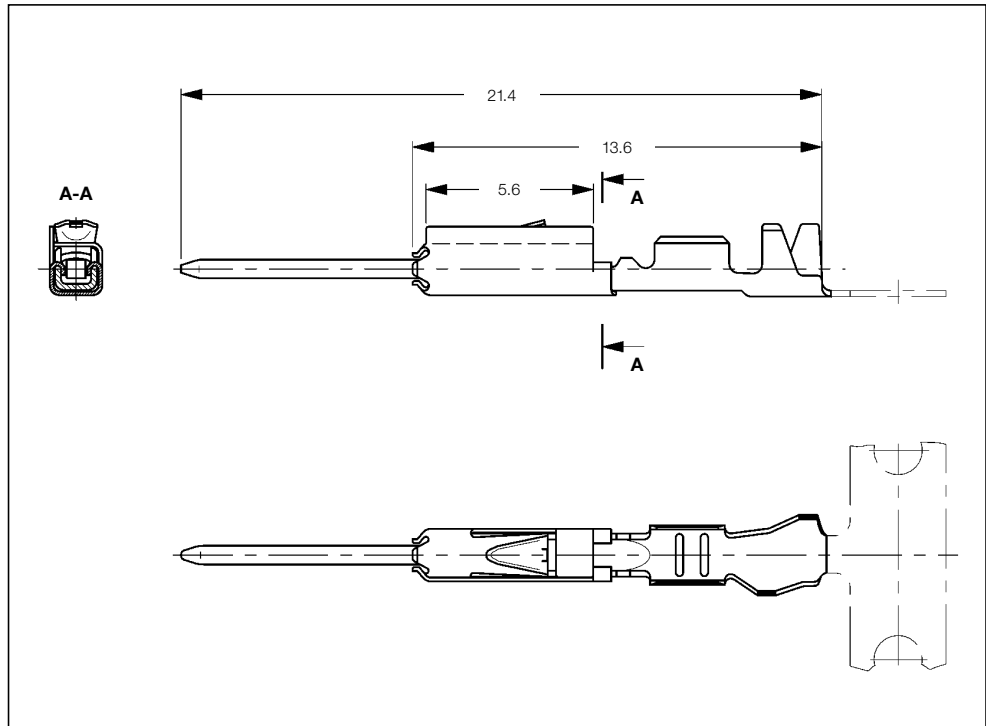
They depends on the number of positions and the housing version.

MQS Insulation Displacement Connection (IDC) Receptacle Contacts

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers						
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Applicator		Hand Tool
								Standard	Fine Adjust	
0.35–0.50	–	1.2–1.6	pre-tin plated	968065-1	10,000	–	–	–	–	–

Pin Contacts

**Pin 0.63 x 0.63 mm,
Mates with
Micro Quadlok**



Standard Receptacle Contacts

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 539635-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.14–0.22	–	0.9–1.2	tin plated	1355719-1	13,000	1355720-1	500	1426402	1528009	5-1579001-2
			gold plated	1355719-2	13,000	1355720-2	500			
0.20–0.50	–	0.9–1.6	tin plated	1-928918-1	13,000	1-963725-1	500	1238043*	1528035*	539682-2
			gold plated	1-928918-2	13,000	2-963725-1	500			
0.50–0.75	–	1.6–1.9	tin plated	963716-1	10,000	963730-1	500	1238051	1528037	3-1579001-5
			gold plated	963716-2	10,000	963730-2	500			

*) **Applicator:** Part No. **1426459** and **1528313** for use with 0.2 mm² wire

Single Wire Sealing System

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 539635-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.20–0.50	–	0.9–1.6	tin plated	962886-1	10,000	963728-1	500	1426108	1528022	539685-2
			gold plated	962886-2	10,000	963728-2	500			
0.50–0.75	–	1.6–1.9	tin plated	965908-1	10,000	965909-1	500	1426123	1528071	5-1579001-1
			gold plated	965908-2	10,000	965909-2	500			

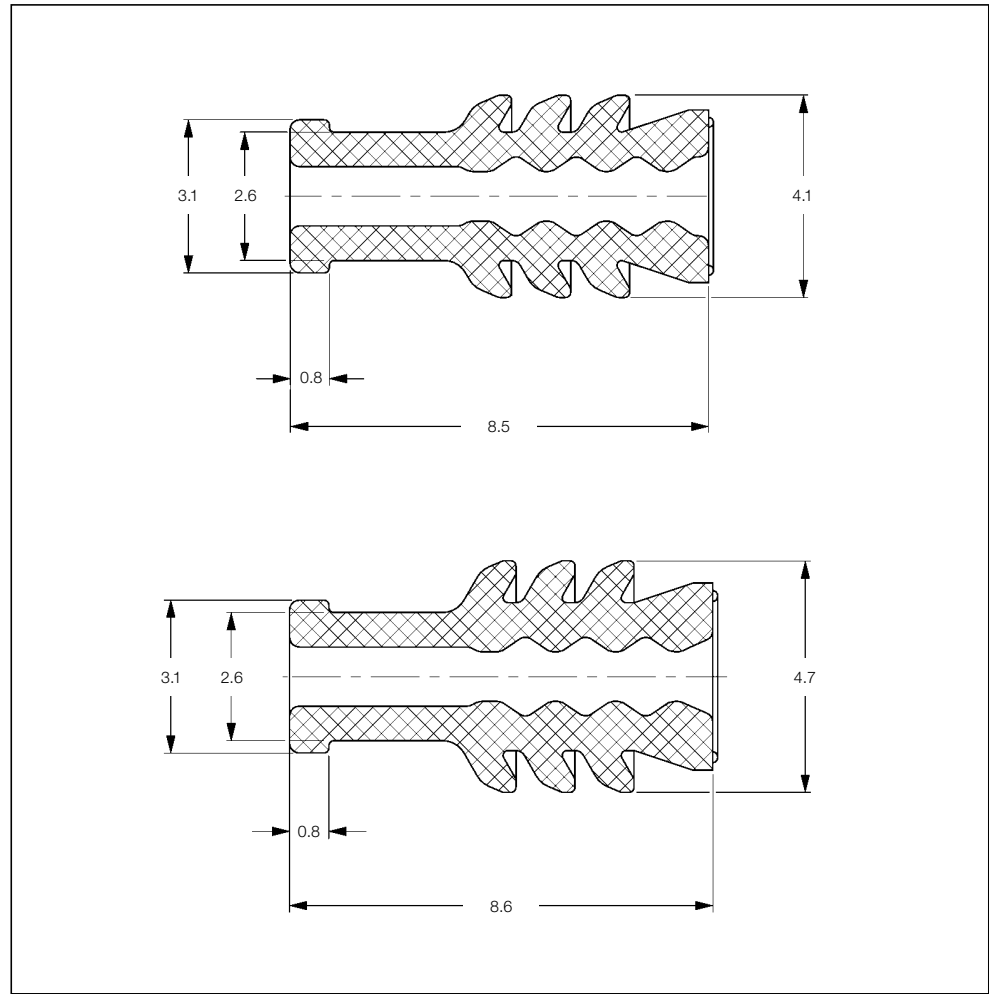
MQS Flexible Flat Cable (FFC) Pin Contacts

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
–	–	–	pre-tin plated	1452128-1	13,000	1452129-1	500	–	–	90273-5

*) Depending on Foil

Single Wire Seals and Cavity Plugs

Single Wire Seals and Cavity Plugs for Micro Quadlok



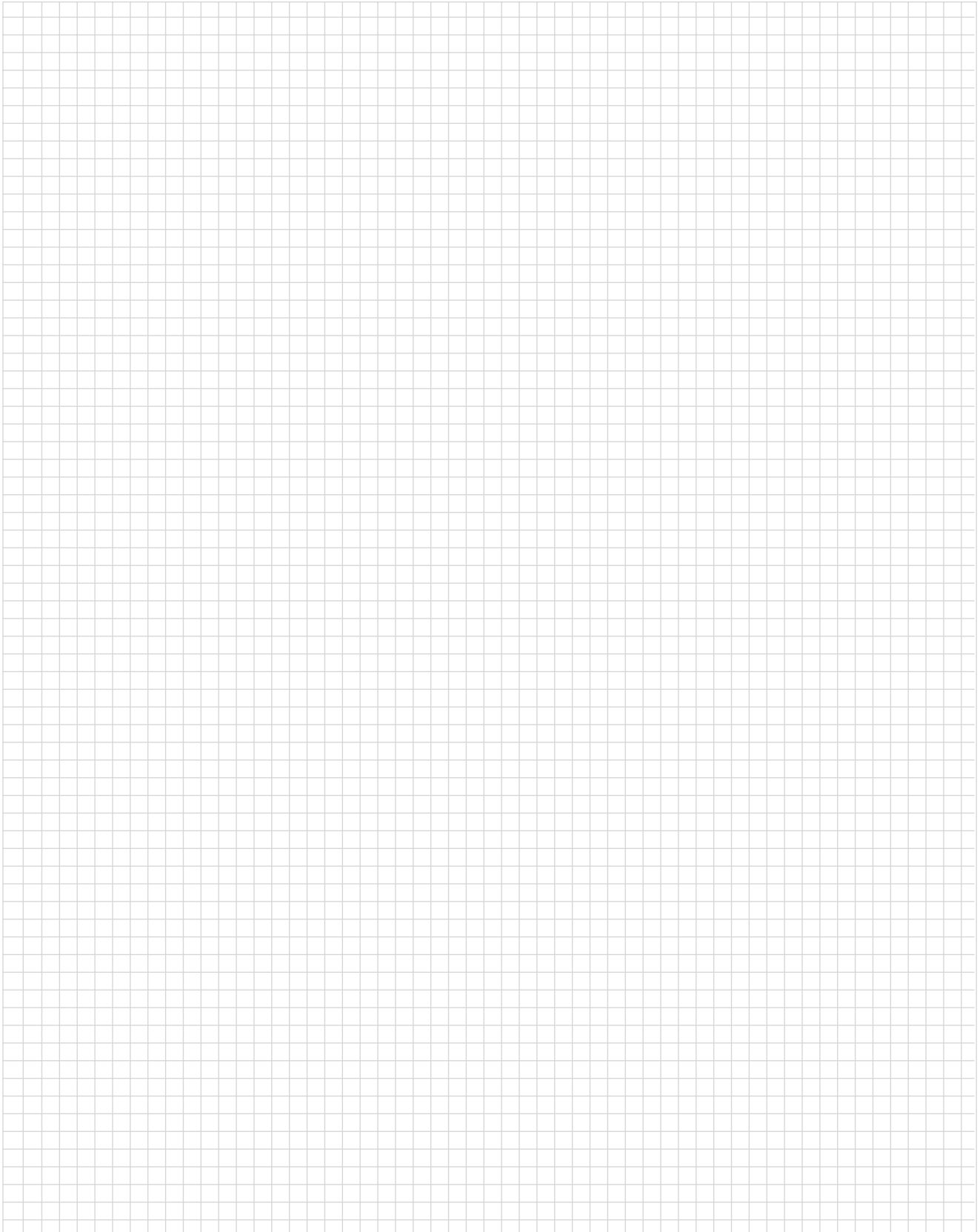
Cavity Diameter 3.45 mm

Insulation Diameter		Color	Part Number	Package Quantity
FLK (mm)	FLR (mm)			
-	0.9-1.3	Yellow	967067-2	20,000
-	1.4-1.9	Green	967067-1	20,000
Cavity Plug		Blue	967056-1	5,000

Cavity Diameter 4.0 mm

Insulation Diameter		Color	Part Number	Package Quantity
FLK (mm)	FLR (mm)			
-	0.9-1.3	Grey	963142-2	20,000
-	1.4-1.9	Black	963142-1	20,000
Cavity Plug		White	963143-1	20,000

Engineering Notes



Introduction

Technical Features

Material

Contact: CuNiSi
Cantilever Spring: Stainless Steel

Contact Finish:

Tin plated,
silver plated

Conductor Binding:

Crimp Technology

Wire Size Range:

0.35 mm² up to 0.5 mm²
0.75 mm² up to 1.5 mm²

Current Carrying Capacity:

Up to 15 A at 80 °C

Temperature Range:

-40 °C ... +120 °C (tin plated)

Centerline:

- 2.54 x 2.54 mm (wire size equal or less than 0.75 mm², unsealed)
- 2.54 x 3.5 mm (wire size 1.0-1.5 mm², unsealed)
- 4.0 x 4.0 mm (wire size equal or less than 0.75 mm², sealed)
- 4.5 x 4.5 mm (wire size bigger 1.0 mm², sealed)

Mating Cycles:

20 tin plated
50 silver plated

Special Applications:

Receptacle Contact
Clean Body

Insertion and Extraction Tool:

Part No. **6-1579007-1**

Table Drawings:

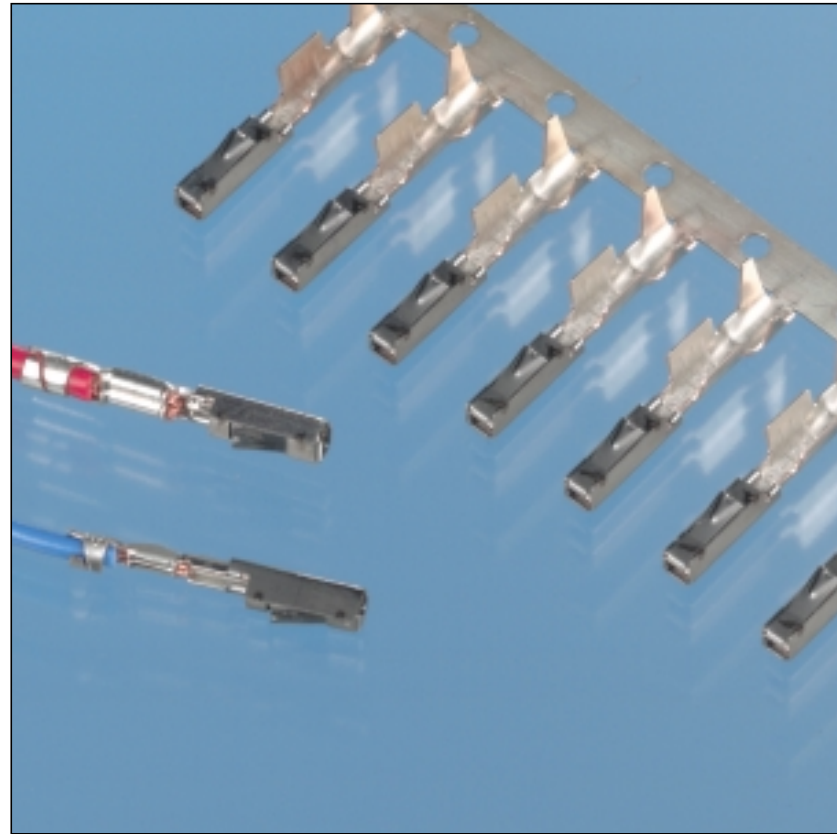
929419
929418 (Clean Body)

Product Specification:

108-18030

Application Specification:

114-18286



Product Description

With the well know Micro Quadlok System (MQS) we can offer you an additional contact 1.2 mm MQS. The new terminal absolutely supplements the product range. All the advantages are designed in.

It is suitable for sealed and unsealed applications single wire sealing or the clean body version can give you high ability on the connector design.

In combination with the MQS, MPQ and PQ you have the benefit to have the secondary locking on a common level.

Mounting and dismanting of the terminals still guarantees the retention function.

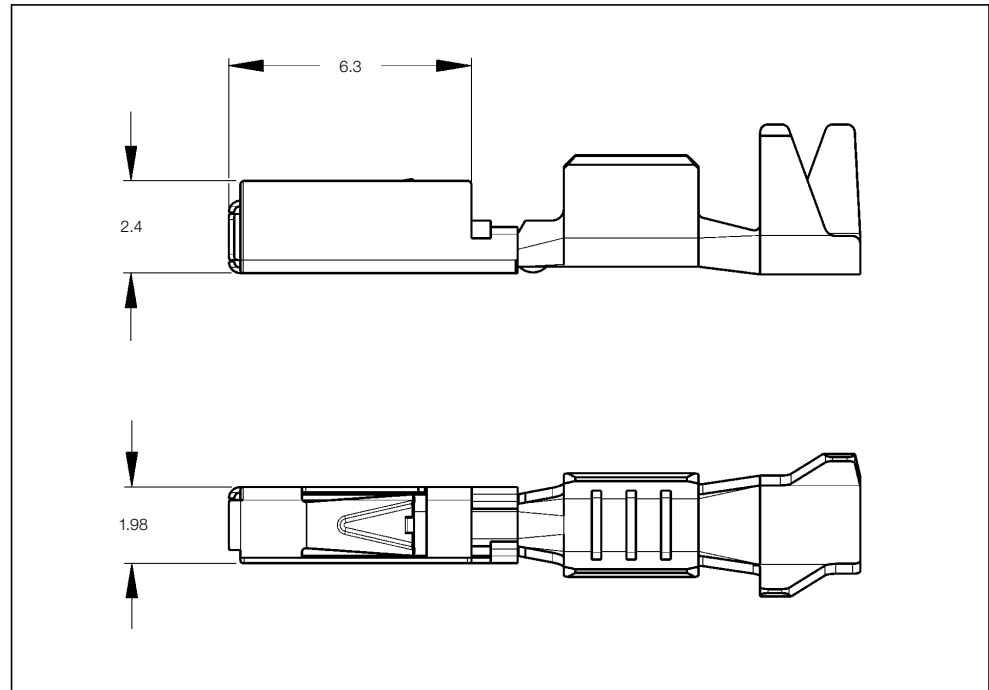
For low current application (wire size less than 1.0 mm) you are still in the pitch range of the standard MQS, but on the pin-header side you can use a pin with higher rigidity.

With the two piece design electrical and mechanical functions are separated. Polarization and the two independent lockings bring together a safe and easy handling at the harness maker.

The normal contact force achieves without assisting cantilever spring. Two independent contact points assure a perfect current carry which you can use to contact stamped lead frames.

Receptacle Contacts

Receptacle
1.2 x 0.63 mm,
Mates with MQS 1.2



Standard Receptacle Contacts

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 539635-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.35–0.50	–	1.1–1.6	tin plated	929396-1	12,000	929397-1	500	–	1528287	539692-2
0.75–1.50	–	1.7–2.4	tin plated	929398-1	12,000	929399-1	500	–	1528380* 1528320**	1579001-4

Single Wire Sealing System

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 539635-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.35–0.50	–	1.1–1.6	tin plated	1355663-1	8,000	1355670-1	500	–	1528323	539693-2
			silver plated	1355663-3	8,000	1355670-3	500			
0.75–1.50	–	1.7–2.4	tin plated	1355662-1	8,000	1355671-1	500	1426403	1528227	539693-2
			silver plated	1355662-3	8,000	1355671-3	500			

Clean Body

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 539635-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.35–0.50	–	1.1–1.6	tin plated	929393-1	12,000	929394-1	500	–	1528287	539692-2
			silver plated	929393-3	12,000	929394-3	500			
0.75–1.50	–	1.7–2.4	tin plated	1355661-1	8,000	1355669-1	500	–	1528380*	1579001-4
			silver plated	1355661-3	8,000	1355669-3	500			

* For use with 0.75 mm² wire
** For use with 1.00–1.50 mm² wire

Introduction

Technical Features

Material

Contact: CuNiSi
Cantilever Spring: Stainless Steel

Contact Finish:

Tin plated

Conductor Binding:

Crimp Technology

Wire Size Range:

0.35 mm² up to 0.5 mm²
0.75 mm² up to 1.5 mm²

Current Carrying Capacity:

Up to 7.5 A at 80 °C

Temperature Range:

-40 °C ... +120 °C (tin plated)

Centerline:

- 3.5 x 2.54 mm (unsealed)
- 4.0 x 4.0 mm (wire size equal or less than 0.75 mm², sealed)
- 4.5 x 4.5 mm (wire size 1.0-1.5 mm², sealed)

Mating Cycles:

20 tin plated

Special Applications:

Receptacle Contact
Clean Body

Insertion and Extraction Tool:

Part No. **6-1579007-2**

Table Drawings:

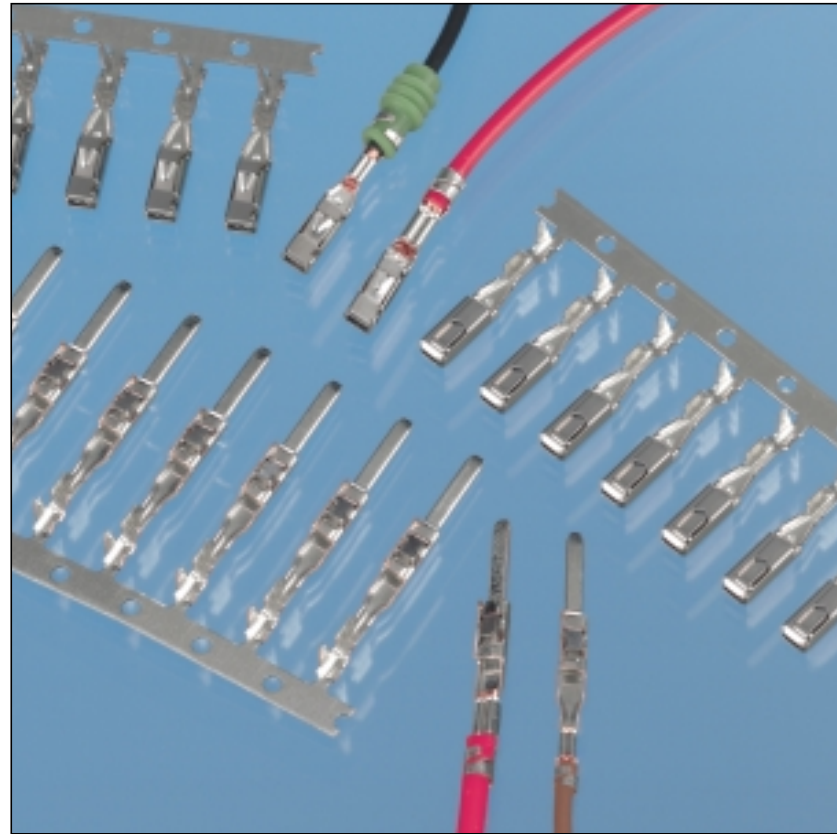
1241611
1241612 (Clean Body)
1452079

Product Specification:

108-18030

Application Specification:

114-18286



Product Description

With the well know Micro Quadlok System (MQS) we can offer you an additional contact 1.5 mm MQS. Available as male and female receptacle. The new terminal absolutely supplements the product range. All the advantages are designed in.

It is suitable for sealed and unsealed applications single wire sealing or the clean body version can give you high ability on the connector design.

In combination with the MQS, MPQ and PQ you have the benefit to have the secondary locking on a common level.

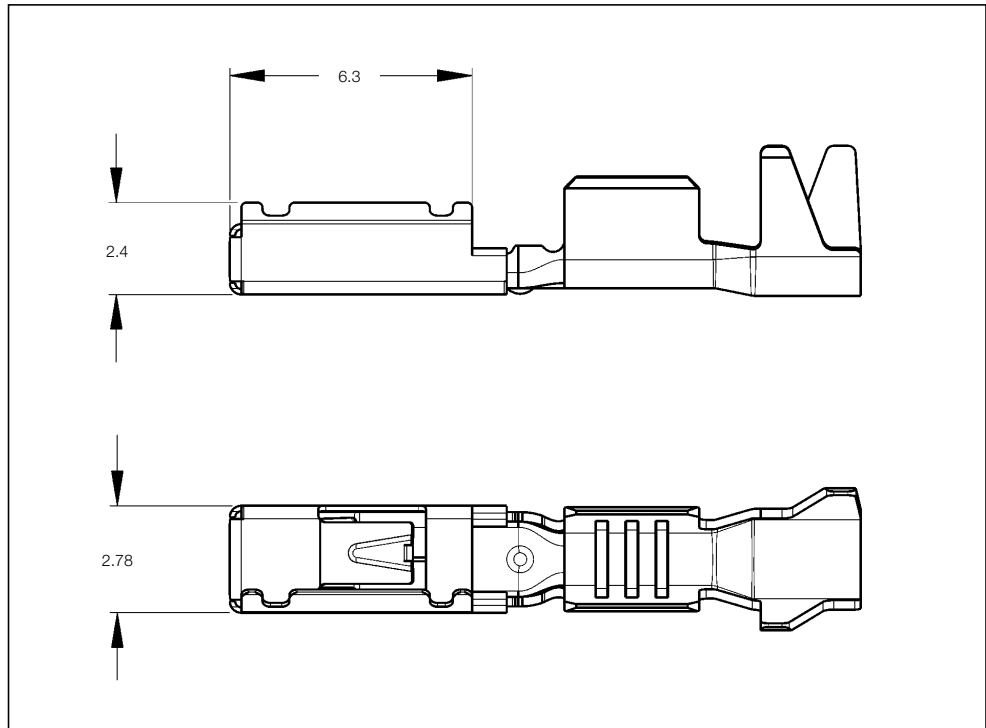
Mounting and dismounting of the terminals still guarantees the retention function. On the pin-header side you can use a pin with higher rigidity.

With the two piece design electrical and mechanical functions are separated. Polarization and the two independent lockings bring together a safe and easy handling at the harness maker.

The normal contact force achieves without assisting cantilever spring. Four independent contact points assure a perfect current carry which you can use to contact stamped lead frames.

Receptacle Contacts

Receptacle
1.5 x 0.63 mm,
Mates with MQS 1.5



Standard Receptacle Contacts

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 539635-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.35–0.50	–	1.1–1.6	tin plated	1355556-1	11,000	1355557-1	500	–	1528287	539692-2
0.75–1.50	–	1.7–2.4	tin plated	1355553-1	8,500	1355554-1	500	1426196	1528207	

Single Wire Sealing System

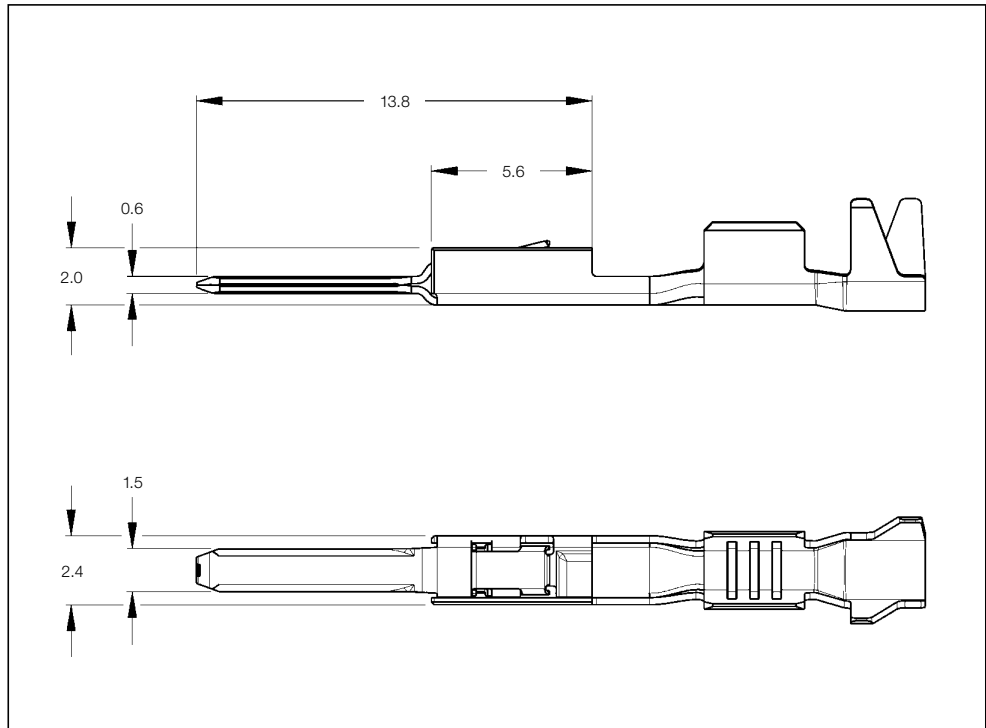
Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 539635-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.35–0.50	–	1.1–1.6	tin plated	1241603-1	8,500	1241604-1	500	–	1528323	539693-2
0.75–1.50	–	1.7–2.4	tin plated	1241605-1	8,500	1241606-1	500	1426403	1528227	

Clean Body

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 539635-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.35–0.50	–	1.1–1.6	tin plated	1452158-1	12,000	1452157-1	500	–	1528287	539692-2
0.75–1.50	–	1.7–2.4	tin plated	1241608-1	8,500	1241609-1	500	1426196	1528207	

Tab Contacts

**Tab 1.5 x 0.63 mm,
Mates with MQS 1.5**

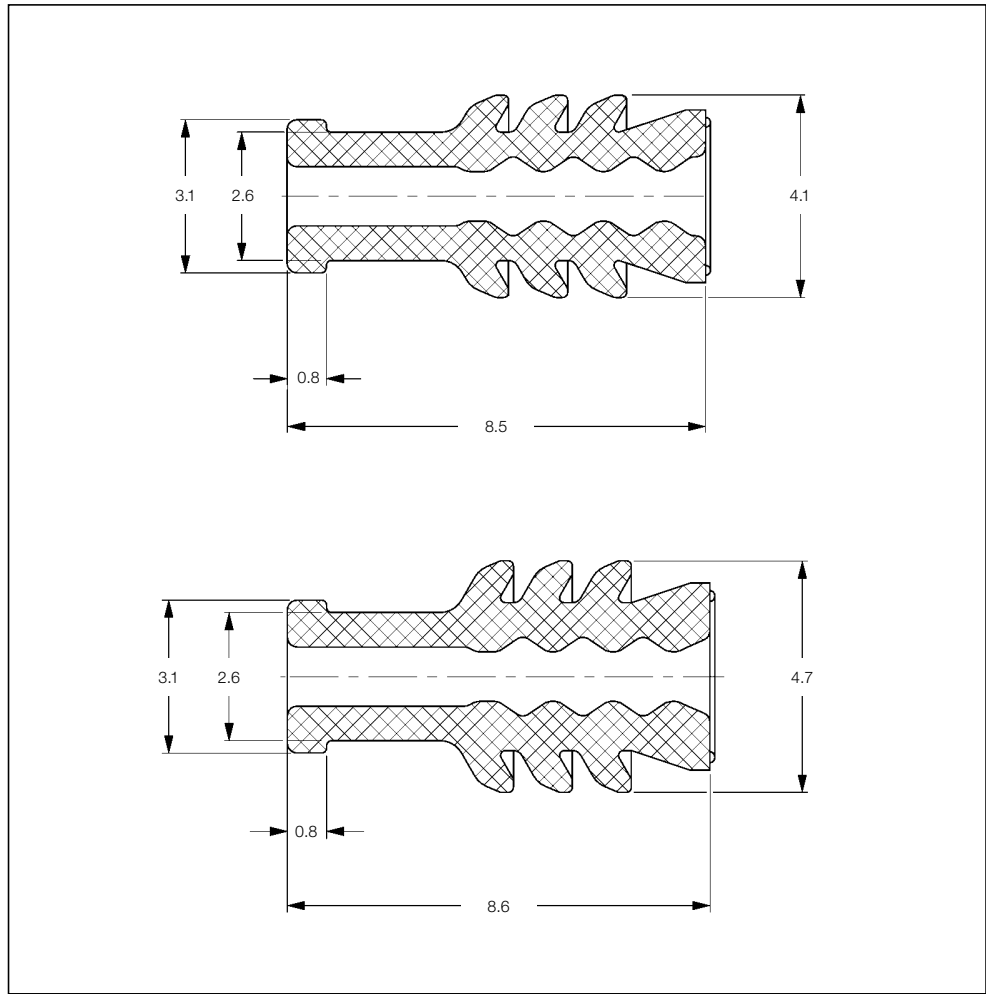


Standard Tab Contacts

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 539635-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.35–0.50	–	1.1–1.6	tin plated	1452350-1	13,000	1452351-1	500	–	1528287	539692-2
0.75–1.50	–	1.7–2.4	tin plated	1452058-1	8,000	1452060-1	500	1426196	1528207	

Single Wire Seals and Cavity Plugs

Single Wire Seals and Cavity Plugs for MQS 1.2 and MQS 1.5



Cavity Diameter 3.6 mm

Insulation Diameter		Color	Part Number	Package Quantity
FLK (mm)	FLR (mm)			
-	1.1-1.3	Yellow	967067-2	20,000
-	1.4-1.9	Green	967067-1	20,000
Cavity Plug		Blue	967056-1	5,000

Cavity Diameter 4.0 mm

Insulation Diameter		Color	Part Number	Package Quantity
FLK (mm)	FLR (mm)			
-	1.1-1.3	Grey	963142-2	20,000
-	1.4-1.9	Black	963142-1	20,000
-	1.9-2.4	Black	963142-1	20,000
Cavity Plug		White	963143-1	20,000

Receptacle Contacts

Technical Features

Material

Receptacle Contact: CuNiSi
Tab Contact: CuSn
Cantilever Spring: Stainless Steel

Contact Finish:

Tin plated,
selective gold plated

Wire Size Range:

>0.35–0.5 mm²
>0.5–1.0 mm²
>1.0–2.5 mm²
stranded cable (FLR)

Current Carrying Capacity:

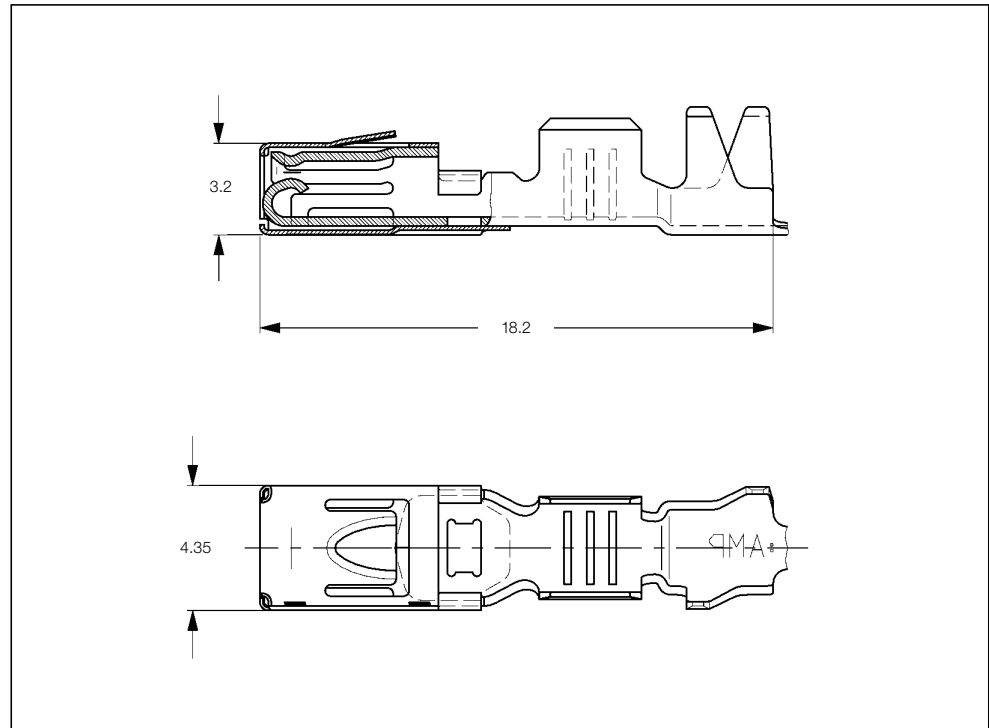
34 A (20 °C)
25 A (80 °C)

Temperature Range:

–40 °C ... +130 °C (tin plated)
–40 °C ... +150 °C (gold plated)

Centerline

Standard: 5.08 x 5.08 mm
Single Wire Sealing System:
7.0 x 7.0 mm



Insertion and Extraction Tool:
Part No. **6-1579007-3**

Chart Drawings
Receptacle Contact: 1355934
Tab Contact: 1355933

Product Specification:
108-18476

Application Specification:
114-18141
114-18063

Standard Receptacle Contacts

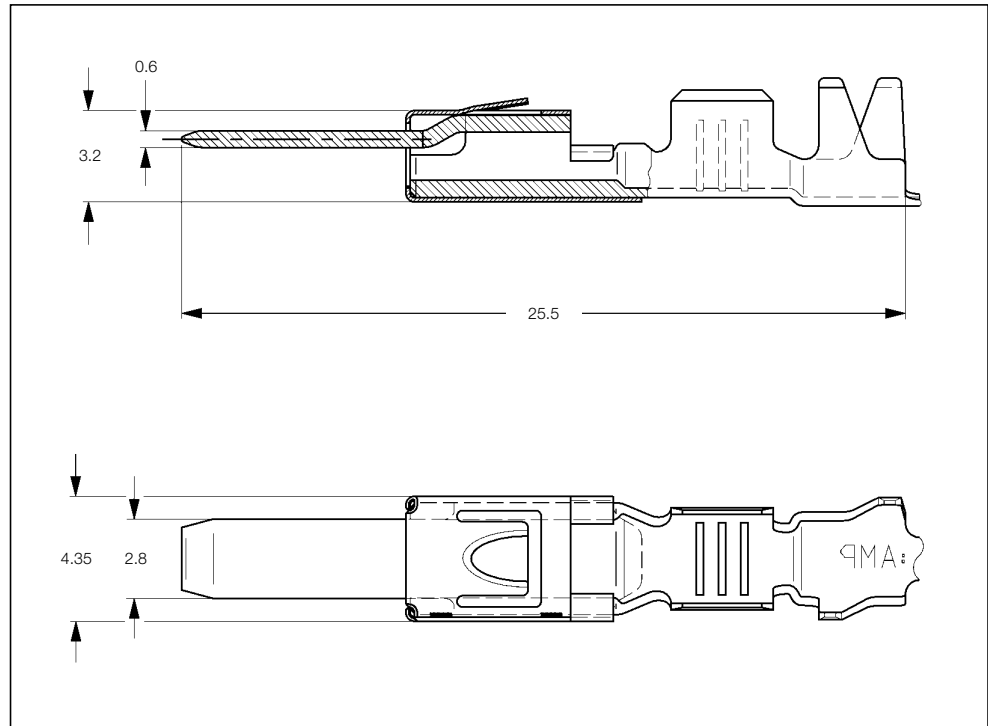
Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 354940-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.35–0.5	–	1.2–1.6	tin plated	968678-2	5,000	929155-2	500	–	1528211	539711-2
			gold plated	968678-5	5,000	929155-5	500			
>0.5–1.0	–	1.7–2.1	tin plated	968074-2	5,000	929156-2	500	–	1528344	58589-2
			gold plated	968074-5	5,000	929156-5	500			
>1.0–2.5	–	2.2–3.0	tin plated	968075-2	4,000	929157-2	500	1426259	1528223	58590-2
			gold plated	968075-5	4,000	929157-5	500			
4.0	–	3.4–3.7	tin plated	1355950-2	3,000	1355951-2	500	–	1528358	58590-2

Single Wire Sealing System

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 354940-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.35–0.5	–	1.2–1.6	tin plated	968680-2	3,300	929158-2	500	–	–	539712-2
			gold plated	968680-5	3,300	929158-5	500			
>0.5–1.0	–	1.7–2.1	tin plated	968119-2	3,000	929159-2	500	–	1528175	58591-2
			gold plated	968119-5	3,000	929159-5	500			
>1.0–2.5	–	2.2–3.0	tin plated	968120-2	3,000	929160-2	500	–	1528321	58592-2
			gold plated	968120-5	3,000	929160-5	500			

Tab Contacts

**Tab 2.8 x 0.63 mm,
Mates with
Micro Power Quadlok**



Standard Tab Contacts

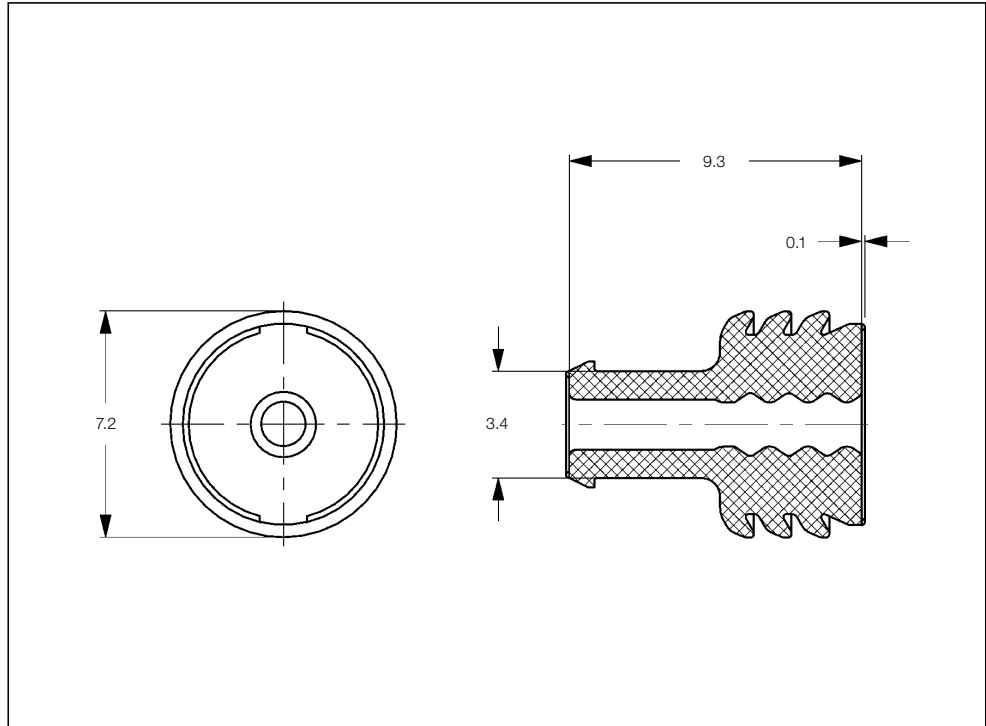
Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 354940-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.35–0.5	–	1.2–1.6	tin plated	968679-2	5,000	929161-2	500	–	1528211	539711-2
			gold plated	968679-5	5,000	929161-5	500			
>0.5–1.0	–	1.7–2.1	tin plated	968136-2	5,000	929162-2	500	–	1528344	58589-2
			gold plated	968136-5	5,000	929162-5	500			
>1.0–2.5	–	2.2–3.0	tin plated	968137-2	4,000	929163-2	500	1426259	1528223	58590-2
			gold plated	968137-5	4,000	929163-5	500			
4.0	–	3.4–3.7	tin plated	1355964-2	3,000	1355965-2	500	–	1528358	58590-2

Single Wire Sealing System

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 354940-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
0.35–0.5	–	1.2–1.6	tin plated	968681-2	3,500	929164-2	500	–	–	539712-2
			gold plated	968681-5	3,500	929164-5	500			
>0.5–1.0	–	1.7–2.1	tin plated	968138-2	3,000	929165-2	500	–	1528175	58591-2
			gold plated	968138-5	3,000	929165-5	500			
>1.0–2.5	–	2.2–3.0	tin plated	968139-2	3,000	929166-2	500	–	1528321	58592-2
			gold plated	968139-5	3,000	929166-5	500			

Single Wire Seals and Cavity Plugs

**Single Wire Seals
and Cavity Plugs
for Micro Power Quadlok**



Insulation Diameter		Color	Part Number	Package Quantity
FLK (mm)	FLR (mm)			
-	1.2-2.1	Grey	967610-1	5,000
-	2.2-3.0	Yellow	967609-1	5,000
Cavity Plug		Transparent	967653-1	5,000

Receptacle Contacts

Technical Features

Material

Receptacle Contact: CuNiSi
Tab Contact: CuSn
Cantilever Spring: Stainless Steel

Contact Finish:

Pre-tin plated

Wire Size Range:

>1.0–2.5 mm²
>2.5–4.0 mm² Single Wires
(Single Wire Sealing System)

Current Carrying Capacity:

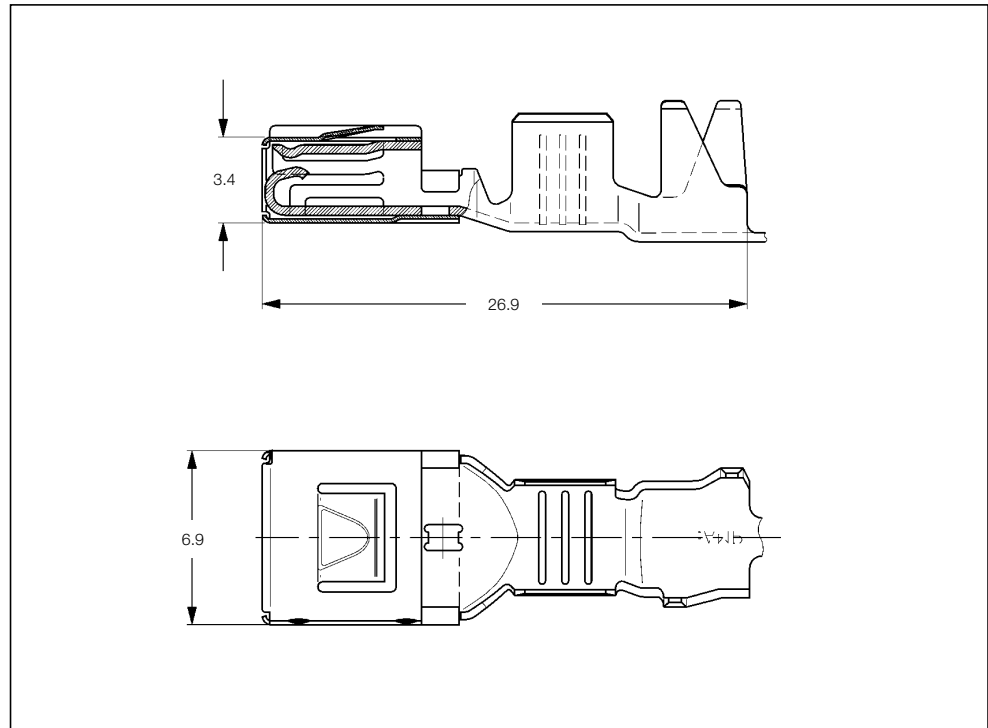
4.0 mm² (free in air/RT)
45 A (20 °C)
30 A (80 °C)

Temperature Range:

–40 °C to +130 °C (tin plated)

Centerline:

“Pitch 7” Version:
7.62 x 7.0 mm (Standard)
“Pitch 6” Version:
7.62 x 6.0 mm (Standard)
9.1 x 9.1 mm
(Single Wire Sealing System)



Insertion and

Extraction Tool:

Part No. **6-1579007-4**

Chart Drawings:

Receptacle Contact: 1241638
Tab Contact: 1241639

Product Specification:

108-18476

Application Specification:

114-18141
114-18063

Standard Receptacle Contacts

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 354940-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
>1.0–2.5	–	2.2–3.0	pre-tin plated	968072-2*	2,800	929203-2	500	–	1528215	58593-2
				1241601-2**	2,500	1241642-2	500			
>2.5–4.0	–	3.4–3.7	pre-tin plated	968073-2*	2,300	929204-2	500	1426313	1528319	58594-2
				1241602-2**	2,400	1241643-2	500			

* “Pitch 7” Version

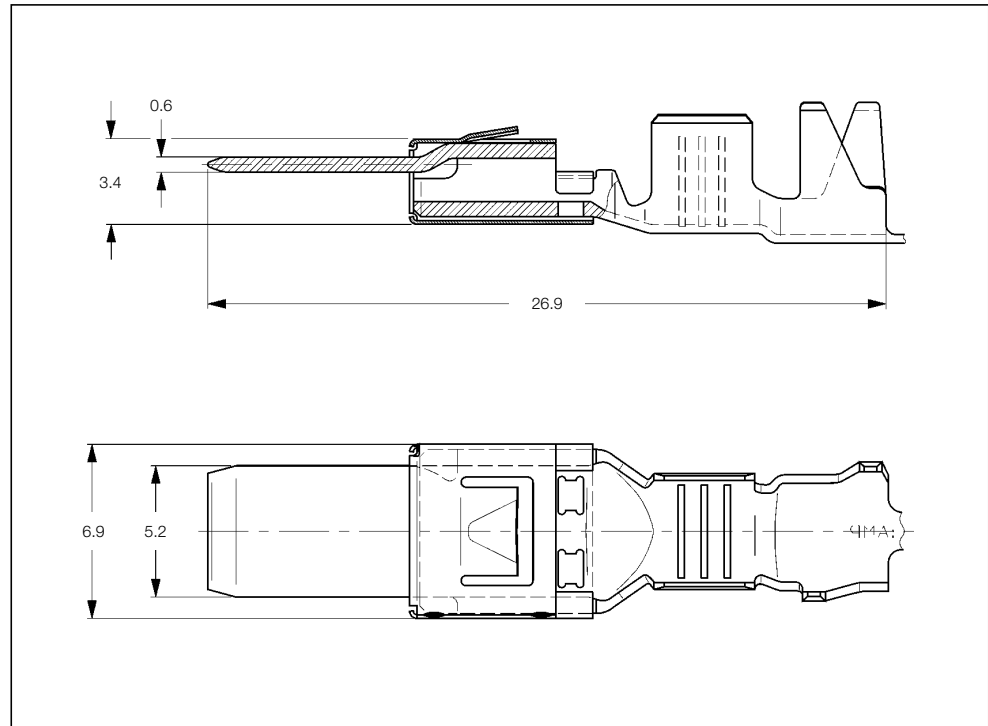
** “Pitch 6” Version

Single Wire Sealing System

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 354940-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
>1.0–2.5	–	2.2–3.0	pre-tin plated	968121-2	1,800	929205-2	500	–	1528356	58595-2
>2.5–4.0	–	3.4–3.7	pre-tin plated	968122-2	1,800	929206-2	500	–	1528357	58596-2

Tab Contacts

**Tab 5,2 x 0.63 mm,
Mates with
Power Quadlok**



Standard Tab Contacts

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 354940-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
>1.0-2.5	-	2.2-3.0	pre-tin plated	968131-2*	3,000	929207-2	500	-	1528215	58593-2
				1241614-2**	3,000	1241644-2	500			
>2.5-4.0	-	3.4-3.7	pre-tin plated	968132-2*	2,300	929208-2	500	1426313	1528319	58594-2
				1241615-2**	2,300	1241645-2	500			

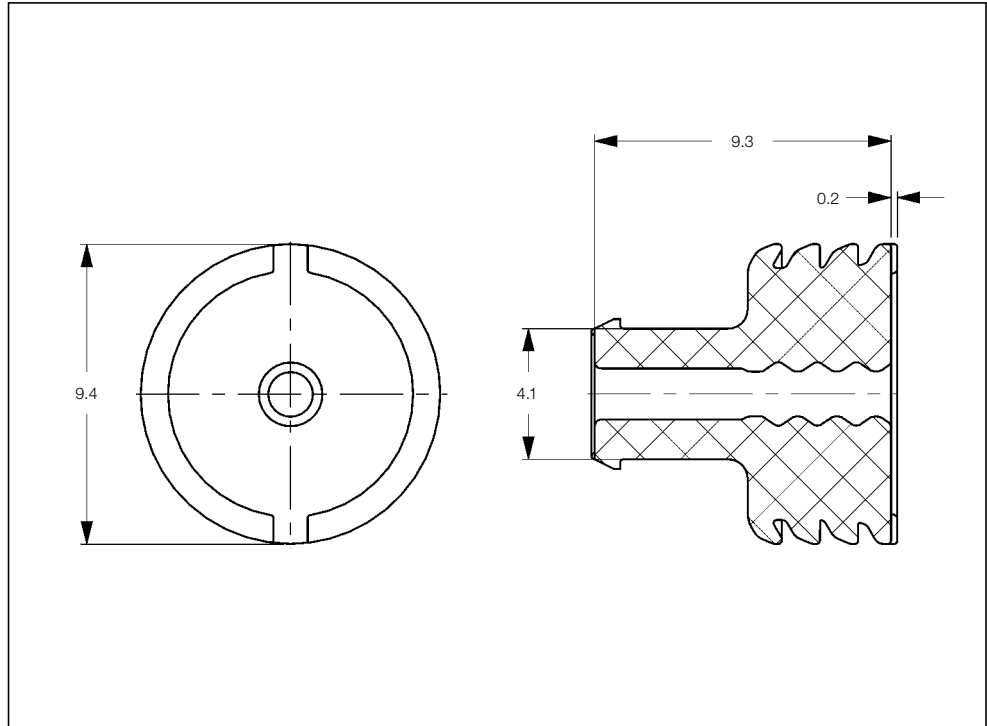
* "Pitch 7" Version
** "Pitch 6" Version

Single Wire Sealing System

Wire Size Range (mm ²)	Insulation Diameter		Material and Finish	Part Numbers				Applicator		Hand Tool 354940-1 with Die Set
	FLK (mm)	FLR (mm)		Strip Form	Package Quantity	Loose-Piece	Package Quantity	Standard	Fine Adjust	
>1.0-2.5	-	2.2-3.0	pre-tin plated	968133-2	2,000	929209-2	500	-	1528356	58595-2
>2.5-4.0	-	3.4-3.7	pre-tin plated	968134-2	2,000	929210-2	500	-	1528357	58596-2

Single Wire Seals and Cavity Plugs

**Single Wire Seals
and Cavity Plugs
for Power Quadlok**



Insulation Diameter		Color	Part Number	Package Quantity
FLK (mm)	FLR (mm)			
-	2.2-3.0	Yellow	967607-1	3,000
-	3.4-3.7	Green	967608-1	3,000
Cavity Plug		Transparent	967652-1	20,000

Introduction



The Micro Quadlok System Connectors offer one of the most compact packages available today with capability for waterproofing and resistance to conditions of extreme vibration.

Waterproofing is achieved with individual wire seals that can be automatically applied during the crimping process. Interfacial sealing is achieved by radial sealing of a multiple ridge design.

Vibration resistance is achieved with a four beam, four contact point system.

A high primary terminal locking force, for such a small size system, is achieved by the use of a stainless steel metal locking lance.

The stainless steel jacket also helps to prevent damage to the small contacts and allows selection of a more optimal material for electro-mechanical performance of the contact beams.

Secondary locking is provided by a pre-assembled plastic device.

Receptacle Housings

Technical Features

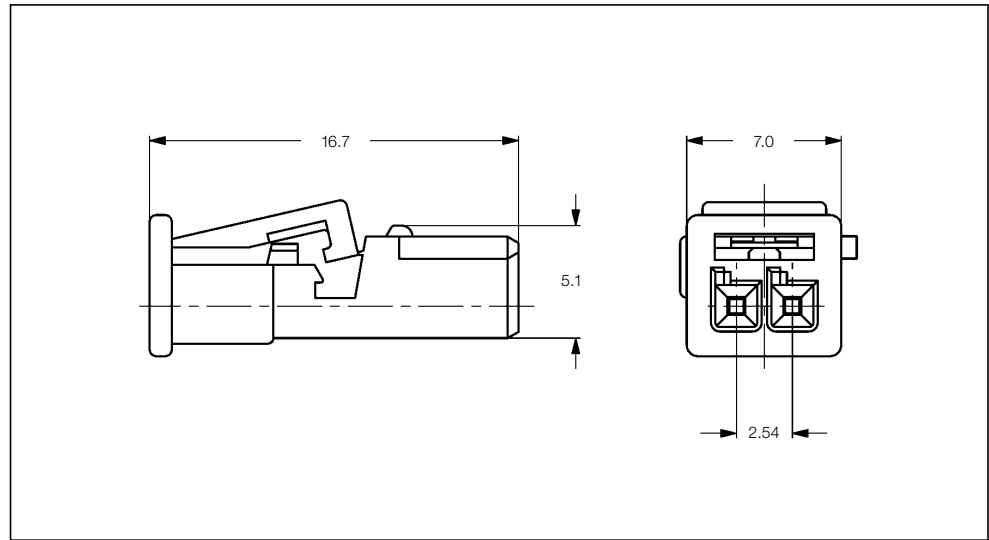
No. of Positions:
2 Positions

Housing Material:
PBT GF10

Wire Size Range:
0.2–0.75 mm²

Product Specification:
118-18590-0

Application Specification:
114-18225



2 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
2	A	Black	1-968704-1	-	-	-	-	-	968699	-	-
	B	Natural	2-968704-1	-	-	-	-	-	-	-	-

Technical Features

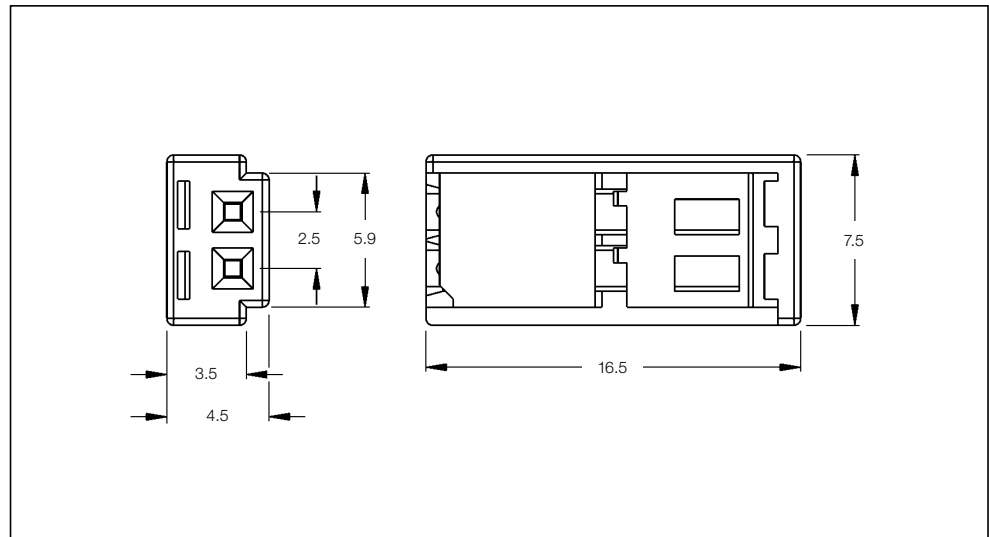
No. of Positions:
2 Positions

Housing Material:
PBT GF10

Wire Size Range:
0.14–0.75 mm²

Product Specification:
108-18924

Application Specification:
114-18630



2 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
2	-	Black	1-1534113-1	-	-	-	1534112-1	1-1534155-1 & 1534027-1	-	-

Receptacle Housings

Technical Features

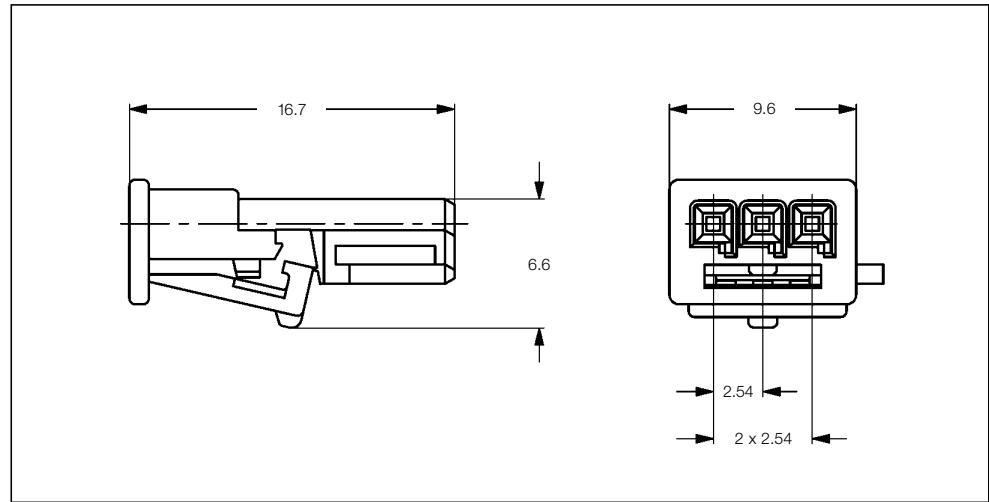
No. of Positions:
3 Positions

Housing Material:
PBT GF10

Wire Size Range:
0.2–0.75 mm²

Product Specification:
108-18590-0

Application Specification:
114-18225



3 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
3	A	Black	968705-1								
	B	Natural	968705-2								
	C	Blue	968705-3	-	-	-	-	968700	967279	-	
	D	Violet	968705-4								
	Z	Water Blue	968705-9								

Technical Features

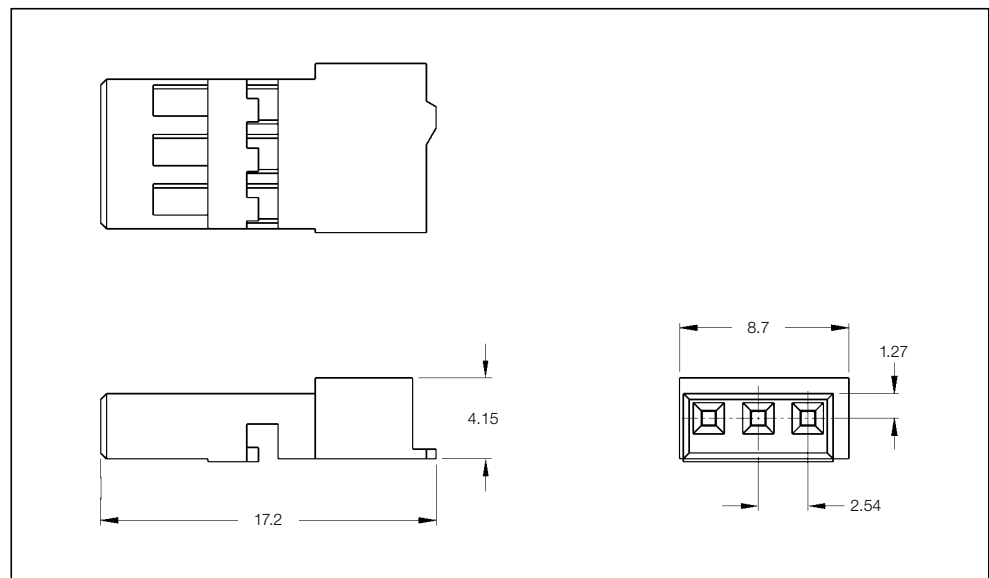
No. of Positions:
3 Positions

Housing Material:
PBT GF15

Wire Size Range:
0.2–0.6 mm²

Product Specification:
108-15132

Application Specification:
411-15553



3 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
3	-	Black	185309-1	185308-1	-	-	-	-	-	-	185730-1
		Natural	-	185308-2							
		Blue	-	185308-3	-	-	-	-	-	-	-
		Yellow	-	185308-4							

Receptacle Housings

Technical Features

No. of Positions:

3 Positions
(Positive Mate Locking)

Housing Material:

PBT GF20

Wire Size Range:

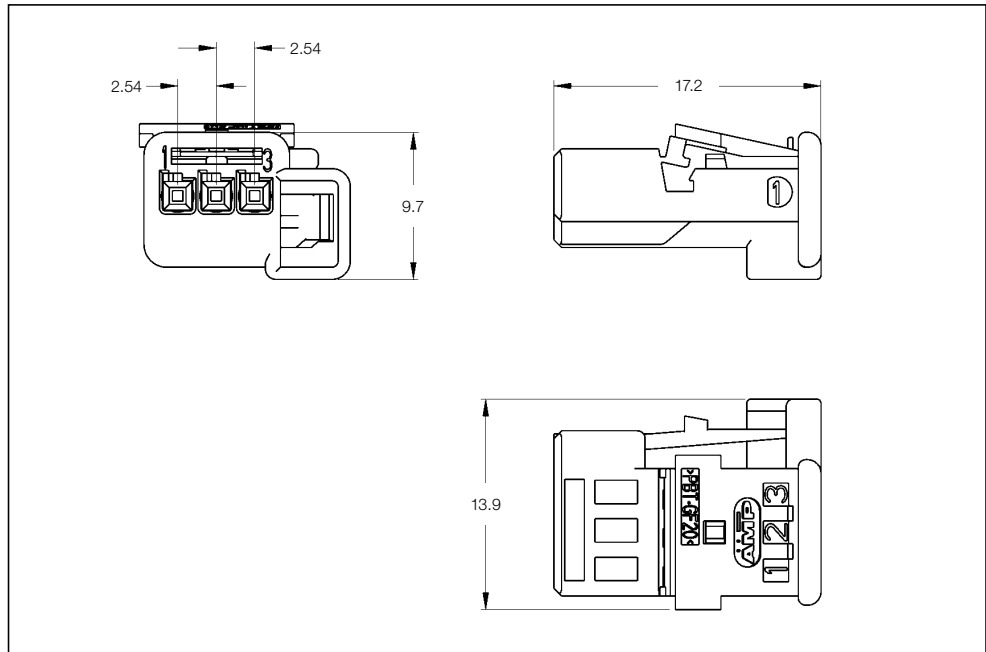
0.35–0.75 mm²

Product Specification:

108-15236

Application Specification:

411-15526



3 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
3	-	Black	953697-1							
		White	953697-2							
		Blue	953697-3						953698	
		Yellow	953697-4							
		Grey	953697-5							
		Brown	953697-6							

Receptacle Housings

Technical Features

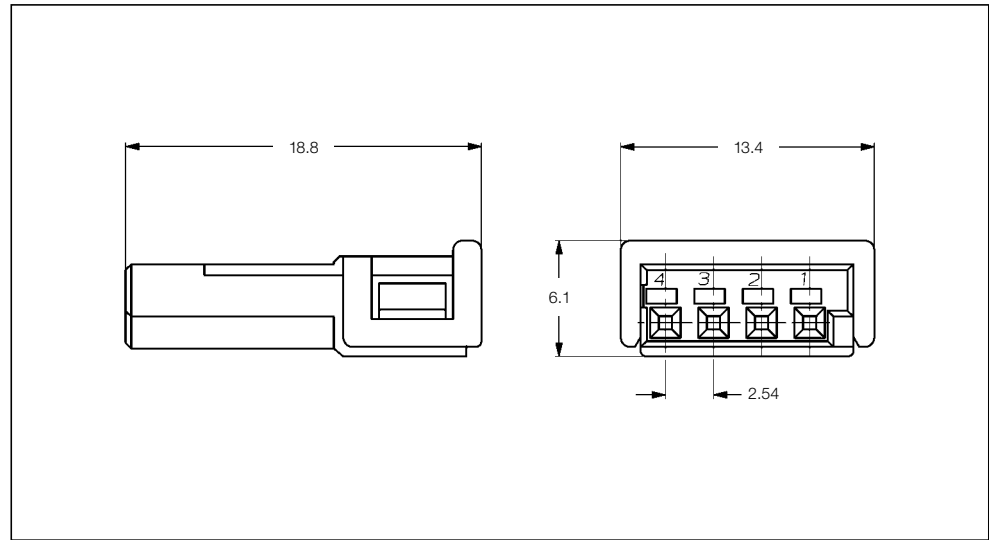
No. of Positions:
4 Positions

Housing Material:
PA 66

Wire Size Range:
0.2–0.75 mm²

Product Specification:
108-18597-1

Application Specification:
114-18223-1



4 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
4	Z	Black	1241634-1							
	B	Black	1241634-2	-	-	-	-	-	-	-
	C	Black	1241634-3							

Technical Features

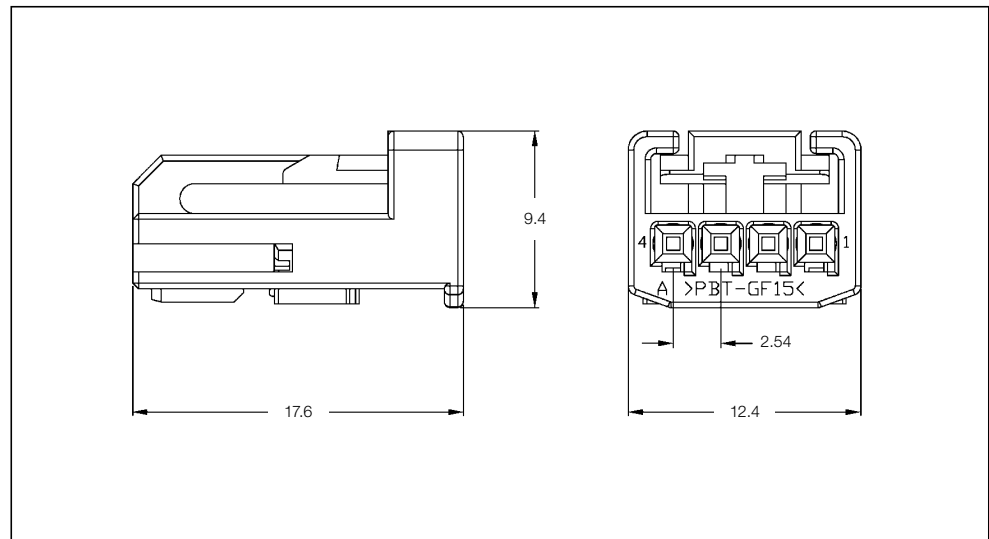
No. of Positions:
4 Positions Assembly

Housing Material:
PBT GF15

Wire Size Range:
0.2–0.75 mm²

Product Specification:
108-18030

Application Specification:
114-18021



4 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
4	-	Black	936119-1							
		Yellow	936119-2	-	-	-	-	936121	-	936399
		Yellow	1-936119-2							

Receptacle Housings

Technical Features

No. of Positions:

4 Positions

Housing Material:

PBT GF10

Wire Size Range:

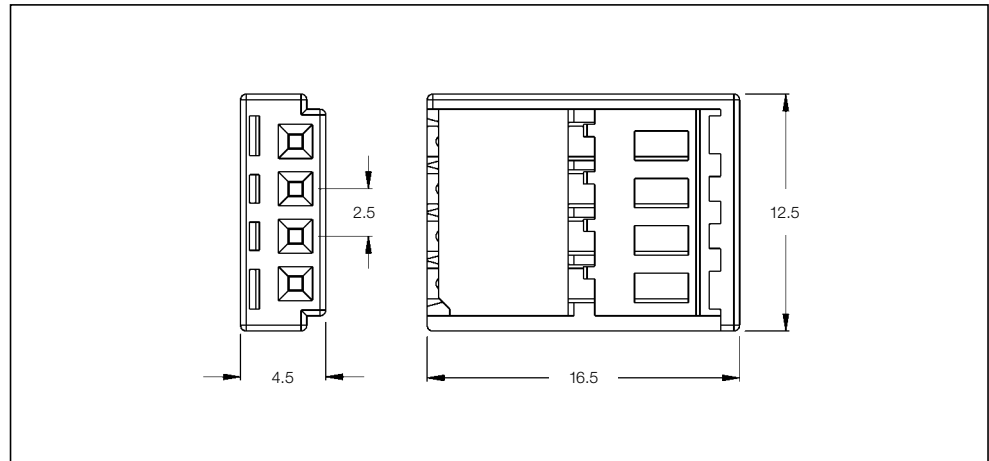
0.14–0.75 mm²

Product Specification:

108-18924

Application Specification:

114-18630



4 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
4	-	Black	1-1534150-1	-	-	-	1534149-1	1-1534157-1 & 1534131-1	-	-

Technical Features

No. of Positions:

4 Positions
(Positive Mate Locking)

Housing Material:

PBT GF20

Wire Size Range:

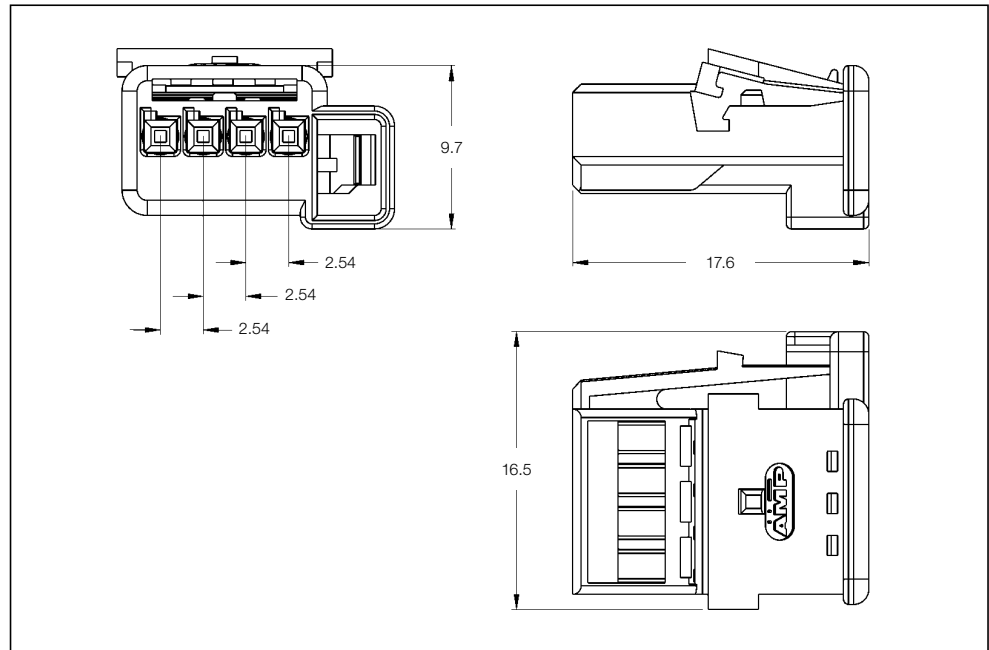
0.35–0.75 mm²

Product Specification:

108-15236

Application Specification:

411-15635



4 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
4	-	Black	1379029-1	-	-	-	-	-	-	-
		White	1379029-2	-	-	-	-	-	-	-
		Blue	1379029-3	-	-	-	-	-	-	-
		Yellow	1379029-4	-	-	-	-	-	-	-
		Grey	1379029-5	-	-	-	-	-	-	-
		Brown	1379029-6	-	-	-	-	-	-	-

Receptacle Housings

Technical Features

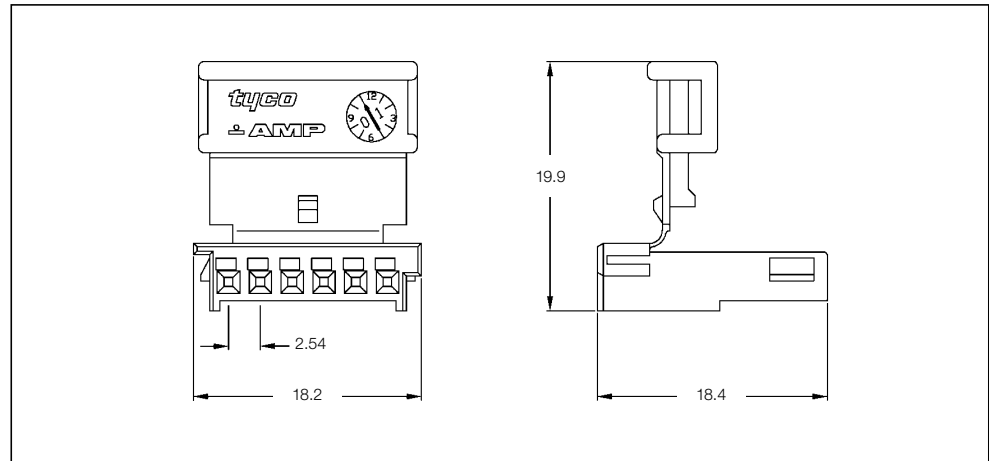
No. of Positions:
6 Positions

Housing Material:
PBT

Wire Size Range:
0.2–0.75 mm²

Product Specification:
108-61030

Application Specification:
114-18030



6 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
6	Z	Black	936289-2	-	-	-	-	-	-	936287	-
	Z	Natural	936289-5	-	-	-	-	-	-	-	-

Technical Features

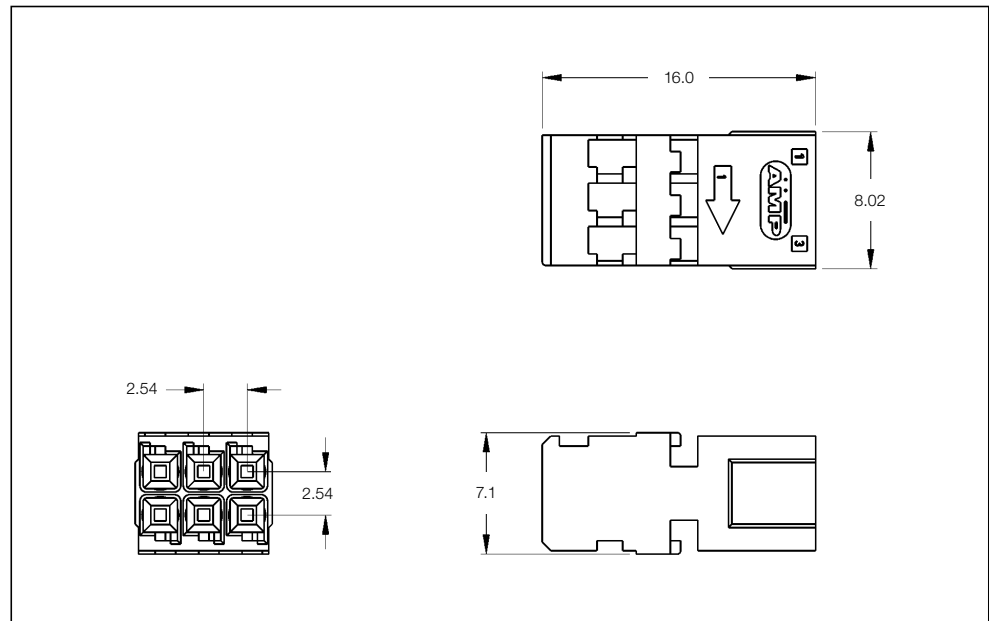
No. of Positions:
6 Positions

Housing Material:
PBT GF20

Wire Size Range:
0.35–0.75 mm²

Product Specifications:
108-15142 Receptacle Housing
108-15192 Cover and Locking

Application Specifications:
411-15567 Receptacle Housing
411-15608 Cover and Locking



6 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
6	-	Black	185311-1	953382-1	953381-1	-	-	1379118	953440	953363
		White	-	953382-2	-	-	-	-	953442	1379816
		Green	-	953382-3	-	-	-	-	953444	-
		Brown	-	953382-4	-	-	-	-	-	-

Receptacle Housings

Technical Features

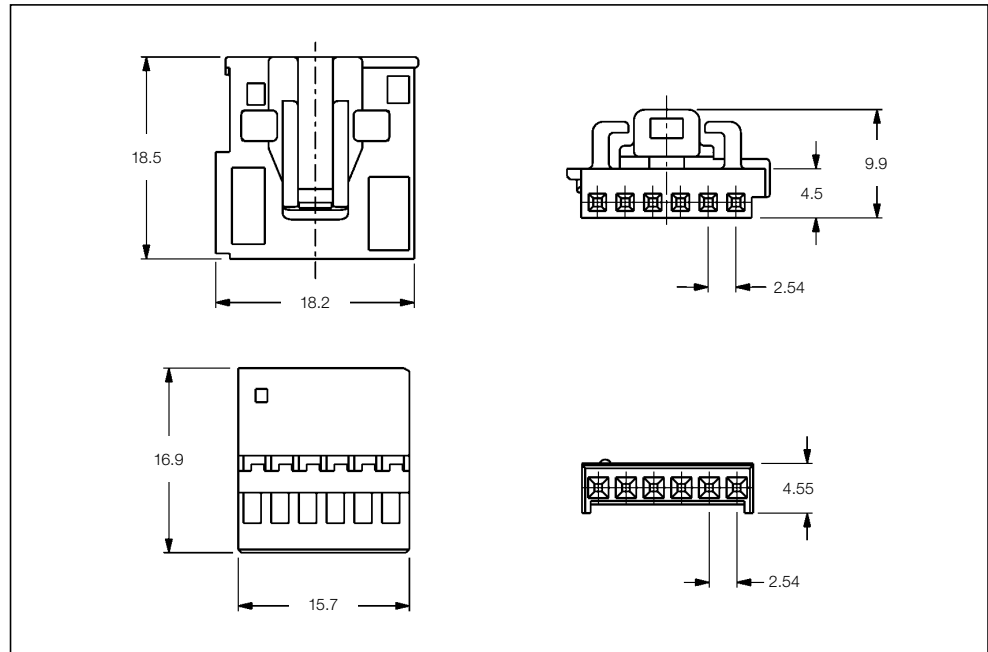
No. of Positions:
6 Positions Kit

Housing Material:
PBT GF/PA 66 GF

Wire Size Range:
0.35–0.75 mm²

Product Specification:
—

Application Specification:
—



6 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
6	A	Black	284802-1	-	-	-	-	-	-	-
	B	Brown	284802-2	-	-	-	-	-	-	-

Technical Features

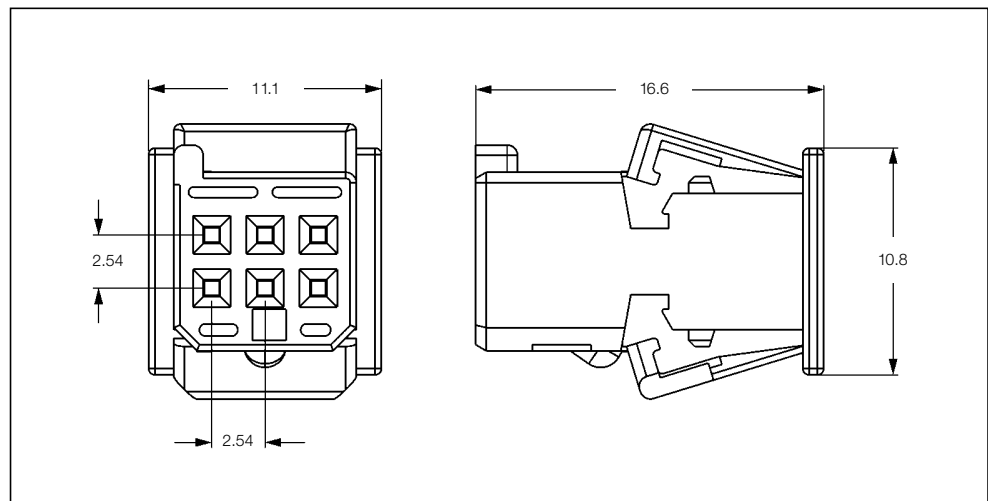
No. of Positions:
6 Positions (2 × 3)

Housing Material:
PBT GF10

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-18507-0

Application Specification:
—



6 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
6	A	Black	1-968291-2	-	-	-	-	-	-	-
	B	Natural	2-968291-2	-	-	-	-	-	-	-

Receptacle Housings

Technical Features

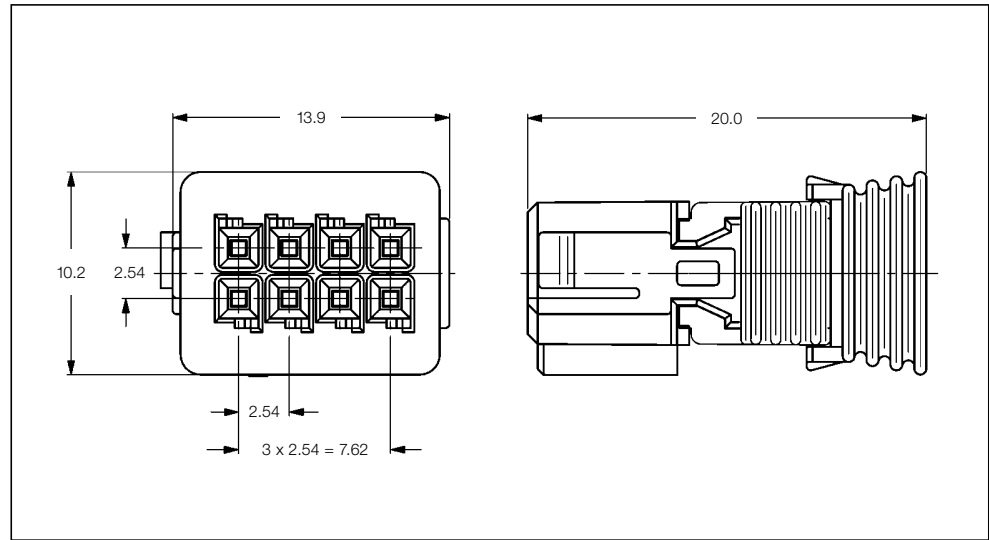
No. of Positions:
8 Positions (2 × 4)

Housing Material:
PBT GF15

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-18411-1

Application Specification:
—



8 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
8	Z	Dark Blue	9-965382-2	—	965383-1	—	—	—	—	—

Technical Features

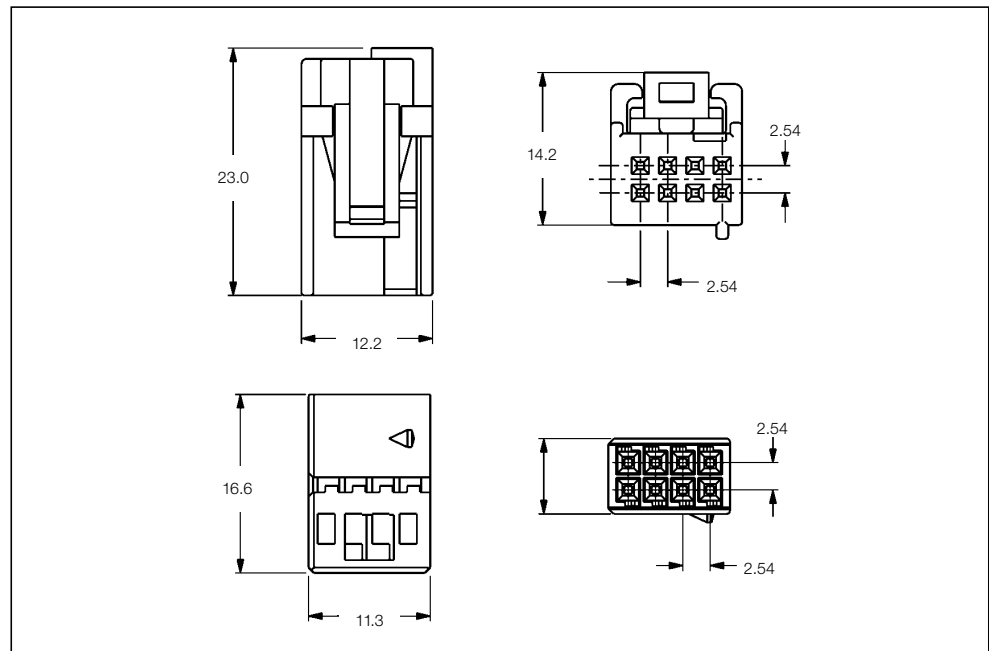
No. of Positions:
8 Positions Kit

Housing Material:
PA66 GF/PBT GF

Wire Size Range:
0.2–0.75 mm²

Product Specification:
108-20245

Application Specification:
—



8 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
8	—	Black	1745000-1	—	—	—	—	—	284869	—

Receptacle Housings

Technical Features

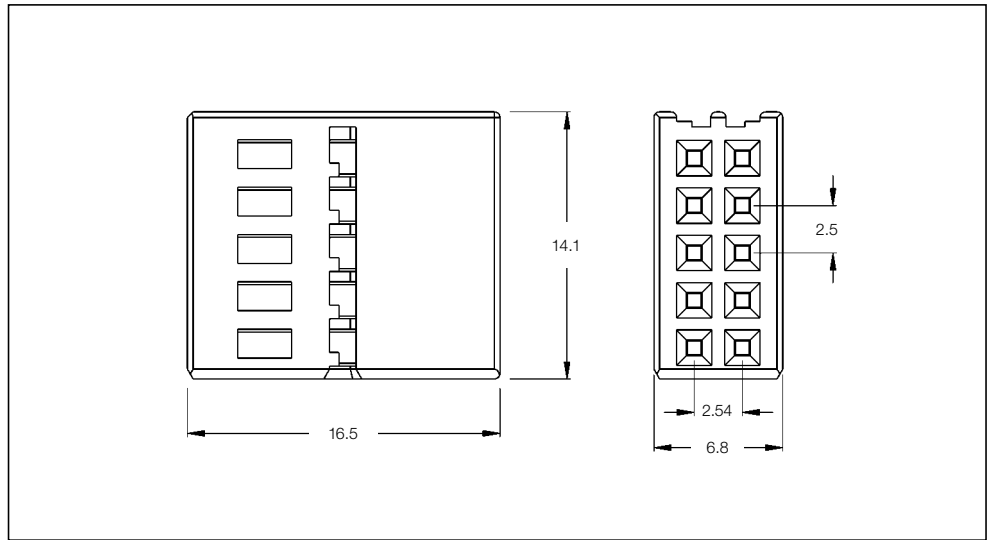
No. of Positions:
10 Positions (2 × 5)

Housing Material:
PBT GF15

Wire Size Range:
0.14–0.75 mm²

Product Specification:
108-18924

Application Specification:
114-18630



10 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
10	–	Black	1534125-1	1-1534171-1	–	–	–	–	–	969587

Receptacle Housings

Technical Features

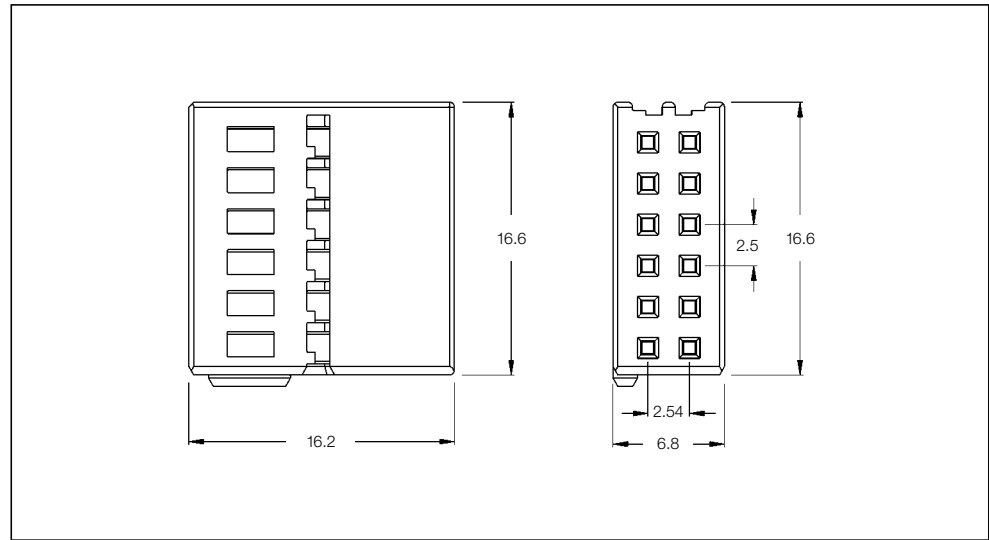
No. of Positions:
12 Positions (2 × 6)

Housing Material:
PBT GF15

Wire Size Range:
0.14–0.75 mm²

Product Specification:
108-18924

Application Specification:
114-18630



12 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
12	A	Black	1534100-1	1-1534096-1	-	-	-	-	-	967250-1	-
	B	Brown	1534100-1	1-1534096-2	-	-	-	-	-	-	-

Technical Features

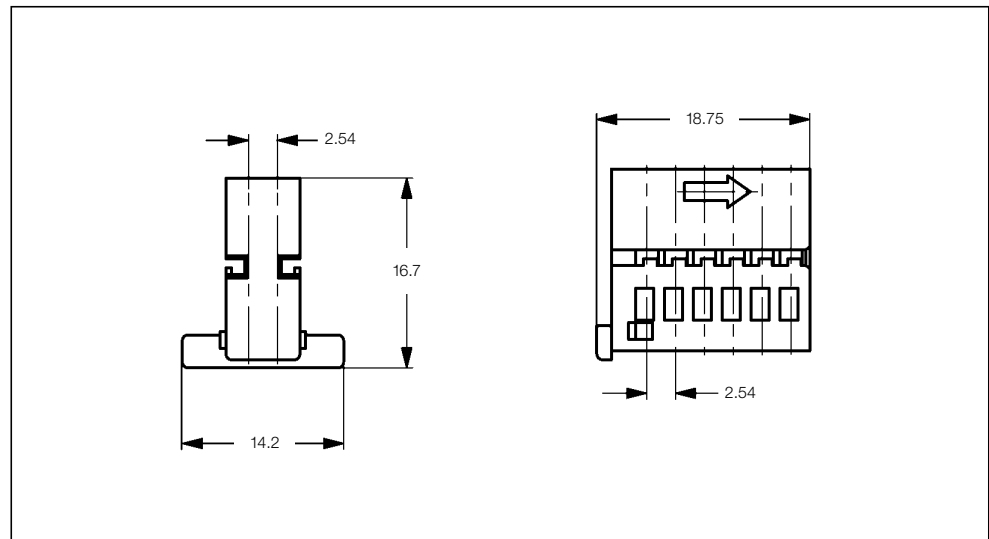
No. of Positions:
12 Positions

Housing Material:
PBT GF20

Wire Size Range:
0.2–0.75 mm²

Product Specification:
108-18546-0

Application Specification:
114-18173-0



12 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
12	-	Black	968473-1	-	-	929051-1	-	-	-	1355505	-

Receptacle Housings

Technical Features

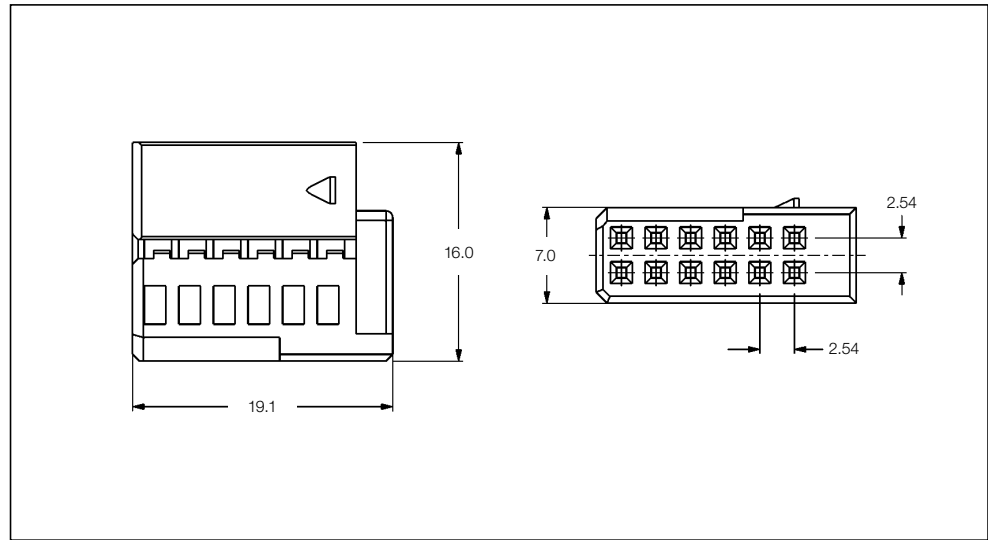
No. of Positions:
12 Positions

Housing Material:
PA 66 GF

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-20222

Application Specification:
411-15565



12 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
12	1	Black	284442-1	–	–	284443-1 & -4	–	–	–	–
	2	Blue	–	–	–	284443-2 & -5	–	–	–	–
	3	Brown	–	–	–	284443-3 & -6	–	–	–	–

Technical Features

Application:
Steering Switch

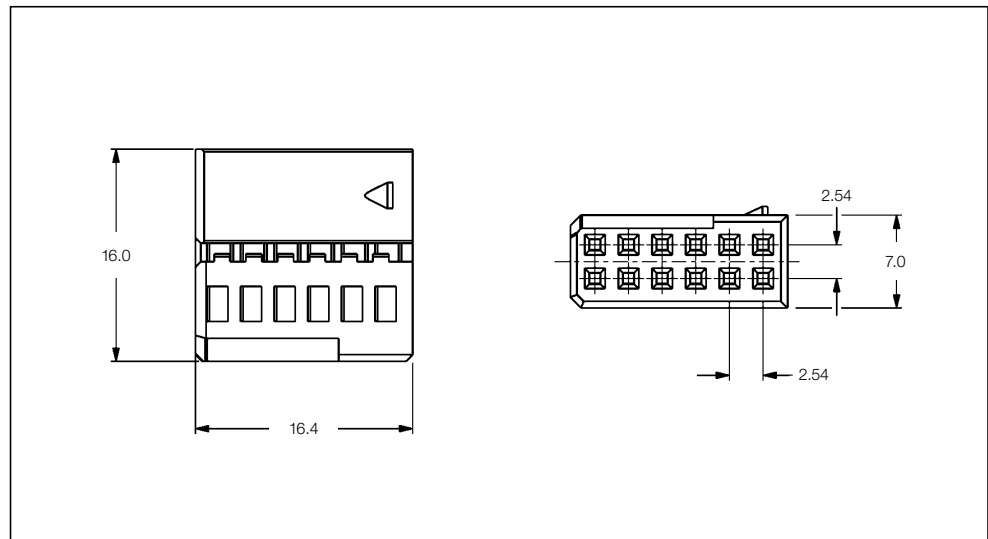
No. of Positions:
12 Positions

Housing Material:
PA 66 GF

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-20221

Application Specification:
–



12 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
12	–	Black	284322-1	284321-1	–	–	–	–	–	–

Receptacle Housings

Technical Features

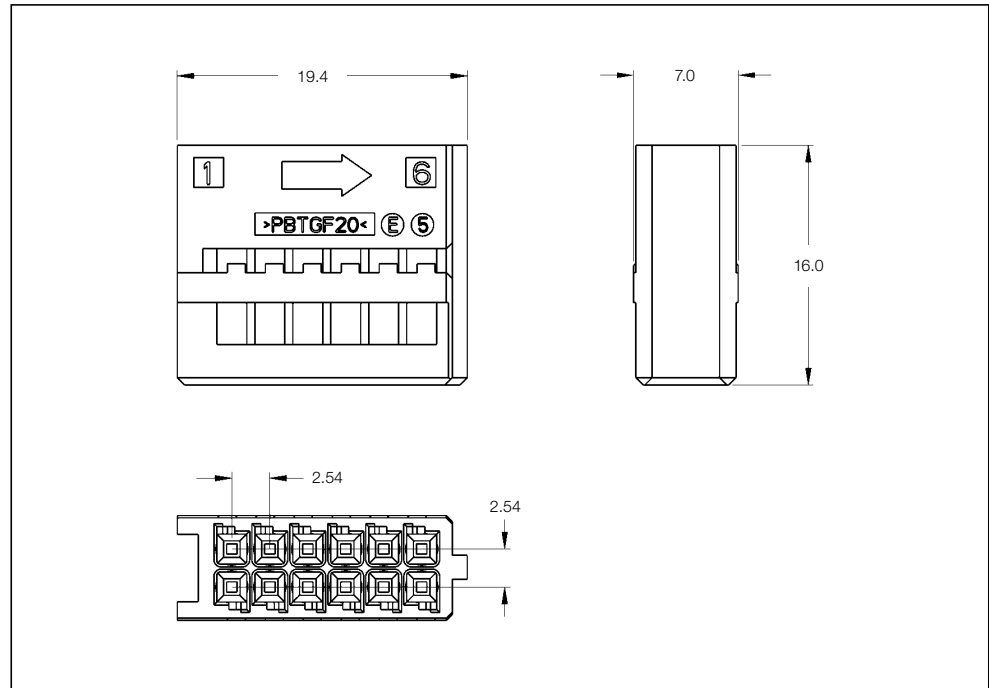
No. of Positions:
12 Positions (1st Generation)

Housing Material:
PBT GF20

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-15139

Application Specification:
411-15565



12 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Vertical
		Black	185300-1	–	144936-1	–				
		Brown	–	–	–	185341-1 (Wire Output 0°)				
		Blue	–	–	–	185341-2 (Wire Output 0°)				
12	–	Brown	–	–	–	185303-1 (Wire Output 45°)	–	–	185740	953130
		Blue	–	–	–	185303-2 (Wire Output 45°)			1379030	1379114
		Brown	–	–	–	185343-1 (Wire Output 90°)				
		Blue	–	–	–	185343-2 (Wire Output 90°)				

Receptacle Housings

Technical Features

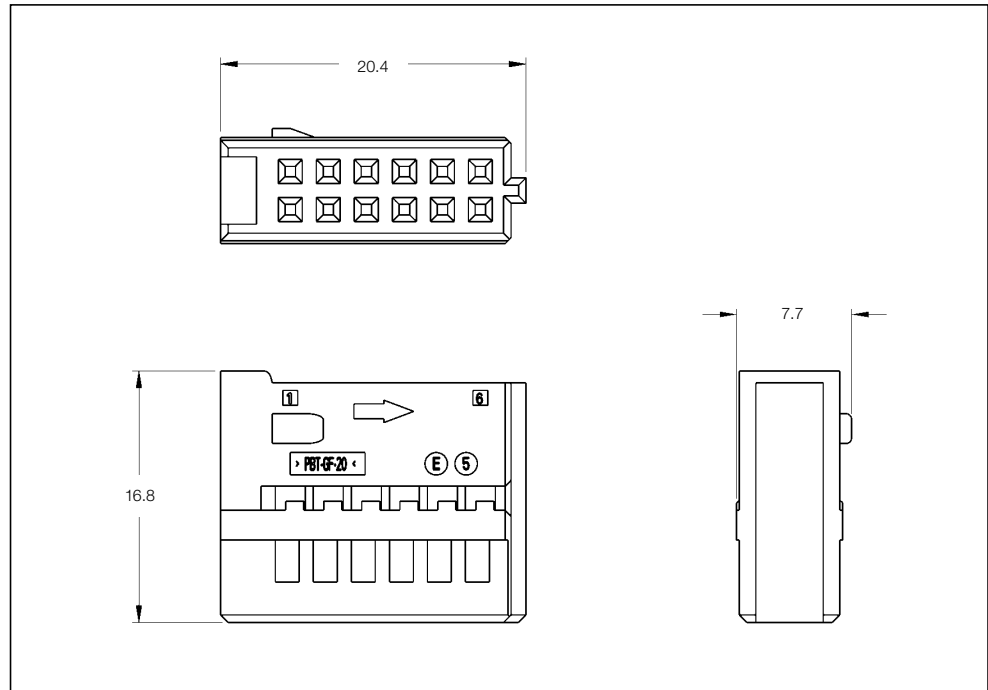
No. of Positions:
12 Positions (2nd Generation)

Housing Material:
PBT GF20

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-15261 Receptacle Housing
108-15039 } Cover and Lever
108-15139 }

Application Specification:
411-15653 Receptacle Housing
411-15554 } Cover and Lever
411-15565 }



12 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Vertical
12	-	Brown	1379219-1	-	-	1379095-1 (Wire Output 0°)				
		Blue	-	-	-	1379095-2 (Wire Output 0°)				
		Brown	-	-	-	1379096-1 (Wire Output 90°)	-	-	185740	953130
		Blue	-	-	-	1379096-2 (Wire Output 90°)			1379030	1379114
		Black	-	-	-	1379096-3 (Wire Output 90°)				

Receptacle Housings

Technical Features

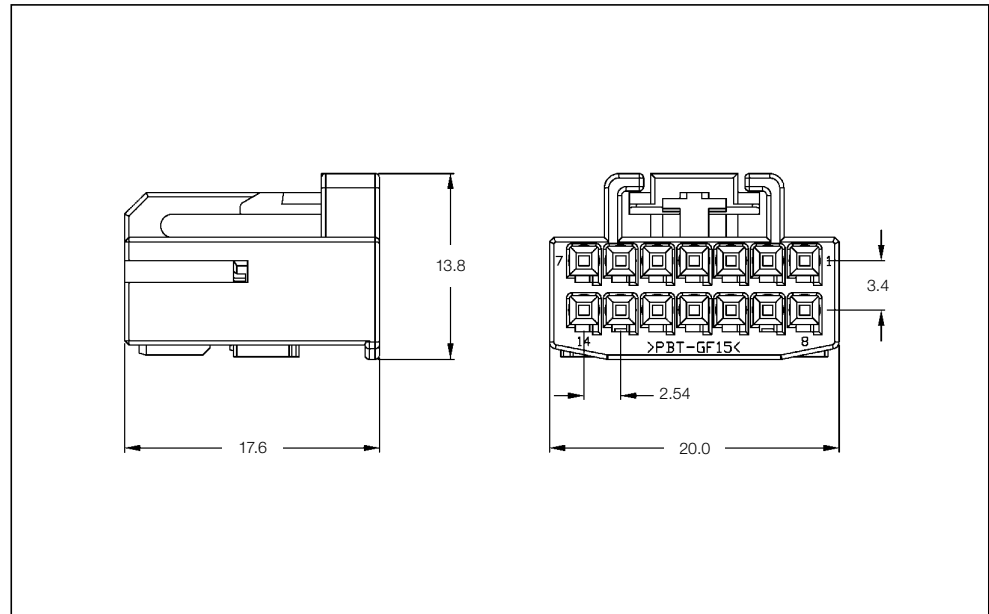
No. of Positions:
14 Positions Assembly

Housing Material:
PBT GF15

Wire Size Range:
0.2–0.75 mm²

Product Specification:
108-61052

Application Specification:
114-18021



14 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
14		Black	936124-1							
		Yellow	936124-2	-	-	-	-	936126	-	-
		Yellow	1-936124-2							

Receptacle Housings

Technical Features

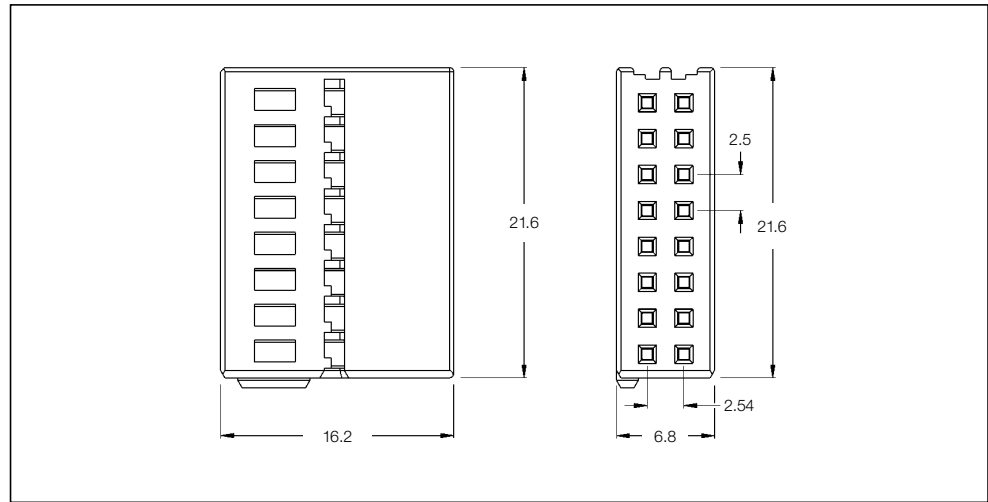
No. of Positions:
16 Positions (2 × 8)

Housing Material:
PBT GF15

Wire Size Range:
0.14–0.75 mm²

Product Specification:
108-18924

Application Specification:
114-18630



16 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
16	B	Black	1534101-1	1-1534097-2	-	-	-	-	-	-
	A	Brown	1534101-1	1-1534097-1	-	-	-	-	966870-1	-

Technical Features

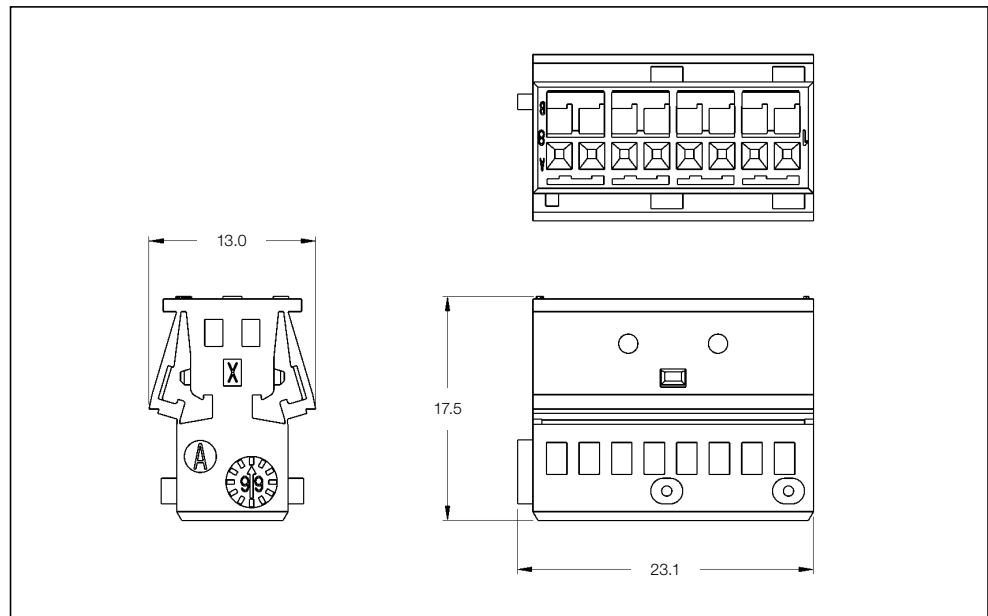
No. of Positions:
16 Positions or
8 Positions + 4 Shorting Bars

Housing Material:
PBT GF10

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-15308

Application Specification:
411-15629



16 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
16	-	Green	953892-1	-	-	-	-	-	-	-
		Grey	1-953892-1	-	-	-	-	-	-	-
		Black	2-953892-1	-	-	-	-	953893	-	-
		Brown	3-953892-1	-	-	-	-	-	-	-
		Blue	4-953892-1	-	-	-	-	-	-	-

Receptacle Housings

Technical Features

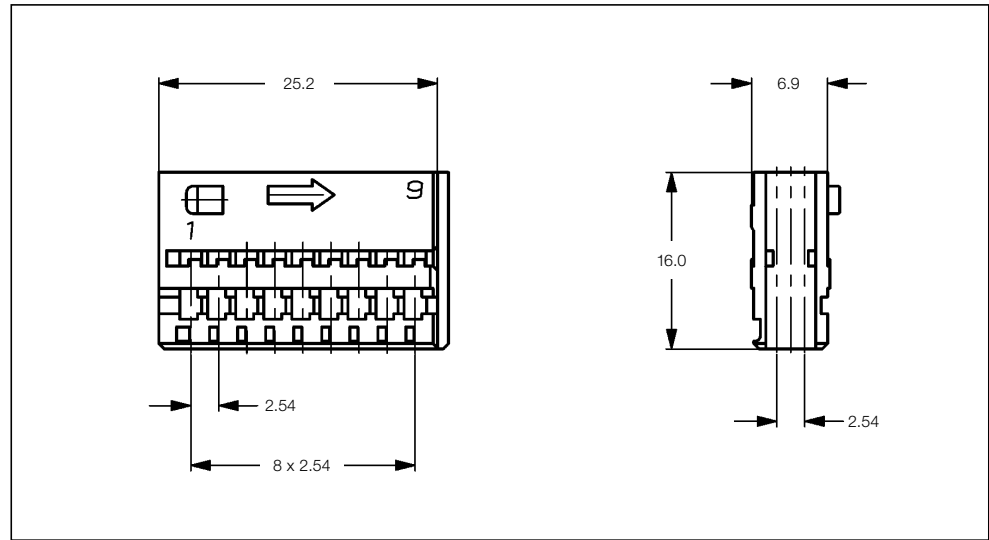
No. of Positions:
18 Positions

Housing Material:
PBT GF15

Wire Size Range:
0.75 mm² Max.

Product Specification:
108-18157-1

Application Specification:
114-18021



18 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
18	A	Black	1355348-1	-	-	1-1355350-1	-	962692	963539	1355154
	B	Natural	-	-	-	2-1355350-1	-	-	-	-

Technical Features

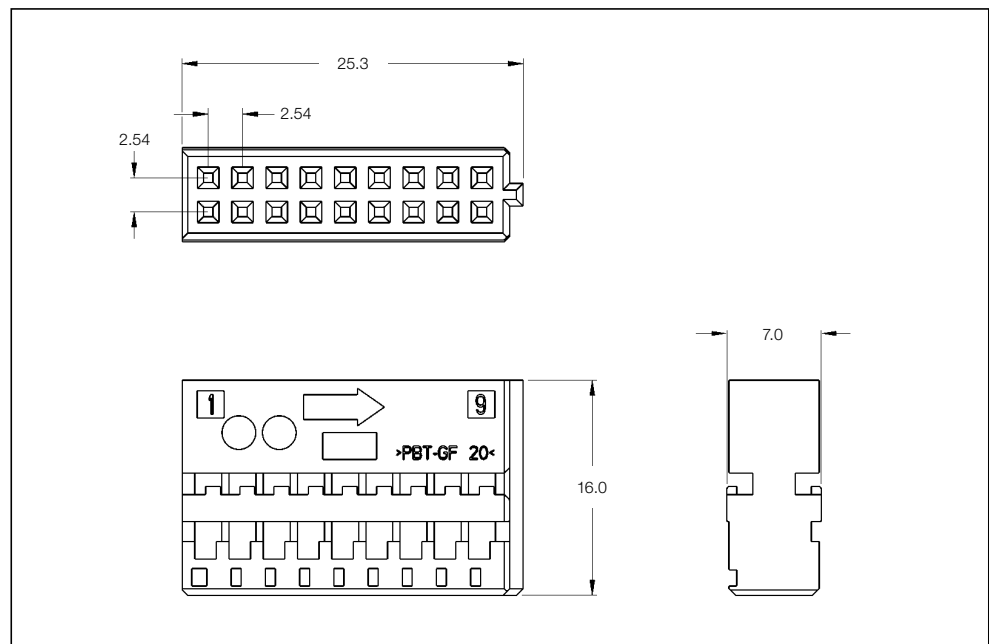
No. of Positions:
18 Positions

Housing Material:
PBT GF20

Wire Size Range:
0.2–0.6 mm²

Product Specification:
108-15134

Application Specification:
411-15554



18 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
18	-	Black	953599-1	-	-	-	-	-	-	-

Receptacle Housings

Technical Features

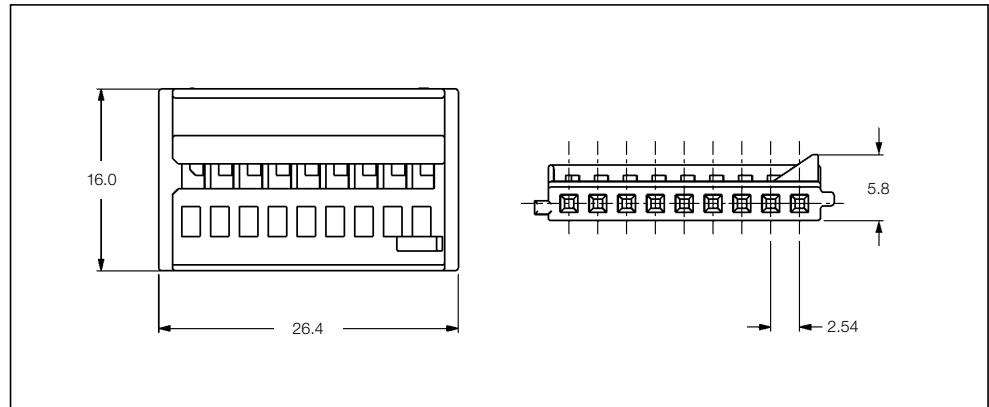
No. of Positions:
18 Positions (2 × 9)

Housing Material:
PA 66 GF

Wire Size Range:
0.35–0.5 mm²

Product Specification:
108-20182

Application Specification:
411-20056



18 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
18	A	Black (Frame)	-	-	-	284360-1	-	-	-	-
	B	Grey (Frame)	-	-	-	284360-2	-	-	-	-
	-	Black	284134-1	-	-	-	-	-	-	-
	-	Grey	284134-2	-	-	-	-	-	284522	284582
	-	Blue	284134-3	-	-	-	-	-	-	953466
	-	Brown	284134-4	-	-	-	-	-	-	-

Technical Features

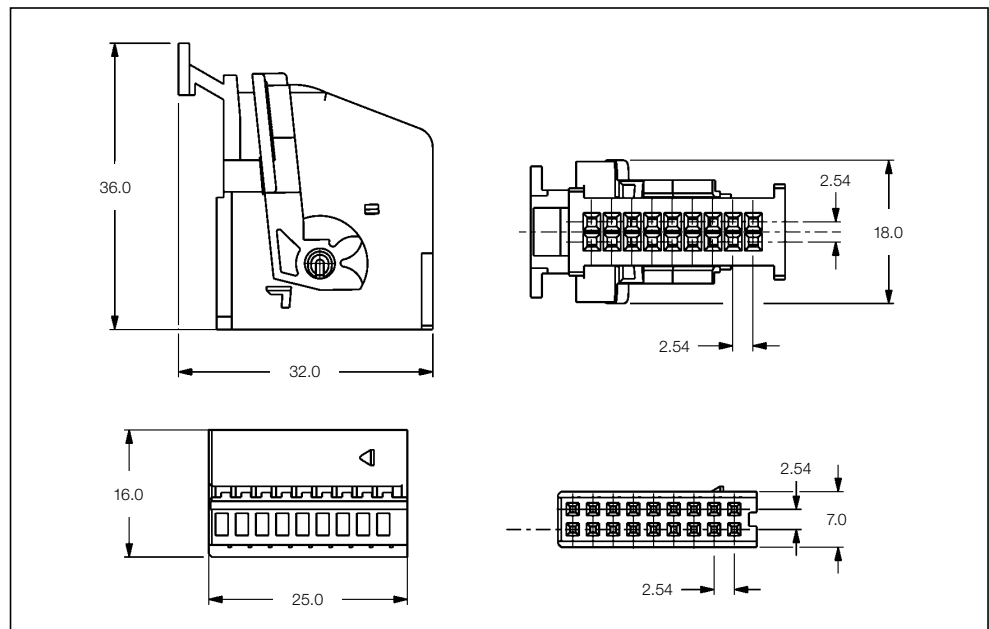
No. of Positions:
18 Positions Kit

Housing Material:
PA 66 GF

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-20222

Application Specification:
411-15554



18 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
18	A	Black	284666-1	-	-	-	-	-	-	-
	B	White	284666-2	-	-	-	-	-	-	-
	C	Brown	284666-3	-	-	-	-	-	-	-
	D	Blue	284666-4	-	-	-	-	-	-	-

Receptacle Housings

Technical Features

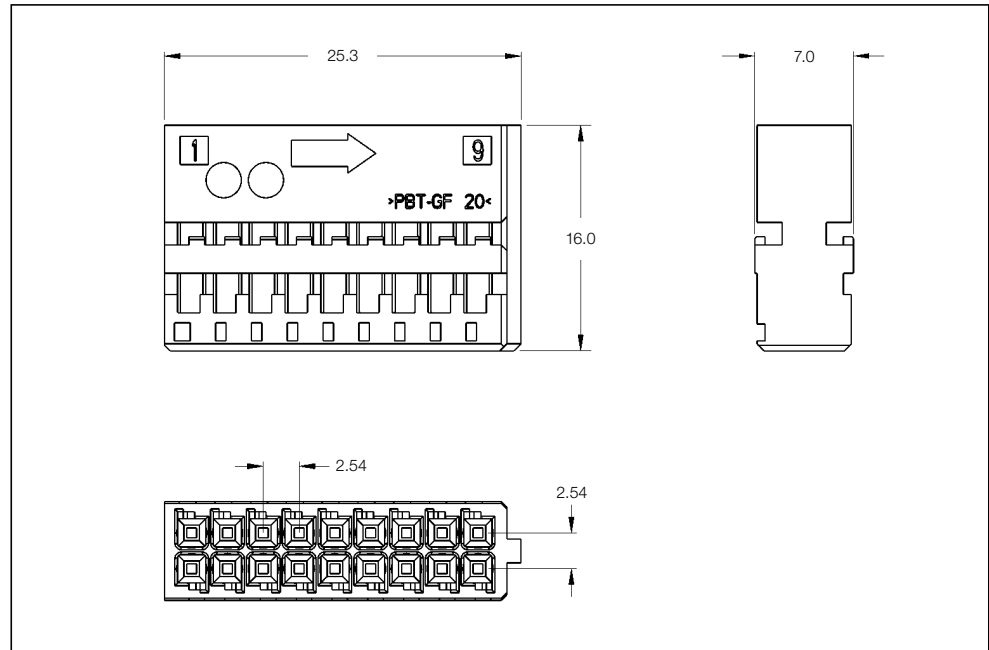
No. of Positions:
18 Positions (1st Generation)

Housing Material:
PBT GF20

Wire Size Range:
0.2–0.6 mm²

Product Specification:
108-15134

Application Specification:
411-15554



18 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle Vertical	
18	-	Black	185304-1	-	144936-1	-				
		Black	-	-	-	185307-1 (Wire Output 0°)				
		White	-	-	-	185307-2 (Wire Output 0°)				
		Black	-	-	-	185329-1 (Wire Output 45°)	-	-	185683	185458
		White	-	-	-	185329-2 (Wire Output 45°)			185680	953302
		Black	-	-	-	185315-1 (Wire Output 90°)			1379731	953264
		White	-	-	-	185315-2 (Wire Output 90°)				

Receptacle Housings

Technical Features

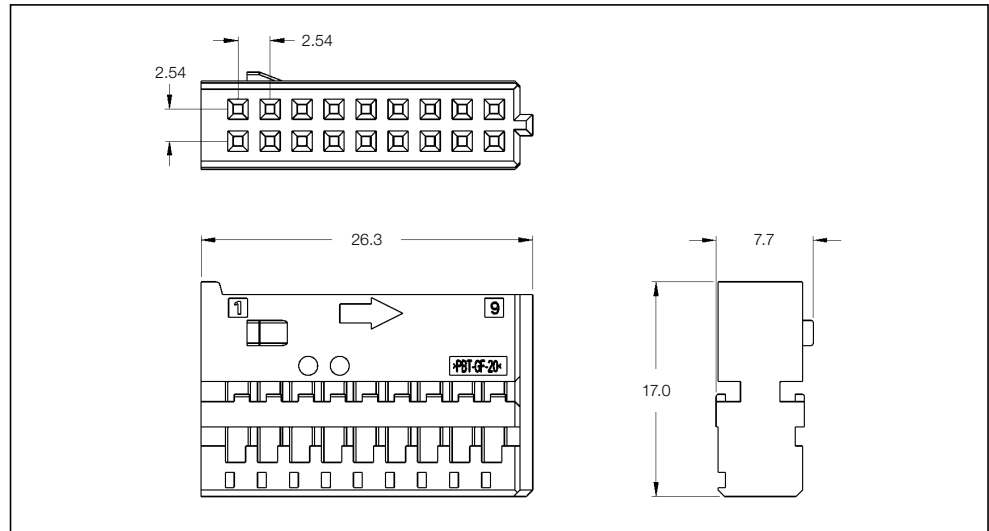
No. of Positions:
18 Positions (2nd Generation)

Housing Material:
PBT GF20

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-15134

Application Specification:
411-15554



18 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
18	-	Black	1379102-1	-	-	-	-	-	-	-	-
		Black	-	-	-	1379100-1 (Wire Output 0°)	-	-	185683	185458	
		White	-	-	-	1379100-2 (Wire Output 0°)	-	-	185680	953302	
		Black	-	-	-	1379101-1 (Wire Output 90°)	-	-	1379731	953264	
		White	-	-	-	1379101-2 (Wire Output 90°)	-	-	-	-	

Technical Features

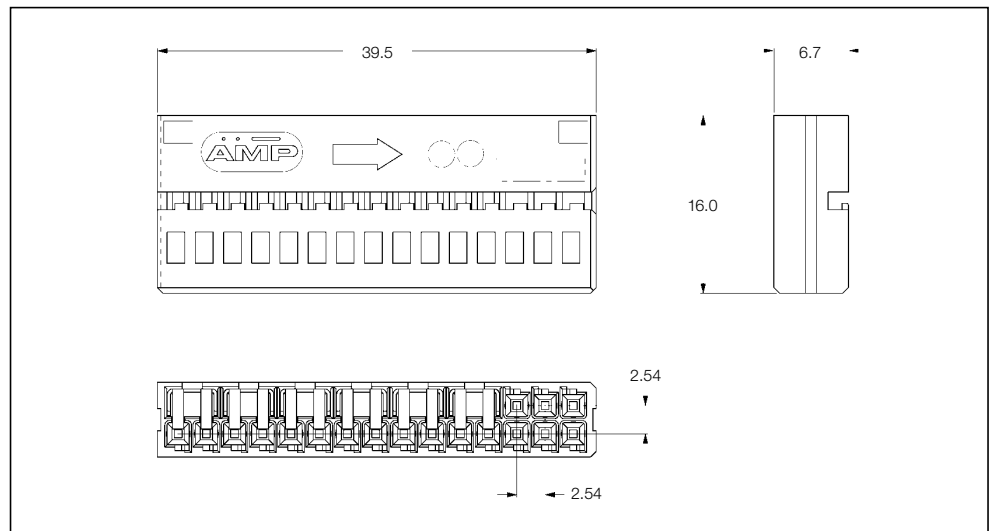
No. of Positions:
18 Positions + 6 Shorting Bars

Housing Material:
PBT GF20

Wire Size Range:
0.2–0.6 mm²

Product Specification:
108-15111

Application Specification:
411-15533



18 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
18	-	Black	144952-1	-	144936-1	-	-	-	-	-	-
		Orange	-	-	-	144951-1	-	-	-	-	-
		Yellow	-	-	-	144951-2	-	-	144950	-	-
		Red	-	-	-	144951-3	-	-	185180	-	-
		Green	-	-	-	144951-4	-	-	-	-	-

Receptacle Housings

Technical Features

Application:
Airbag

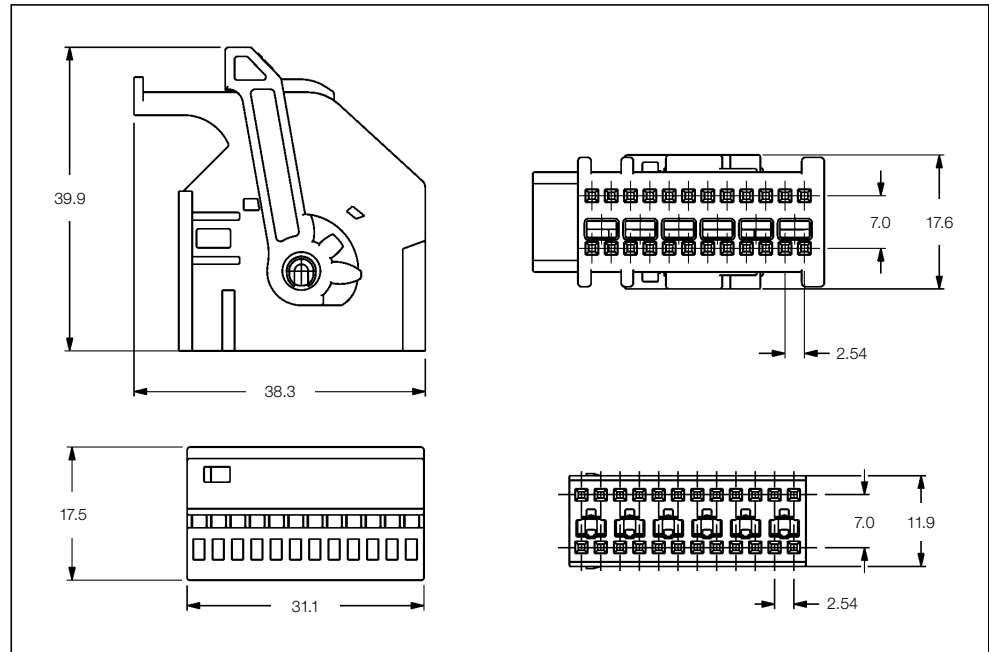
No. of Positions:
24 Positions Assembly

Housing Material:
PA 66 GF13

Wire Size Range:
0.35–0.5 mm²

Product Specification:
108-20202

Application Specification:
411-20054



24 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
24	A	Black	284223-4							
	B	Grey	284223-3							
	C	Brown	284223-5	-	-	-	-	-	953621	-
	D	Blue	284223-6						1379046	
	AD-Ab	White	284223-7							

Technical Features

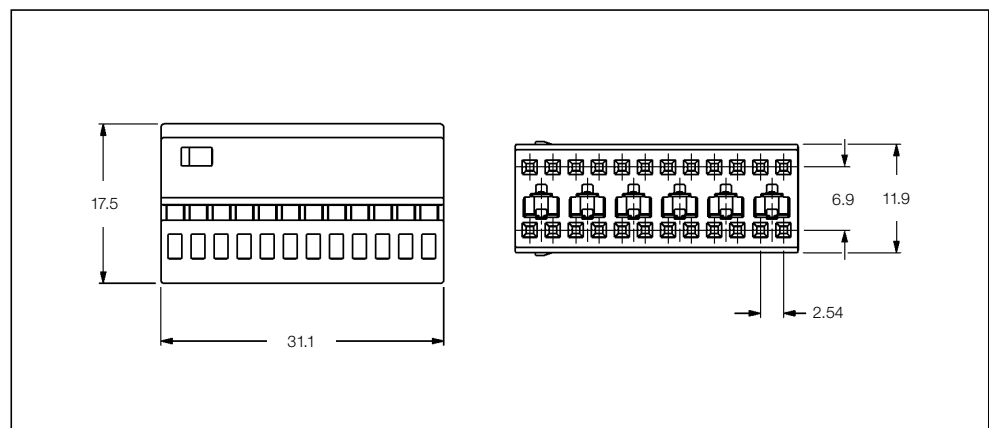
No. of Positions:
24 Positions

Housing Material:
PA 66 GF

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-20202

Application Specification:
411-15659



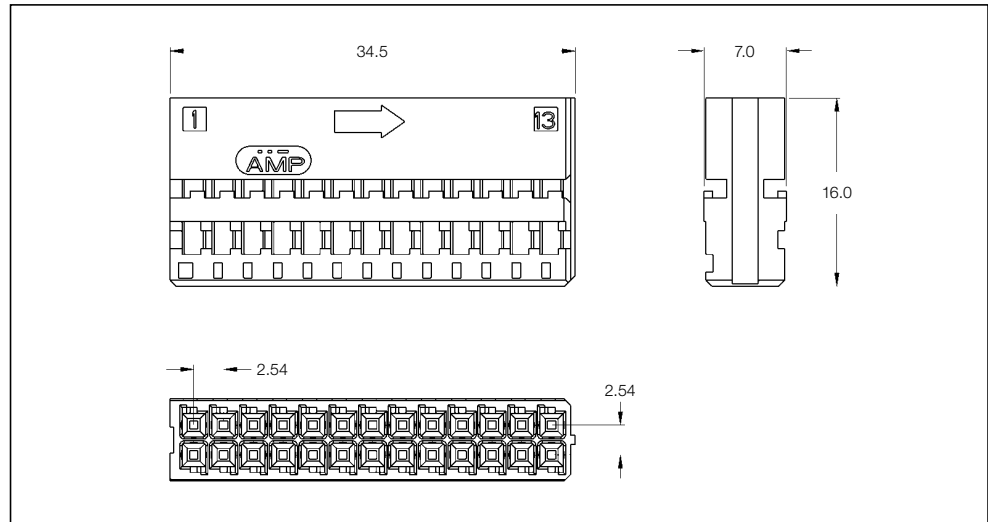
24 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
24	-	Black	284224-2	284714-1						
		Grey	284224-1	284714-2						

Receptacle Housings

Technical Features

- No. of Positions:**
26 Positions (1st Generation)
- Housing Material:**
PBT GF20
- Wire Size Range:**
0.35–0.75 mm²
- Product Specifications:**
108-15090 Cover + Rec. Housing
108-15134 Locking Device
- Application Specifications:**
411-15511 Receptacle Housing
411-15554 Locking Device

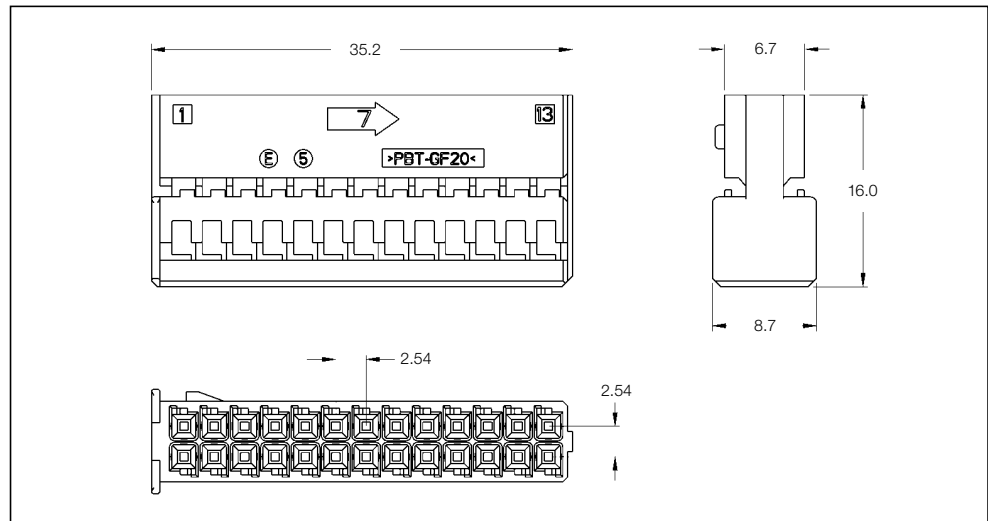


26 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
26	-	Black	144935-1	-	144936-1	-	-	953736	-	-
		Yellow	-	144934-1	-	-	-	-	185890	185454
		Blue	-	144934-2	-	-	-	-	185534	144930
								185904	953472	953236

Technical Features

- No. of Positions:**
26 Positions (2nd Generation)
- Housing Material:**
PBT GF20
- Wire Size Range:**
0.35–0.75 mm²
- Product Specification:**
108-15158
- Application Specification:**
411-15581



26 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
26	-	Black	185875-1	-	-	-	-	953736	-	-
		Yellow	-	185879-1	-	-	-	-	-	185226
		Blue	-	185879-2	-	-	-	-	185890	185454
		Red	-	185879-3	-	-	-	-	185534	144930
		Green	-	185879-4	-	-	-	-	185904	953472

Receptacle Housings

Technical Features

Application:

Airbag

No. of Positions:

30 Positions Assembly

Housing Material:

PBT GF20

Wire Size Range:

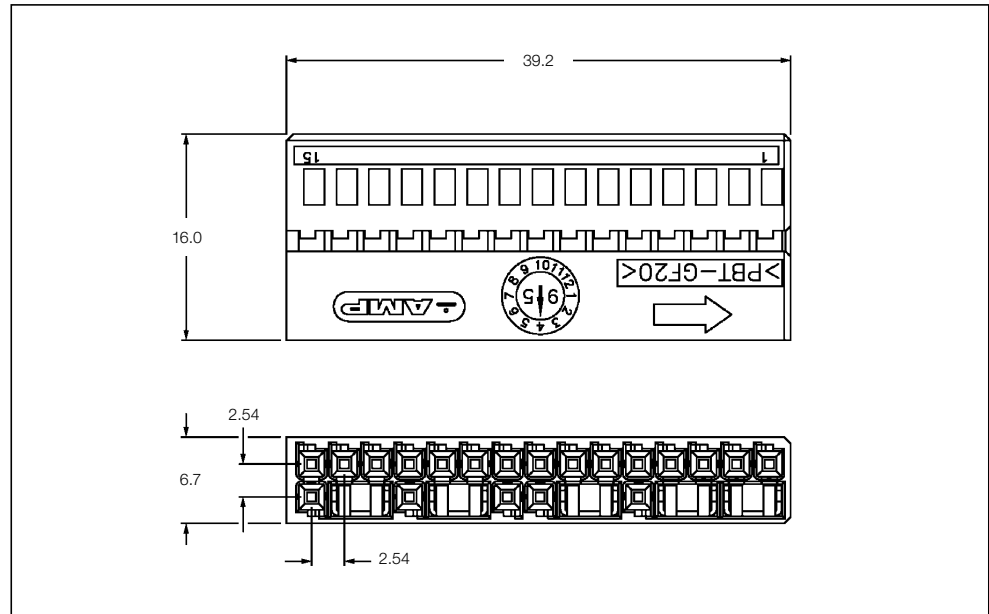
0.25–0.75 mm²

Product Specification:

108-18030

Application Specification:

114-10021



30 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
30	–	Black	85189-1	–	–	85190-1/-9 1-85190-1/-9	85183	–	85188	–

Receptacle Housings

Technical Features

No. of Positions:

32 Positions

Housing Material:

PBT GF20

Wire Size Range:

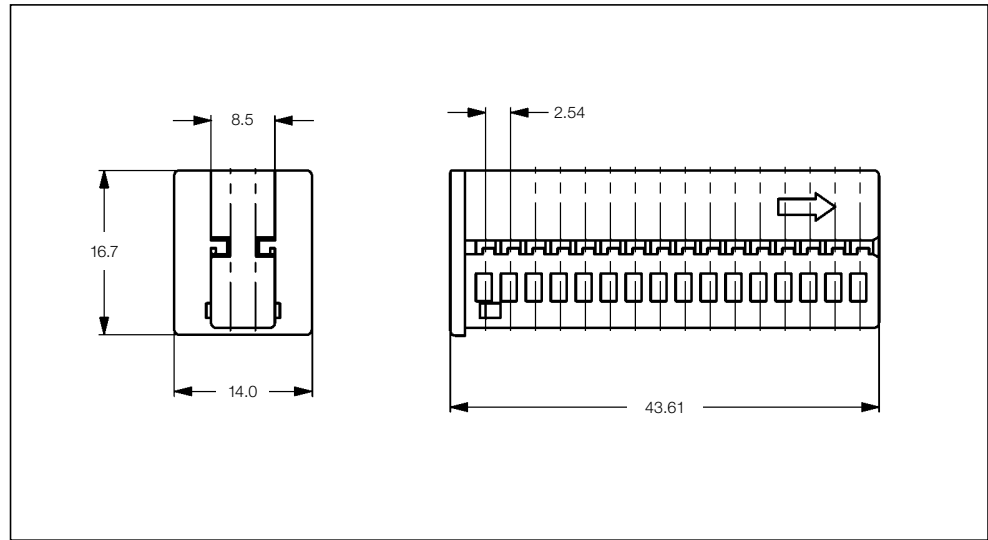
0.2–0.75 mm²

Product Specification:

108-18548-0

Application Specification:

114-18714-0



32 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
32	-	Black	968265-1	-	-	-	-	-	-	-	967598
		Grey	-	-	-	929053-1	-	-	-	-	-
		Blue	-	-	-	929053-2	-	-	-	-	-

Technical Features

No. of Positions:

32 Positions

Housing Material:

PBT GF20

Wire Size Range:

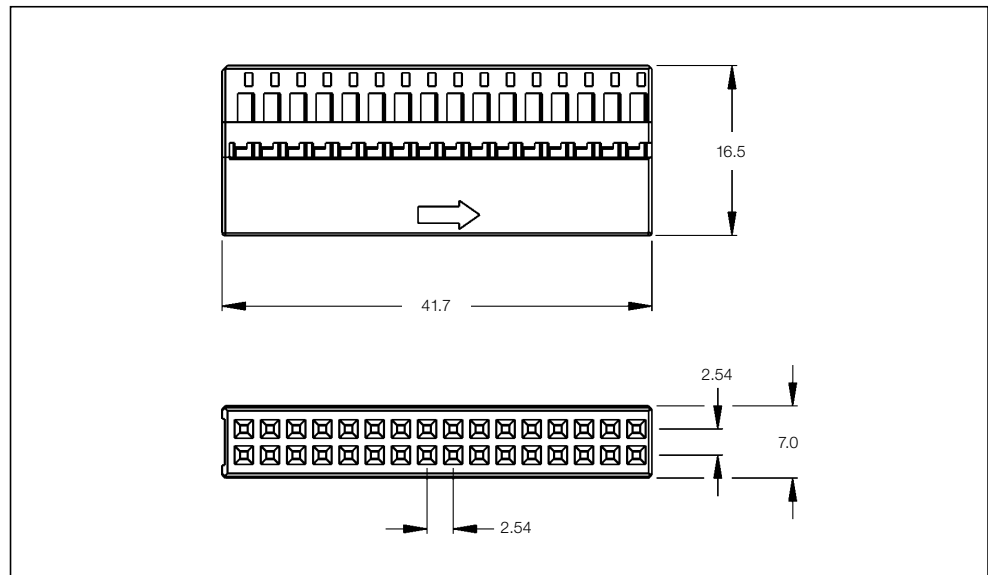
0.14–0.75 mm²

Product Specification:

108-18924

Application Specification:

114-18630



32 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
32	A, F	Green	1420000-1	-	1420001-1	1534222-1	-	-	-	-	966658
	C, D	Blue	1420000-1	-	1420001-1	1534222-2	-	-	-	-	-

Receptacle Housings

Technical Features

Application:
Airbag

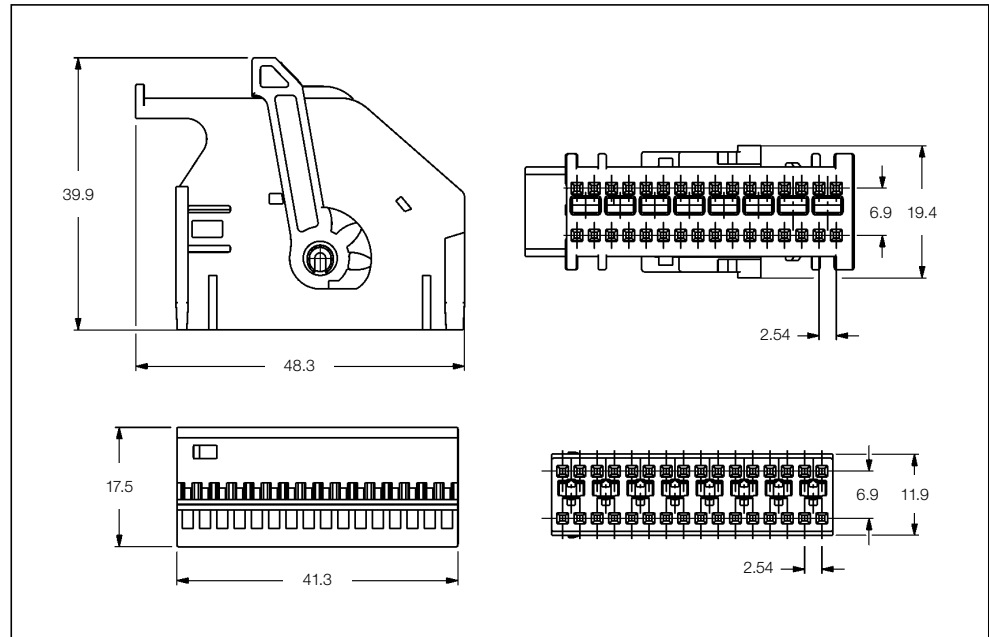
No. of Positions:
32 Positions Assembly

Housing Material:
PA 66 GF13

Wire Size Range:
0.35–0.5 mm²

Product Specification:
108-20223

Application Specification:
411-20054



32 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
32	B	Grey	284423-3							
	A	Black	284423-4							
	C	Brown	284423-5	-	-	-	-	-	1379046	-
	D	Blue	284423-6							
	AD-Ab	White	284423-7							

Technical Features

Application:
Airbag

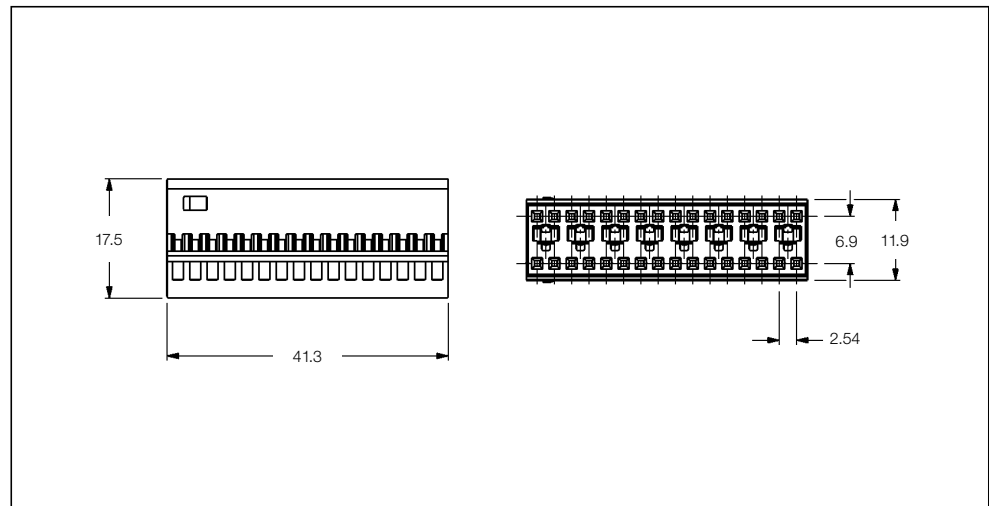
No. of Positions:
32 Positions
(of which 8 Shunts)

Housing Material:
PA 66 GF

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-20223

Application Specification:
411-15659



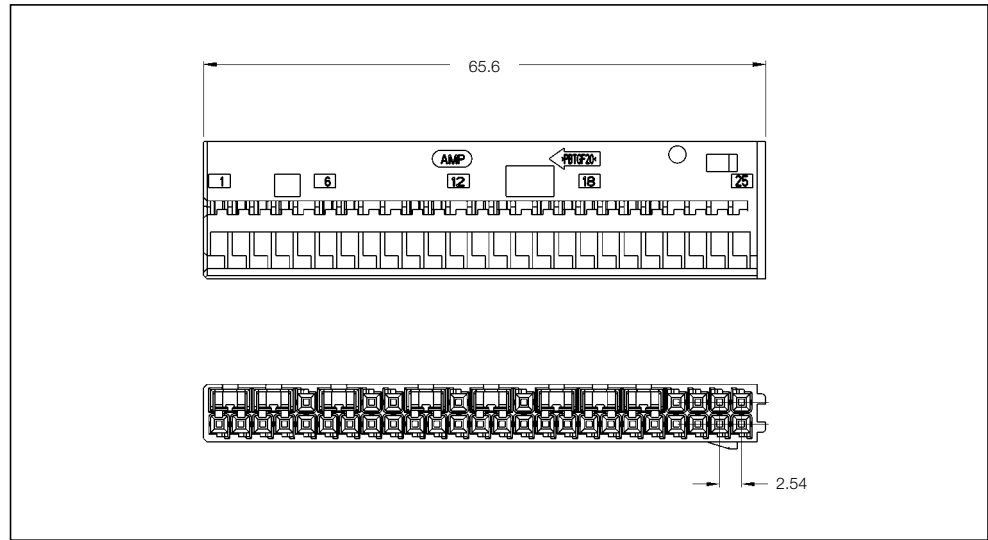
32 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
32	-	Black	284422-1	284715-1	-	-	-	-	-	-

Receptacle Housings

Technical Features

- No. of Positions:**
34 Positions + 8 Shorting Bars
- Housing Material:**
PBT GF20
- Wire Size Range:**
0.35–0.75 mm²
- Product Specification:**
108-15188
- Application Specification:**
411-15601

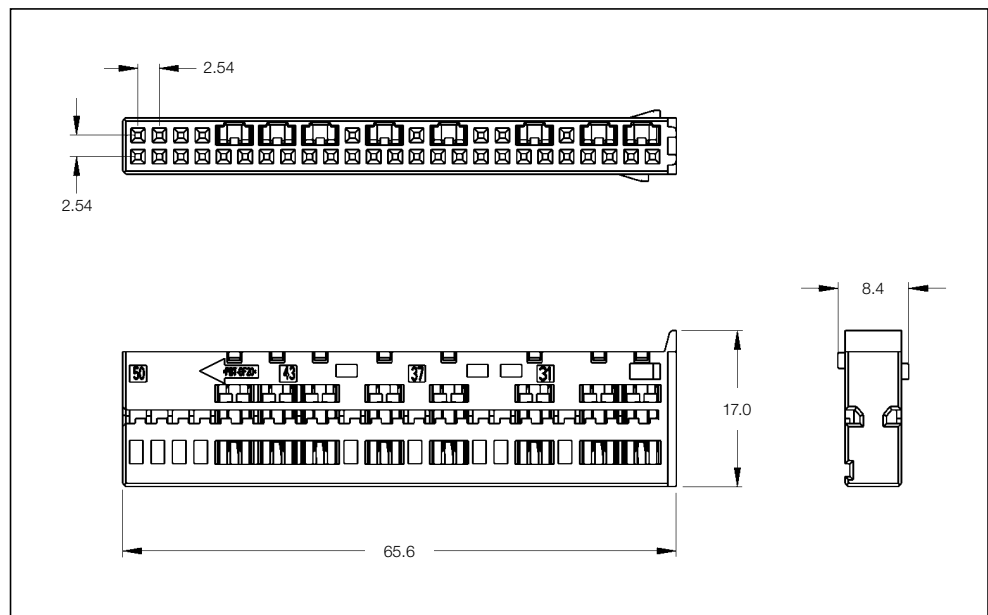


34 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
34	-	Black	953222-1	-	-	-	-	-	-	-
		Orange	-	-	-	953221-1	-	-	-	-

Technical Features

- No. of Positions:**
34 Positions + 8 Shorting Bars (Reversed Output)
- Housing Material:**
PBT GF20
- Wire Size Range:**
0.35–0.75 mm²
- Product Specification:**
108-15188
- Application Specification:**
411-15601



34 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
34	-	Black	1379079-1	-	-	-	-	-	-	-
		Orange	-	-	-	1379077-1	-	-	-	-

Receptacle Housings

Technical Features

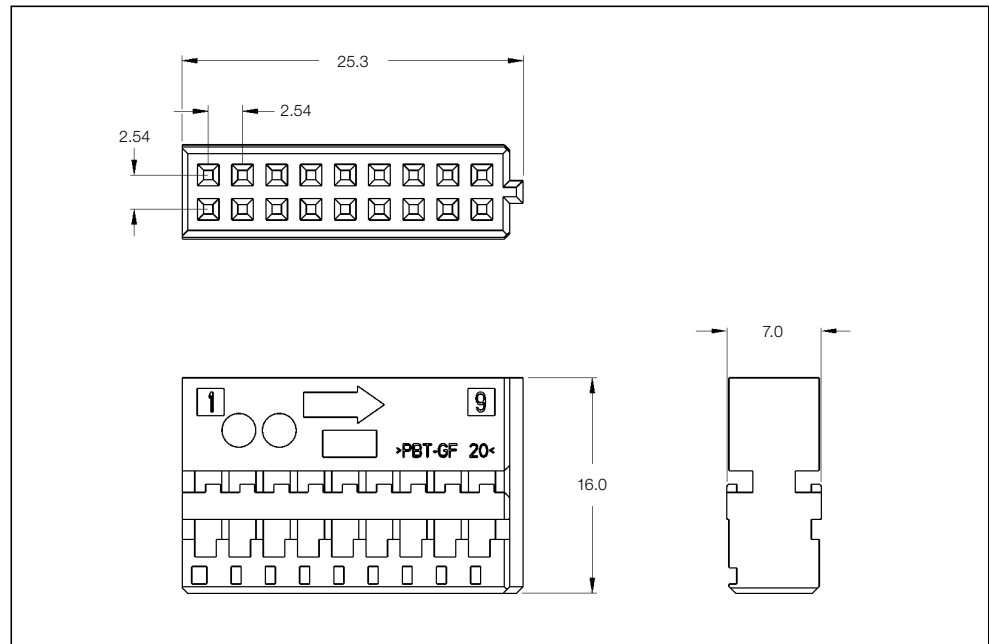
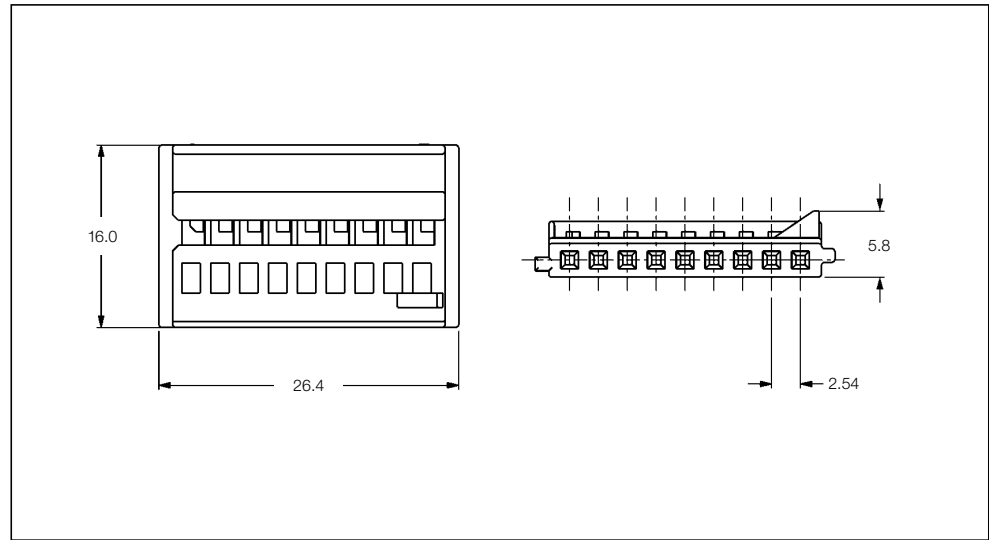
No. of Positions:
36 Positions (9 + 18 + 9)

Housing Material:
PA 66 GF

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-20182

Application Specification:
411-20056



36 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
36	-	Blue (Frame)	-	-	-	284438-1	-	-	-	-
		Green	284134-5	-	-	-	-	-	284520	284317
		White	284134-6 (9 Pos.)	-	-	-	-	-	-	-
		Black	953599-1 (18 Pos.)	-	-	-	-	-	-	-

Receptacle Housings

Technical Features

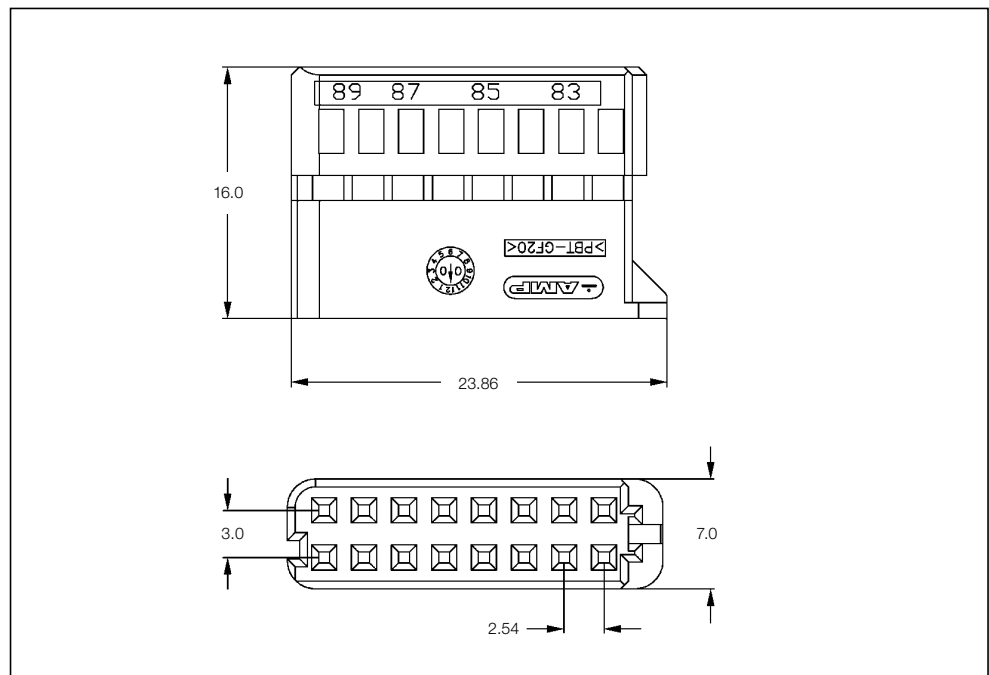
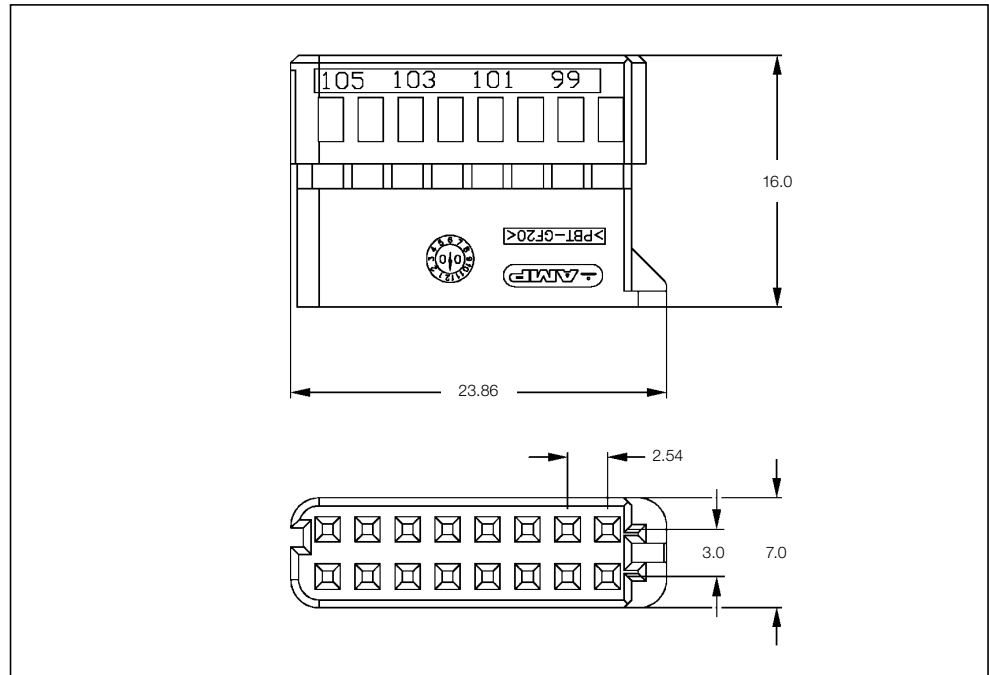
No. of Positions:
40 Positions Assembly
for Junior Power Timer and
Micro Quadlok

Housing Material:
PBT GF20

Wire Size Range:
• 0.5–2.5 mm²
Junior Power Timer
• 0.5–0.75 mm²
Micro Quadlok

Product Specification:
108-61036

Application Specification:
114-18021-1



40 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
40	-	Black	368322-1 (Type A)	368320-1	-	-	368326-1 (Micro Quadlok)	368319-1	-	-
			368323-1 (Type B)							

Receptacle Housings

Technical Features

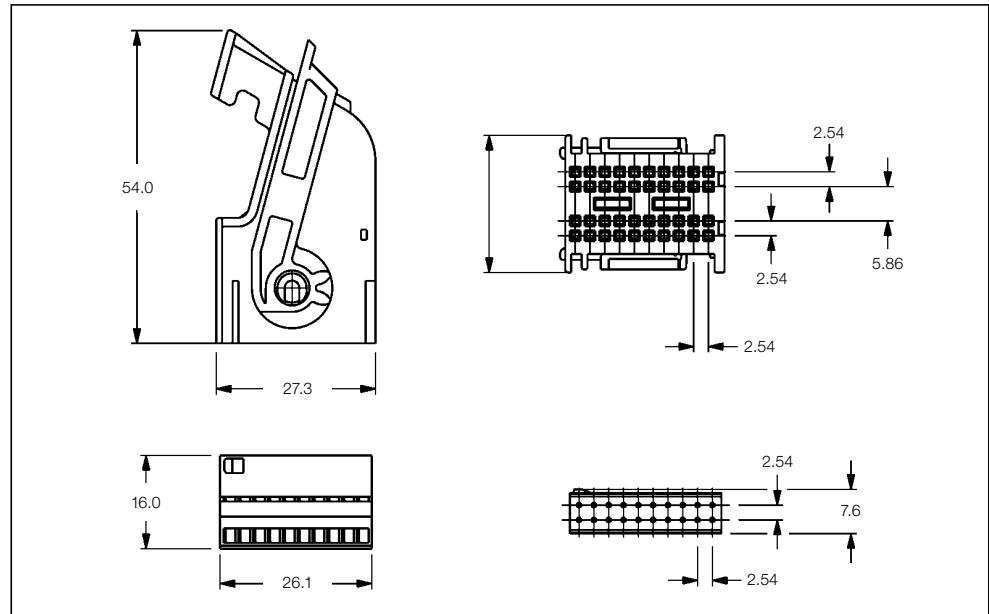
No. of Positions:
40 Positions (20 + 20 Kit)

Housing Material:
PA 66 GF

Wire Size Range:
0.35–0.5 mm²

Product Specification:
—

Application Specification:
—



40 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
40	A	Black	284229-1	—	—	—	—	—	—	—	284316
	B	Blue	284229-2	—	—	—	—	—	—	—	—

Technical Features

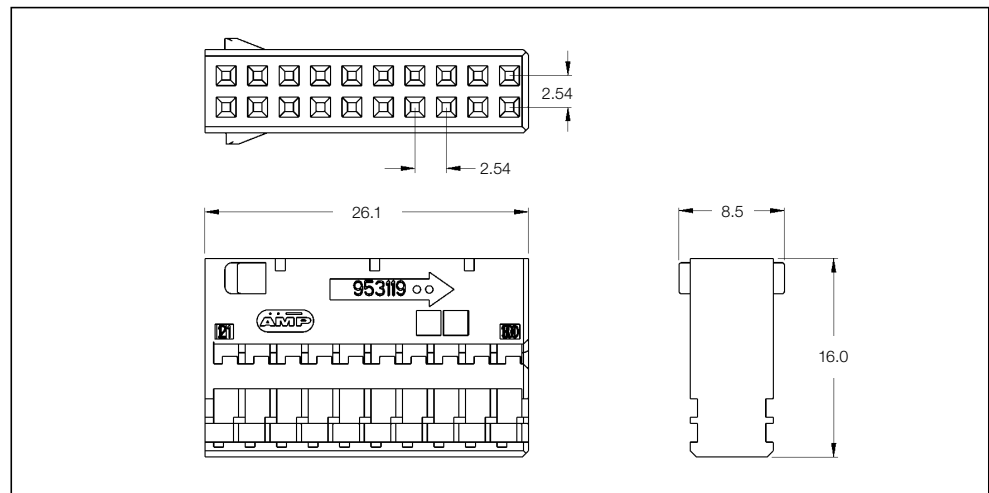
No. of Positions:
40 Positions (20 + 20)

Housing Material:
PBT GF20

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-15178

Application Specification:
411-15597



40 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
40	—	Black	—	—	—	953122-1 or 953122-5	—	—	—	—	—
		Grey	—	—	—	953122-2 or 953122-6	—	—	—	—	—
		White	—	—	—	953122-3 or 953122-7	—	—	—	—	—
		Blue	—	—	—	953122-4 or 953122-8	—	—	—	—	—
		Green	953119-1	—	—	—	—	—	—	—	953118
		Brown	953119-2	—	—	—	—	—	—	—	—

Receptacle Housings

Technical Features

No. of Positions:
40 Positions Assembly

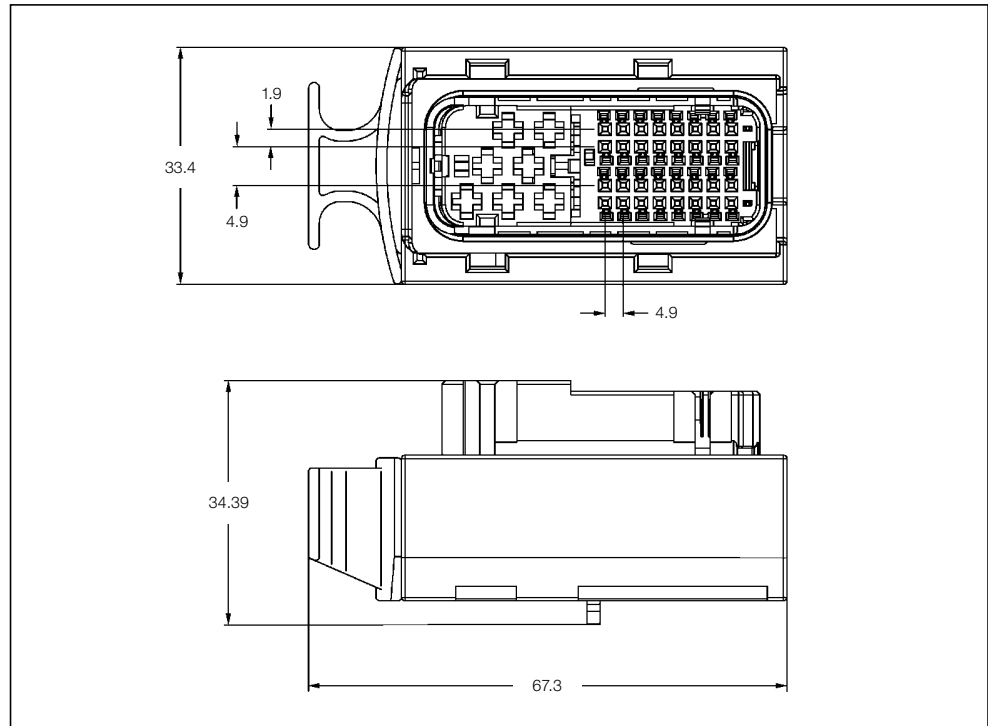
Housing Material:
PBT GF20

Wire Size Range:

- 0.5–2.5 mm²
Junior Power Timer
- 0.5–0.75 mm²
Micro Quadlok

Product Specification:
108-61039

Application Specification:
114-18021-1



40 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
40	-	Black	368383-1	-	-	-	-	-	-	-
		Grey	368383-2	-	-	-	-	-	-	-
		White	368383-3	-	-	-	-	-	-	-
		Blue	368383-4	-	-	-	-	-	-	-
		Yellow	-	-	-	-	368388-1	-	-	-

Receptacle Housings

Technical Features

Application:

Airbag

No. of Positions:

50 Positions Assembly

Housing Material:

PBT GF20

Wire Size Range:

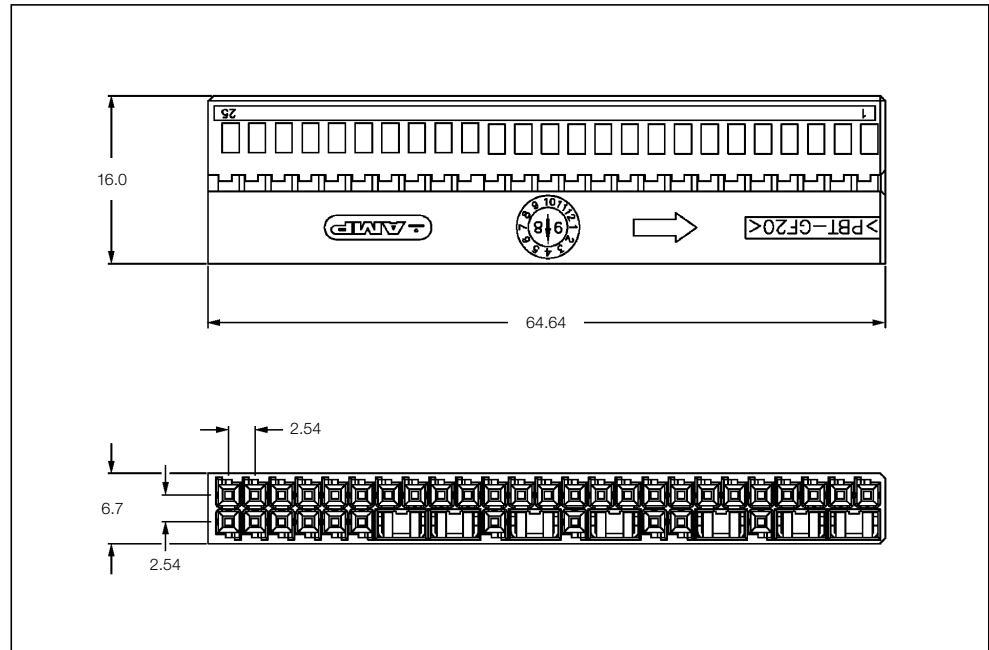
0.25–0.75 mm²

Product Specification:

108-61031

Application Specification:

114-18021



50 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Header Vertical
50	–	Black	368233-1	–	–	368231-1/-9 1-368231-1/-9	–	–	368213	–

Receptacle Housings

Technical Features

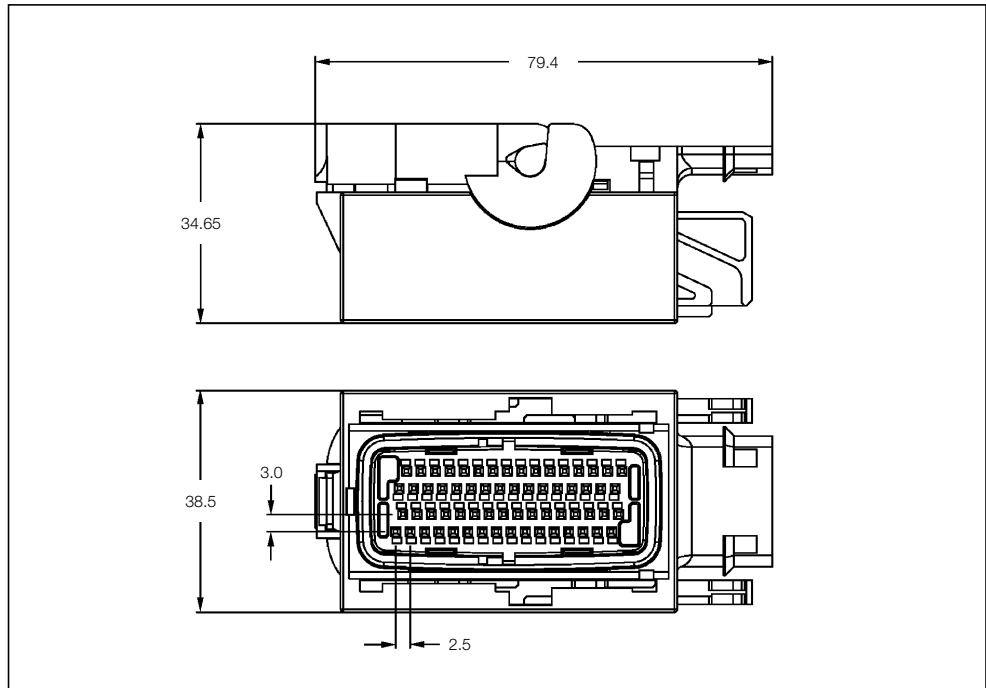
No. of Positions:
64 Positions Assembly

Housing Material:
PBT GF20

Wire Size Range:
0.2–0.75 mm²

Product Specification:
108-18030

Application Specification:
114-10021



64 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
64	A	Black	368434-1	368441-1	–	–	368440-1	–	–	–
	B	Blue	368434-2	–	–	–	–	–	–	–
	C	Grey	1-368434-1	–	–	–	–	–	–	–
	D	Brown	1-368434-2	–	–	–	–	–	–	–

Receptacle Housings

Technical Features

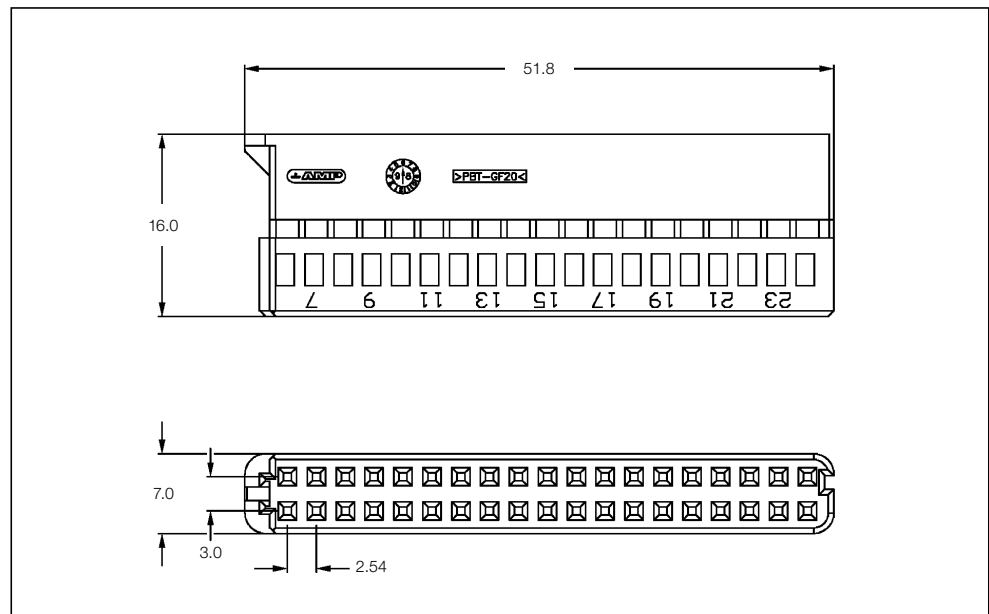
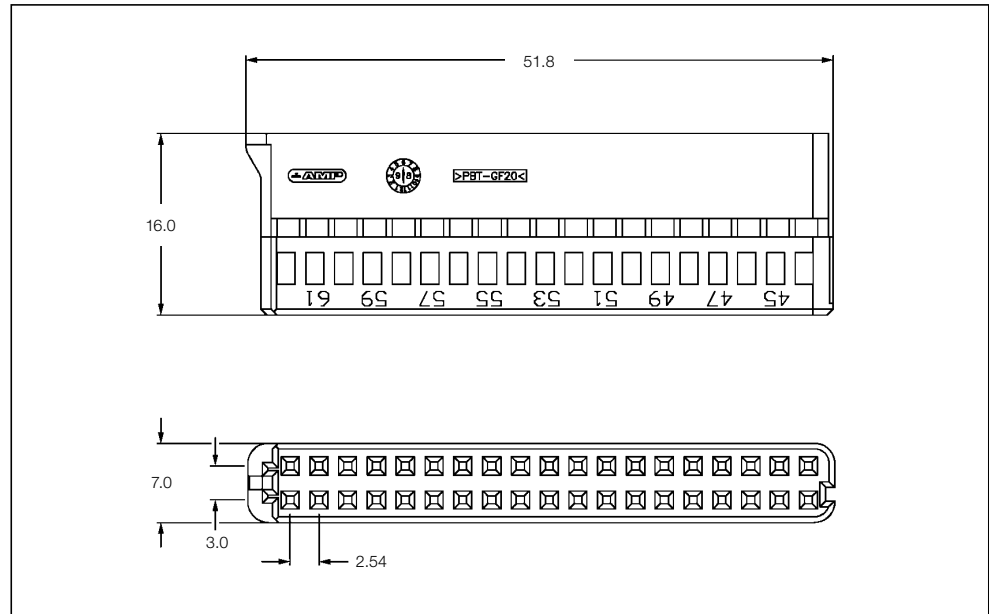
No. of Positions:
81 Positions Assembly
for Junior Power Timer and
Micro Quadlok

Housing Material:
PBT GF20

Wire Size Range:
• 0.5–2.5 mm²
Junior Power Timer
• 0.5–0.75 mm²
Micro Quadlok

Product Specification:
108-61036

Application Specification:
114-18021-1



81 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
81	-	Black	368293-1 (Type A)	368291-1	-	-	368297-1 (Micro Quadlok)	368290-1	-	-
			368294-1 (Type B)							

Receptacle Housings

Technical Features

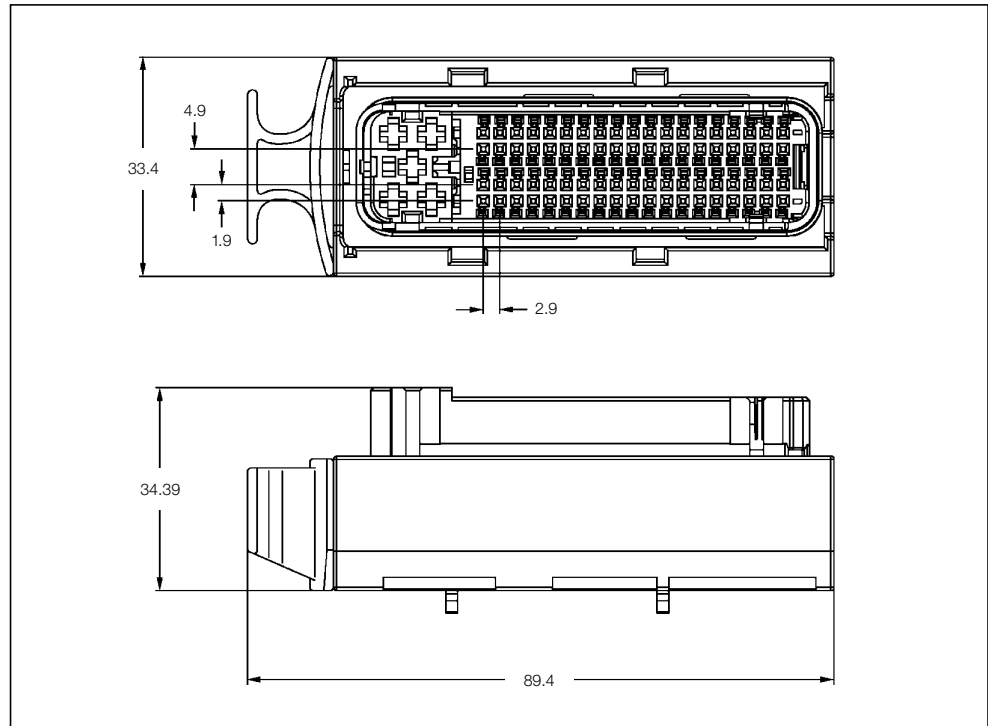
No. of Positions:
81 Positions Assembly
for Junior Power Timer and
Micro Quadlok

Housing Material:
PBT GF20

Wire Size Range:
• 0.5–2.5 mm²
Junior Power Timer
• 0.5–0.75 mm²
Micro Quadlok

Product Specification:
108-61036

Application Specification:
114-18021-1



81 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
81	-	Black	368376-1	368389-1	-	-	-	-	-	-
		Grey	368376-2	-	-	-	-	-	-	-
		White	368376-3	-	-	-	-	-	-	368146
		Blue	368376-4	-	-	-	-	-	-	-
		Yellow	-	-	-	-	-	368382-1	-	-

Tab Housings

Technical Features

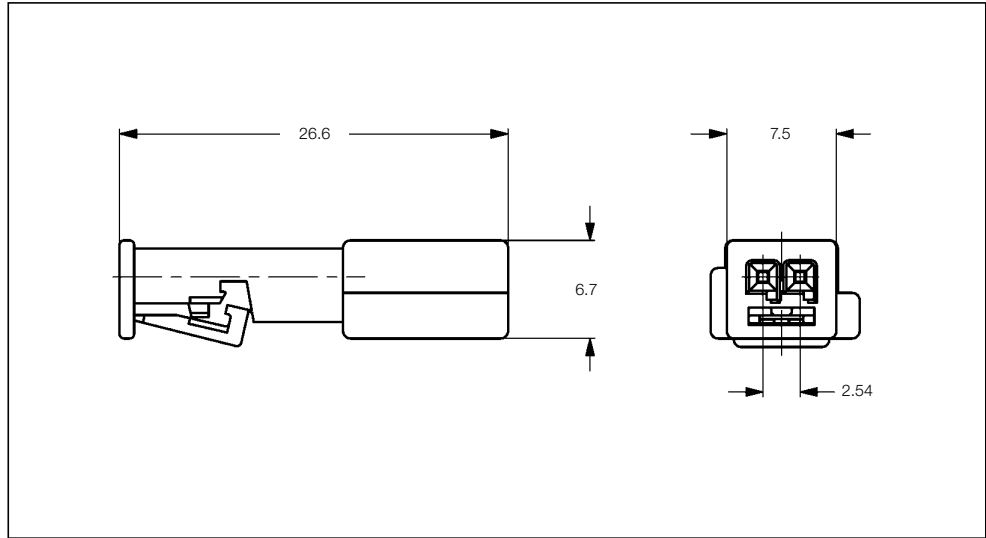
No. of Positions:
2 Positions

Housing Material:
PBT GF10

Wire Size Range:
0.2–0.75 mm²

Product Specification:
108-18590-0

Application Specification:
114-18225



2 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Receptacle Housing
2	A	Black	1-968699-1	-	-	-	-	968704
	B	Natural	2-968699-1	-	-	-	-	-

Technical Features

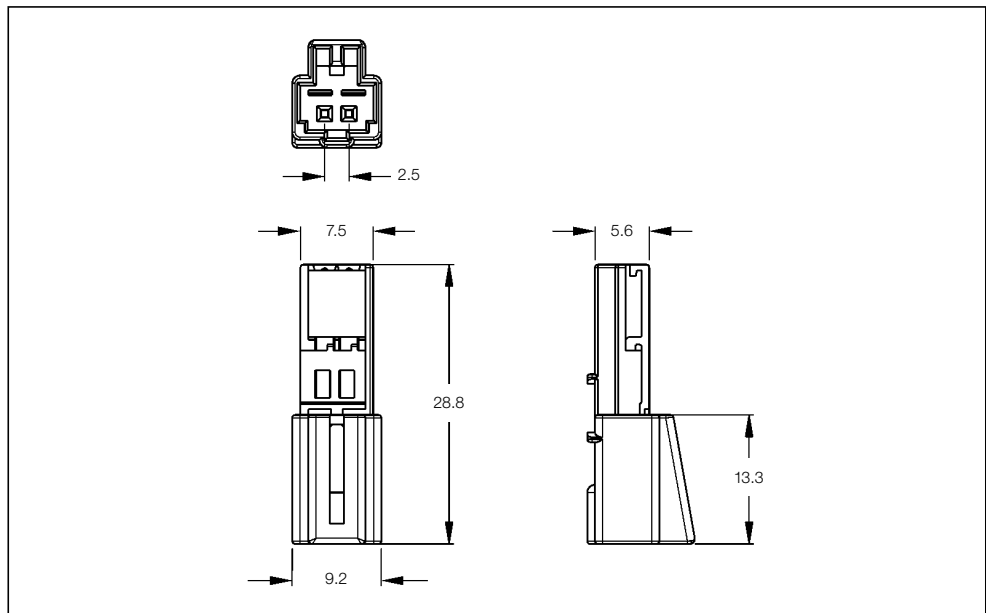
No. of Positions:
2 Positions

Housing Material:
PBT GF

Wire Size Range:
0.14–0.75 mm²

Product Specification:
108-18924

Application Specification:
114-18630



2 Position Tab Housing

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Receptacle Housing
2	-	Black	1-1534155-1	-	-	-	1534027-1	1-1534113-1 & 1534112-1

Tab Housings

Technical Features

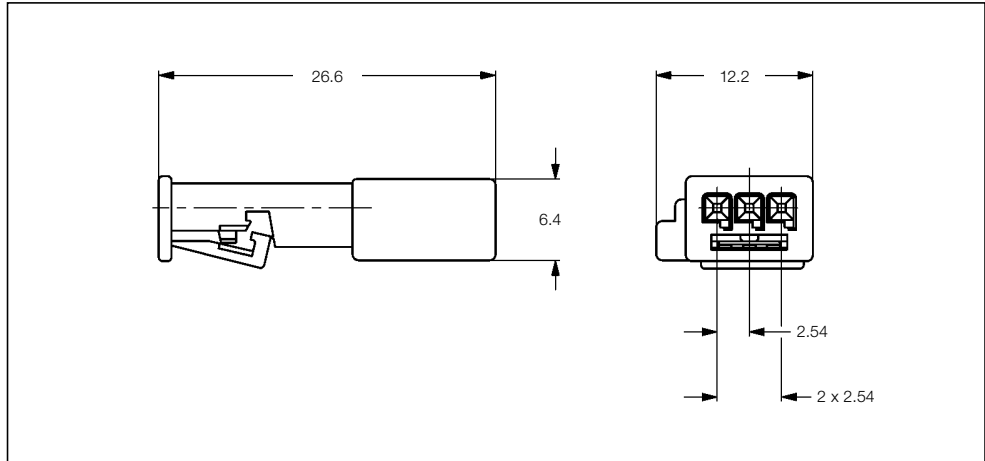
No. of Positions:
3 Positions

Housing Material:
PBT GF10

Wire Size Range:
0.2–0.75 mm²

Product Specification:
108-18590-0

Application Specification:
114-18225



3 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Receptacle Housing
3	A	Black	1-968700-1					
	B	Natural	2-968700-1	-	-	-	-	968705
	C	Blue	3-968700-1					

Technical Features

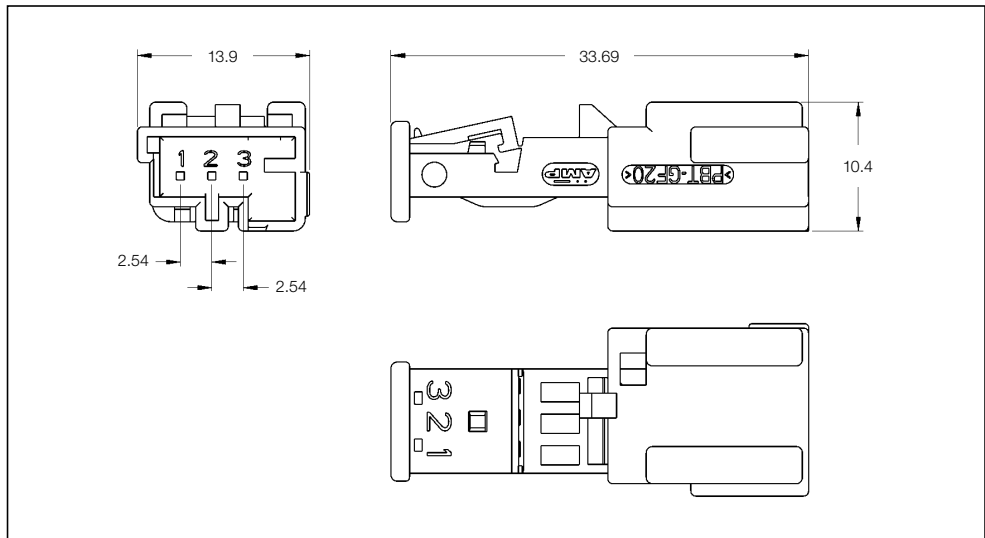
No. of Positions:
3 Positions

Housing Material:
PBT GF20

Wire Size Range:
0.20–0.75 mm²

Product Specification:
108-15236

Application Specification:
411-15526



3 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Counter Part
3	-	Black	953698-1					
		White	953698-2					
		Blue	953698-3					
		Yellow	953698-4					
		Grey	953698-5					
		Brown	953698-6					

Tab Housings

Technical Features

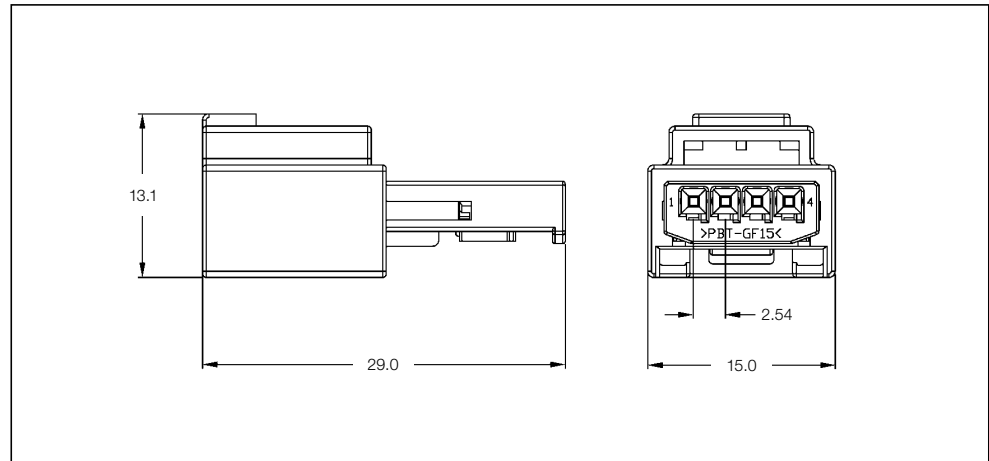
No. of Positions:
4 Positions

Housing Material:
PBT GF15

Wire Size Range:
0.25–0.75 mm²

Product Specification:
108-18030

Application Specification:
114-18021



4 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Receptacle Housing
4	-	Black	936121-1	-	-	-	-	936119
		Yellow	936121-1					

Technical Features

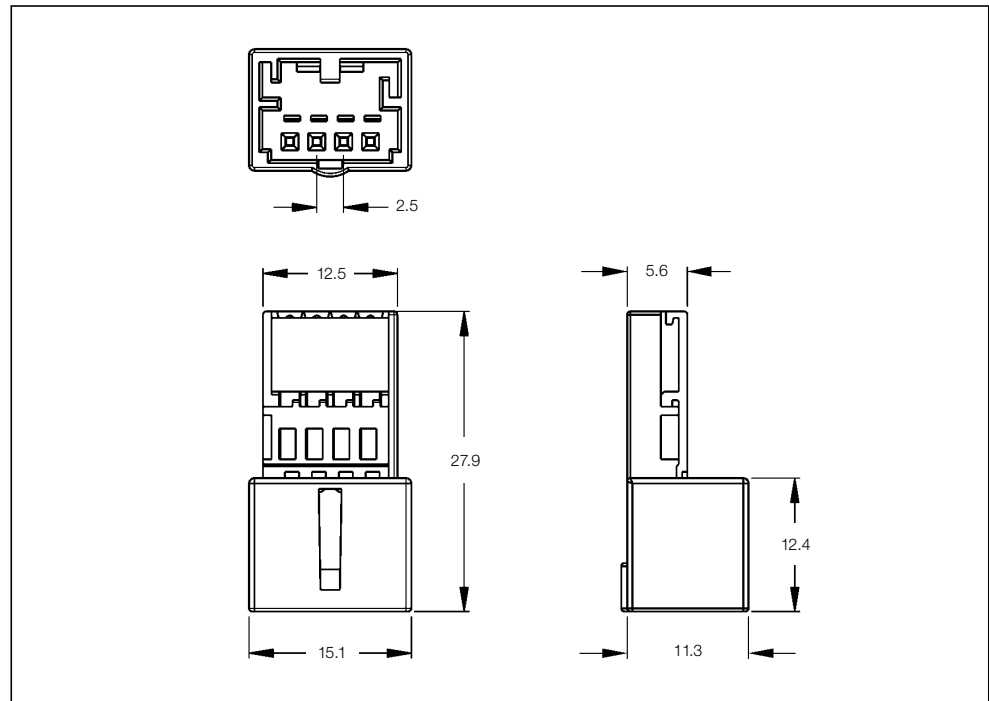
No. of Positions:
4 Positions

Housing Material:
PBT GF10

Wire Size Range:
0.14–0.75 mm²

Product Specification:
108-18924

Application Specification:
114-18630



4 Position Tab Housing

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Receptacle Housing
4	-	Black	1-1534157-1	-	-	-	1534131-1	1-1534150-1 & 1534149-1

Tab Housings

Technical Features

No. of Positions:

6 Positions

Housing Material:

PBT GF20

Wire Size Range:

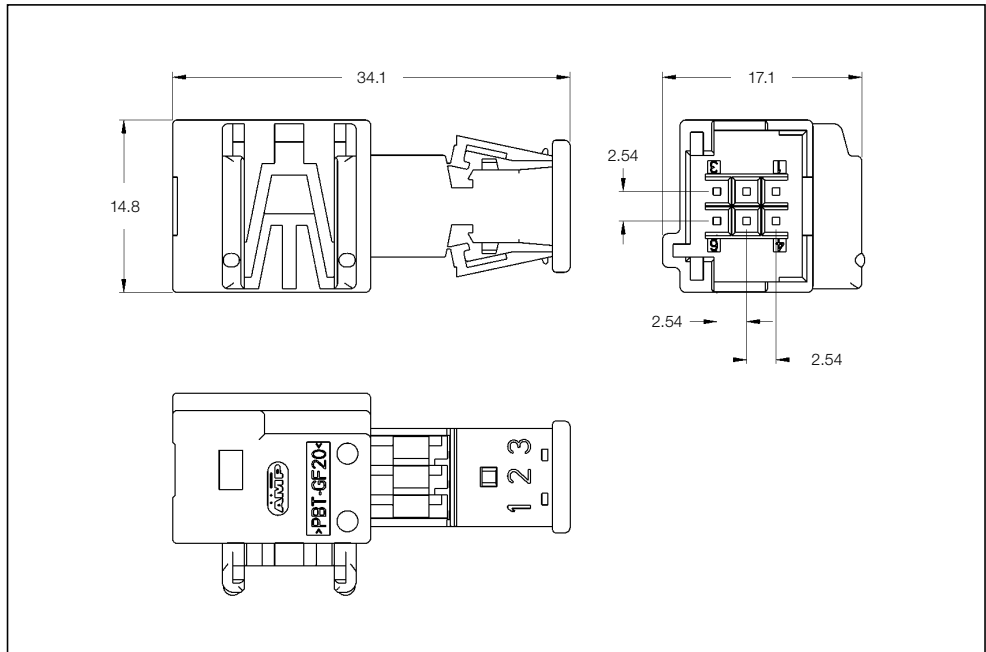
0.20–0.75 mm²

Product Specification:

108-15311

Application Specification:

411-15526



6 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Counter Part
6	-	Black	1379118-1					185311
		White	1379118-2					
		Green	1379118-3					
		Brown	1379118-4					

Tab Housings

Technical Features

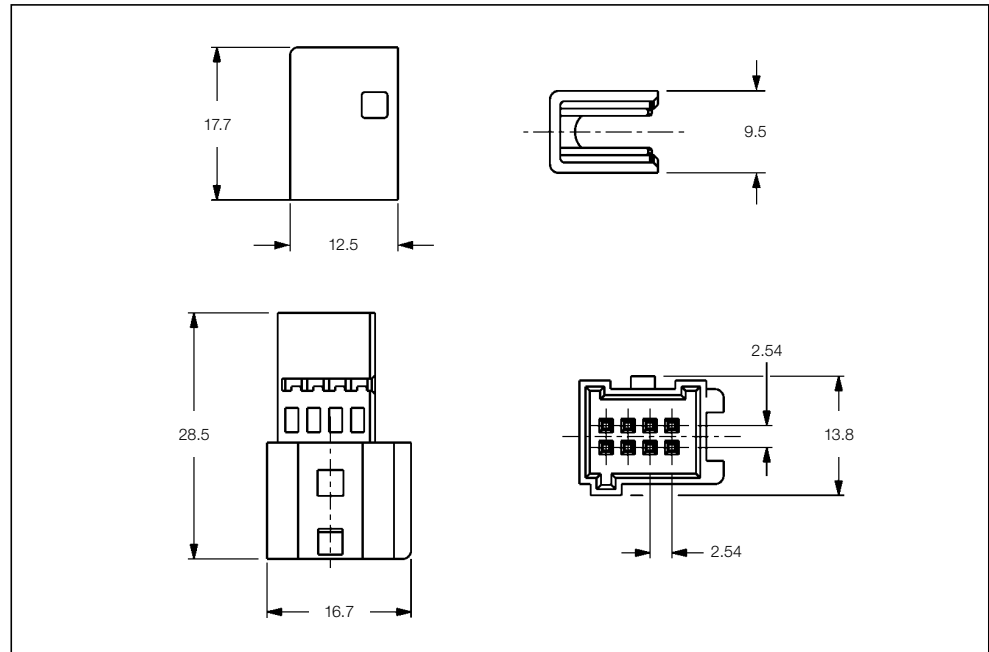
No. of Positions:
8 Positions Kit

Housing Material:
PBT GF

Wire Size Range:
0.75 mm² FR Max.

Product Specification:
—

Application Specification:
—



8 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Receptacle Housing
8	—	Black	284869-1	—	—	—	—	1745000

Tab Housings

Technical Features

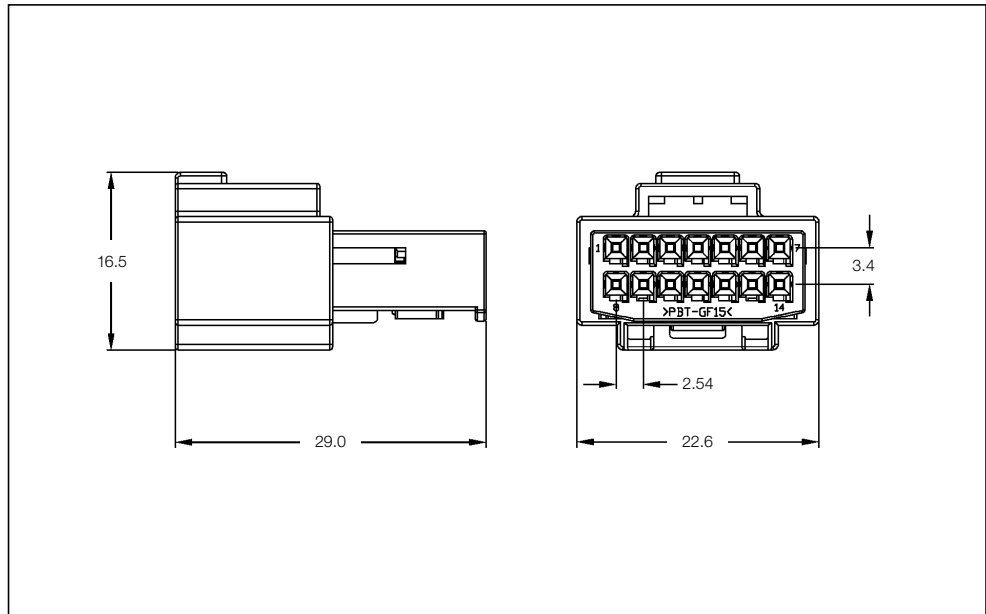
No. of Positions:
14 Positions

Housing Material:
PBT GF15

Wire Size Range:
0.25–0.75 mm²

Product Specification:
108-18030

Application Specification:
114-18021



14 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Receptacle Housing
14	-	Black	936126-1	-	-	-	-	936124
		Yellow	936126-2					

Tab Housings

Technical Features

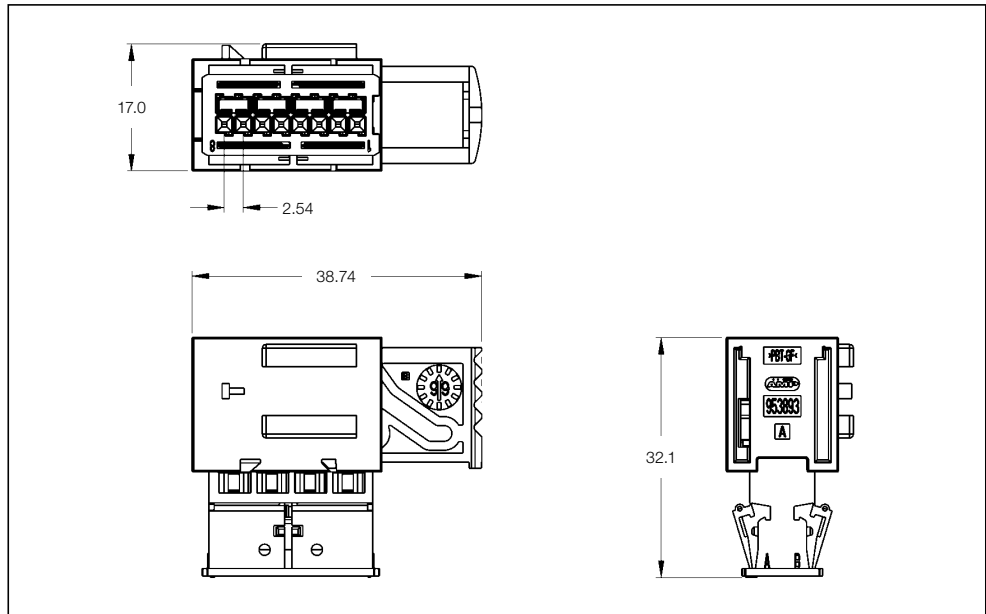
No. of Positions:
16 Positions

Housing Material:
PBT GF20

Wire Size Range:
0.20–0.75 mm²

Product Specification:
108-15308

Application Specification:
411-15629



16 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Counter Part
16	-	Green	953893-1					
		Grey	1-953893-1					
		Black	2-953893-1	-	-	-	-	953892
		Brown	3-953893-1					
		Blue	4-953893-1					

Tab Housings

Technical Features

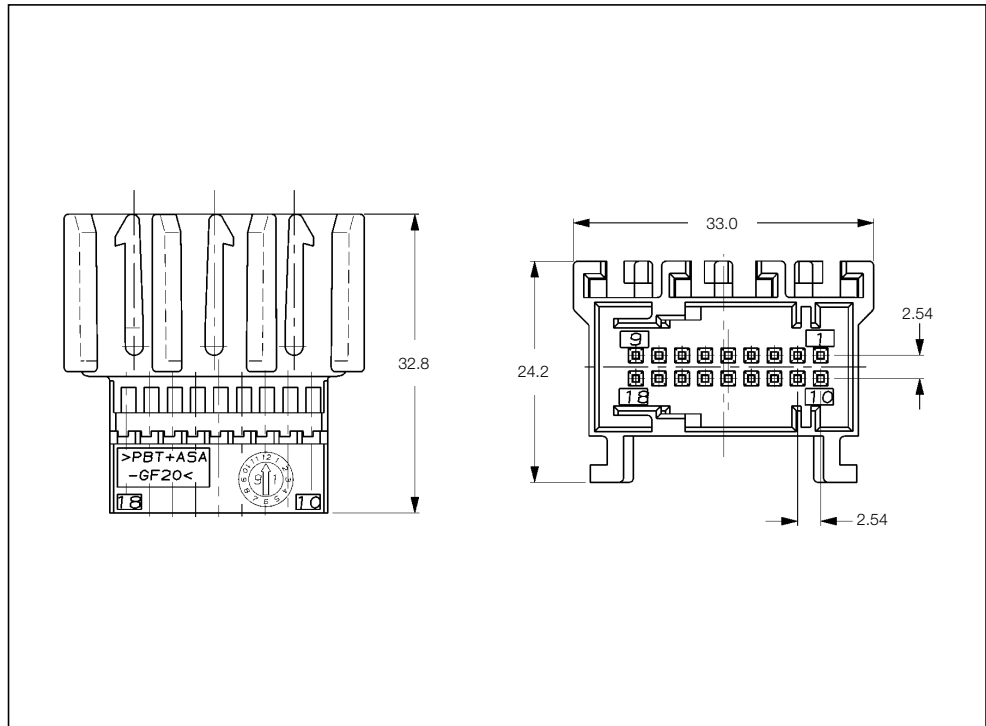
No. of Positions:
18 Positions

Housing Material:
PBT GF20

Wire Size Range:
0.75 mm² Max.

Product Specification:
108-18517

Application Specification:
—



18 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Receptacle Housing
18	A	Black	1-962692-2	1-962693-1	962112-3	1355350	—	1355348
	B	Natural	2-962692-2	—	—	—	—	—

Tab Housings

Technical Features

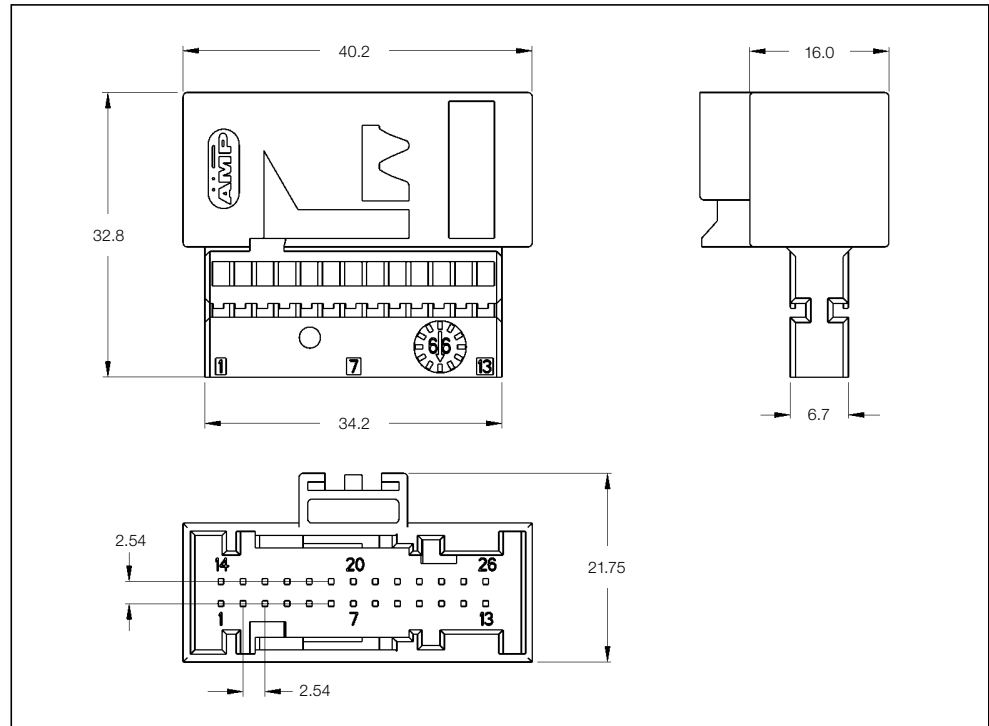
No. of Positions:
26 Positions

Housing Material:
PBT GF20

Wire Size Range:
0.35–0.50 mm²

Product Specification:
108-15220

Application Specification:
411-15622



26 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Counter Part
26	-	Black	-	953946-1	-	-	-	-
		Yellow	953736-1					
		Blue	953736-2					
		Red	953736-3	-	-	-	-	144934
		Green	953736-4					185879
		Purple	953736-5					

Tab Housings

Technical Features

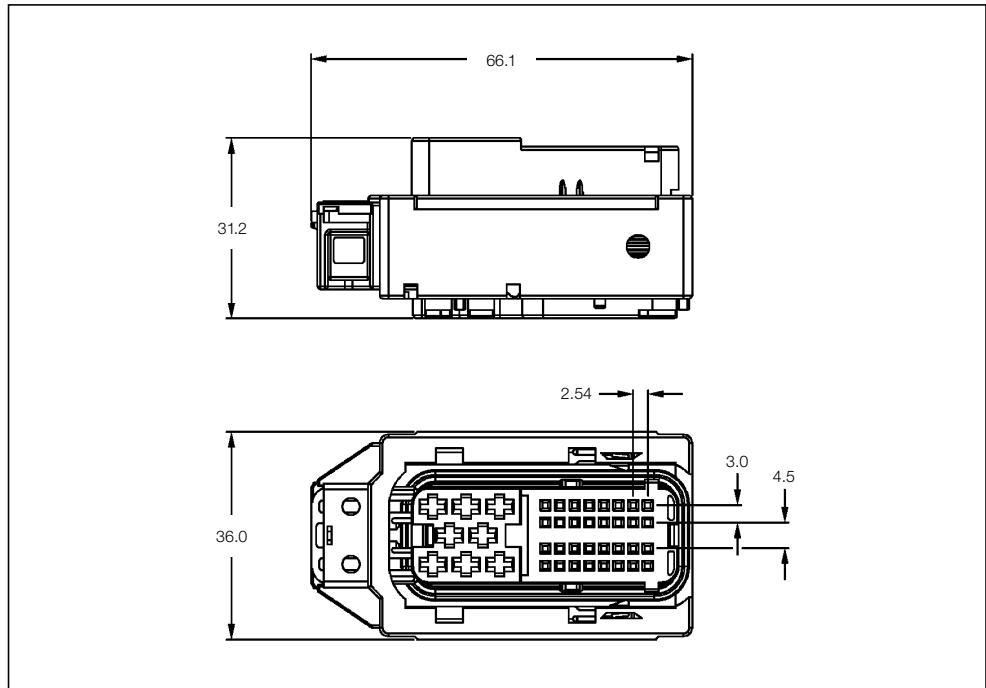
No. of Positions:
40 Positions Assembly

Housing Material:
PBT GF20

Wire Size Range:
• 0.5–2.5 mm²
Junior Power Timer
• 0.5–0.75 mm²
Micro Quadlok

Product Specification:
108-61036

Application Specification:
114-18021-1



40 Position Tab Housing

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Receptacle Housing
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	
40	–	Black	368319-1	–	–	–	–	368322 368323

Tab Housings

Technical Features

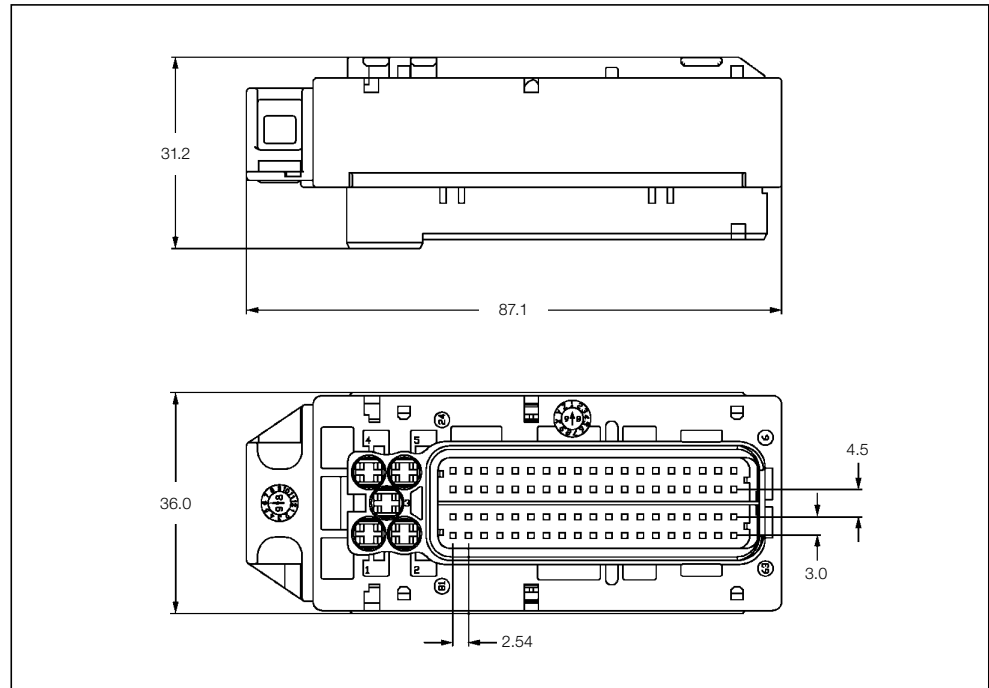
No. of Positions:
81 Positions Assembly

Housing Material:
PBT GF20

Wire Size Range:
• 0.5–2.5 mm²
Junior Power Timer
• 0.5–0.75 mm²
Micro Quadlok

Product Specification:
108-61036

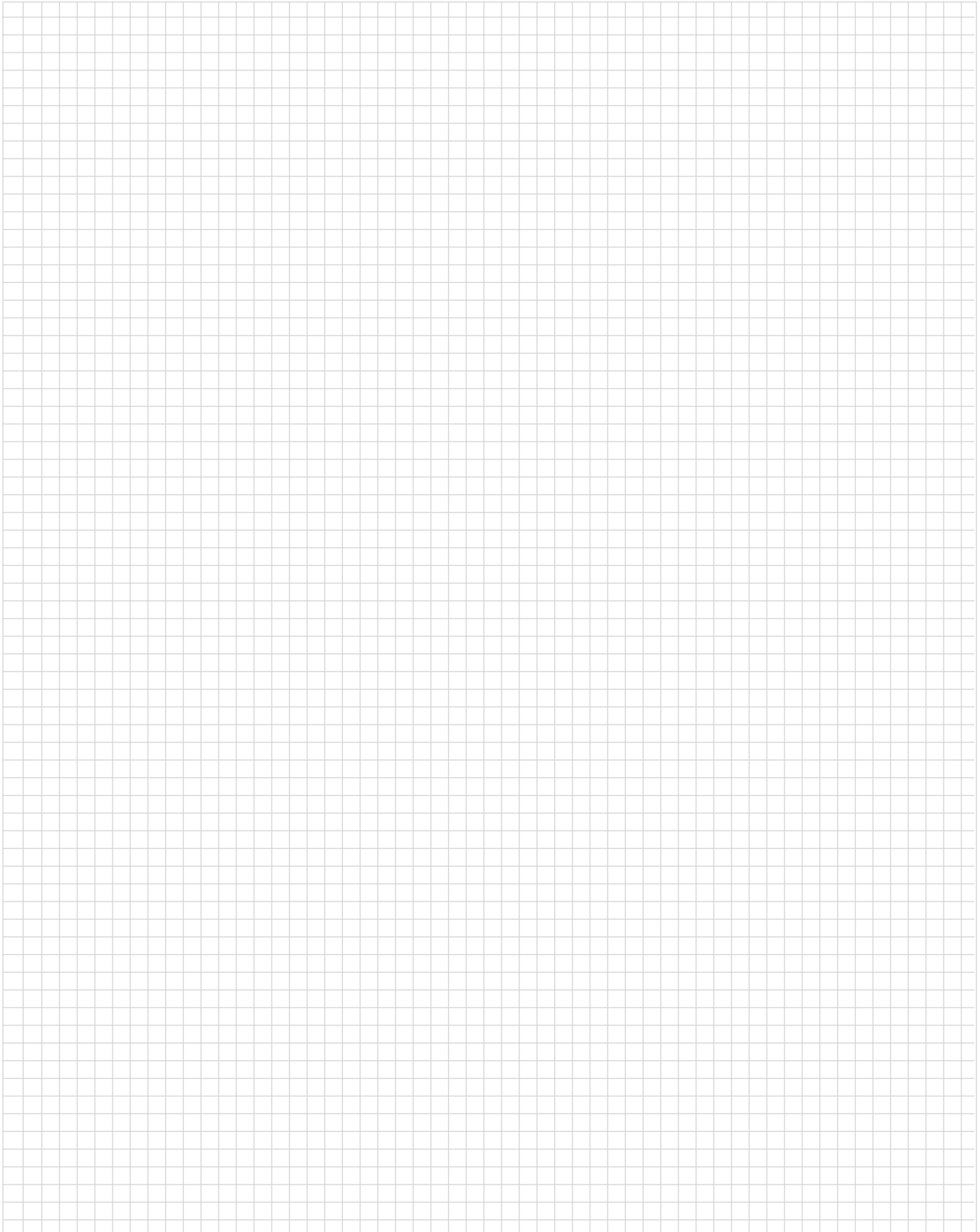
Application Specification:
114-18021-1



81 Position Tab Housing

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Receptacle Housing
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	
81	–	Black	368290-1	–	–	–	–	368293 368294

Engineering Notes



Printed Circuit Board Headers

Technical Features

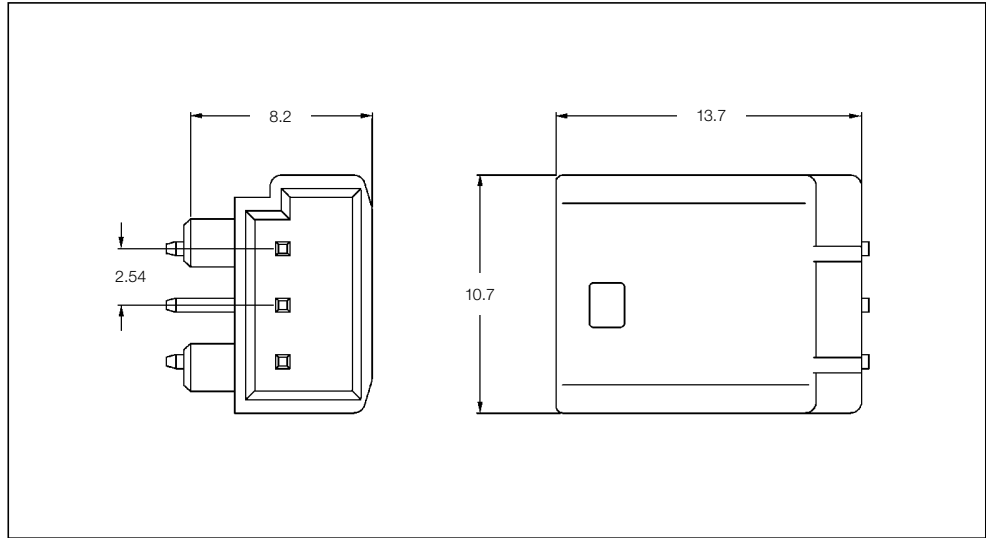
No. of Positions:
3 Positions Assembly

Housing Material:
PBT GF15

Material and Finish:
CuSn, tin plated

Product Specification:
108-61038

Application Specification:
114-18021



3 Position PCB Header

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
3	-	Black	368312-1	-	-	-	-	368313-1

Technical Features

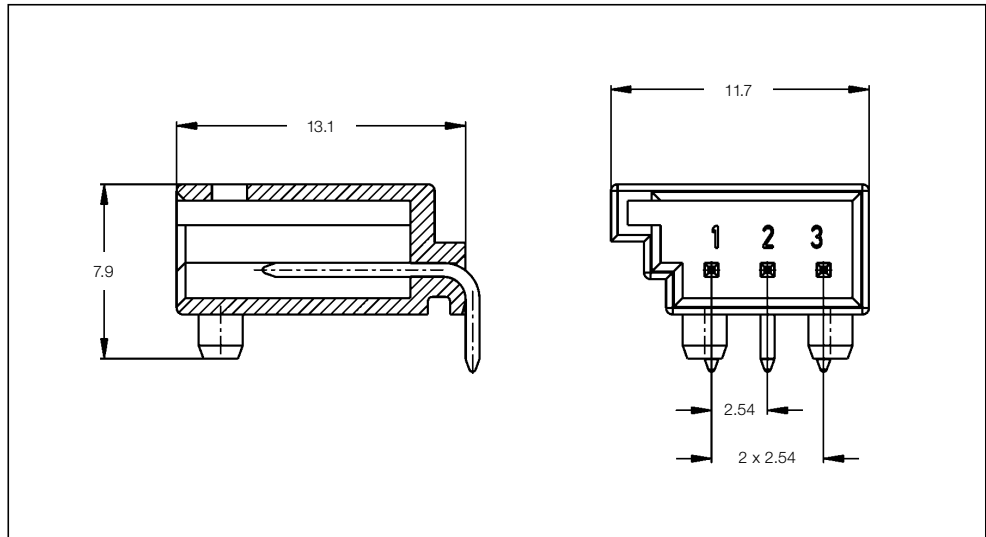
No. of Positions:
3 Positions Assembly

Housing Material:
PBT GF20

Material and Finish:
CuSn, pre-tin plated

Product Specification:
108-18030

Application Specification:
114-18021



3 Position PCB Header

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
3	E	Black	5-1355730-1	-	-	-	-	968705

Printed Circuit Board Headers

Technical Features

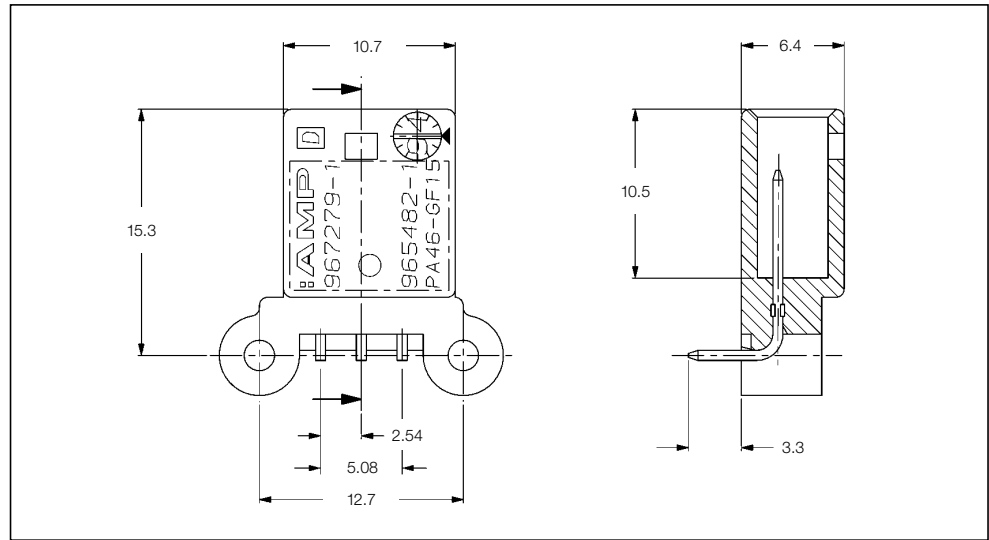
No. of Positions:
3 Positions

Housing Material:
PA 46 GF15

Material and Finish:
CuFe2, tin plated

Product Specification:
—

Application Specification:
—



3 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
3	A	Black	967279-1	—	—	—	—	968705-9
	D	Black	967279-4	—	—	—	—	968705-4

Technical Features

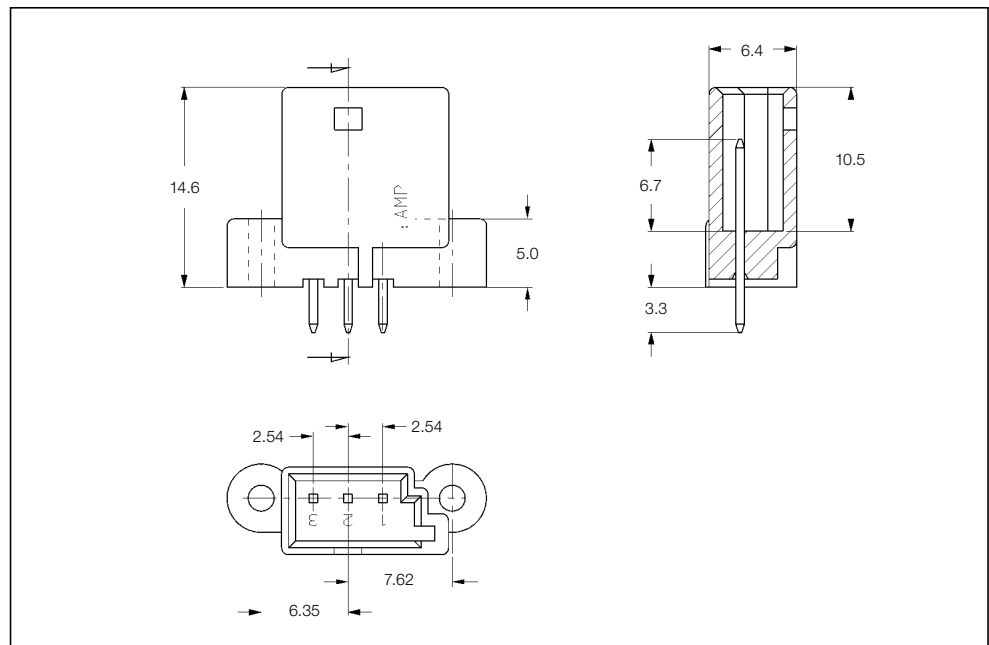
No. of Positions:
3 Positions

Housing Material:
PBT CV 15%

Material and Finish:
CuSn, post tin plated

Product Specification:
108-15156

Application Specification:
411-15579



3 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
3	—	Black	—	185730-1	—	—	—	185309-1

Printed Circuit Board Headers

Technical Features

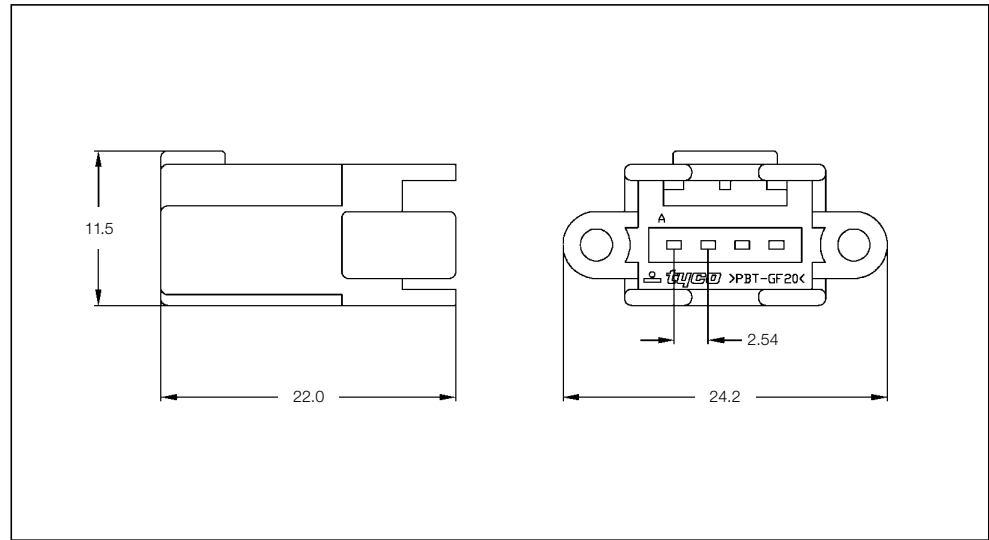
No. of Positions:
4 Positions Assembly

Housing Material:
PBT GF20

Material and Finish:
CuZn, tin plated

Product Specification:
108-18030

Application Specification:
114-18021



4 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
4	-	Natural	-	936399-1	-	-	-	936119
		Yellow	-	936399-5	-	-	-	

Printed Circuit Board Headers

Technical Features

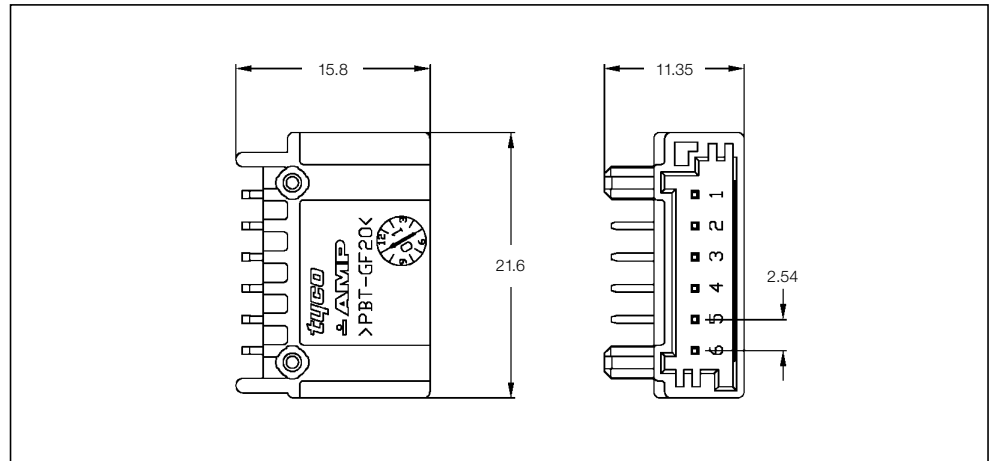
No. of Positions:
6 Positions Assembly

Housing Material:
PBT GF20

Material and Finish:
CuSn, tin-lead plated

Product Specification:
108-18030

Application Specification:
114-18021



6 Position PCB Header

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
6	B	Natural	936287-2	-	-	-	-	936289

Technical Features

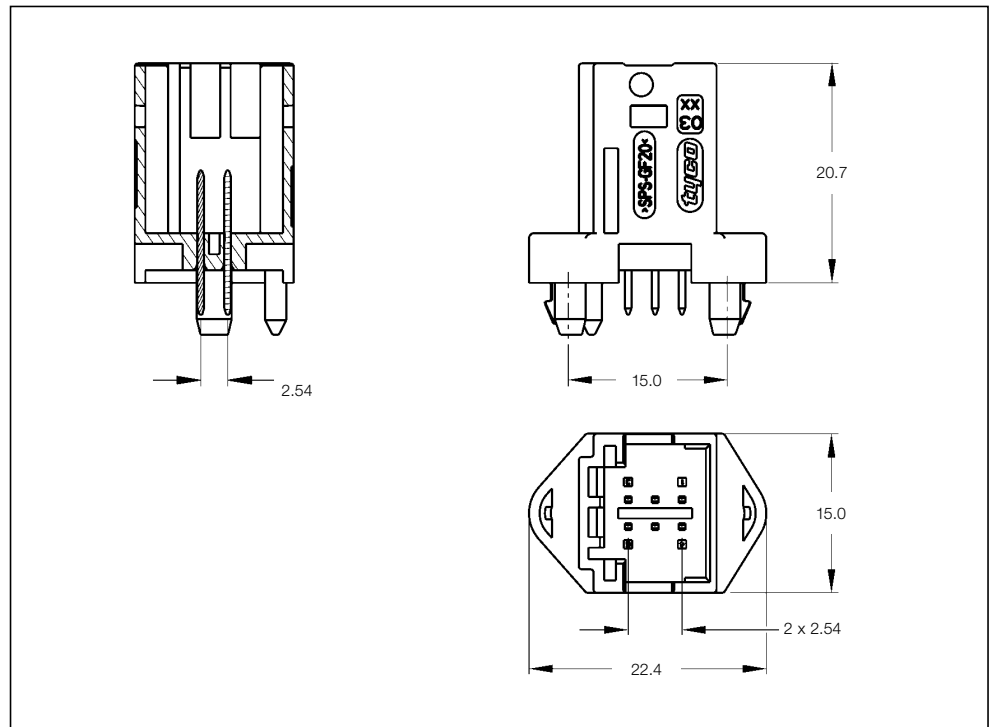
No. of Positions:
6 Positions with Board Locks

Housing Material:
SPS GF20

Material and Finish:
CuSn6, pre-tin plated

Product Specification:
108-15329

Application Specification:
—



6 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
6	-	Black	-	1379816-1	-	-	-	953382
		White	-	1379816-2				
		Green	-	1379816-3				
		Brown	-	1379816-4				

Printed Circuit Board Headers

Technical Features

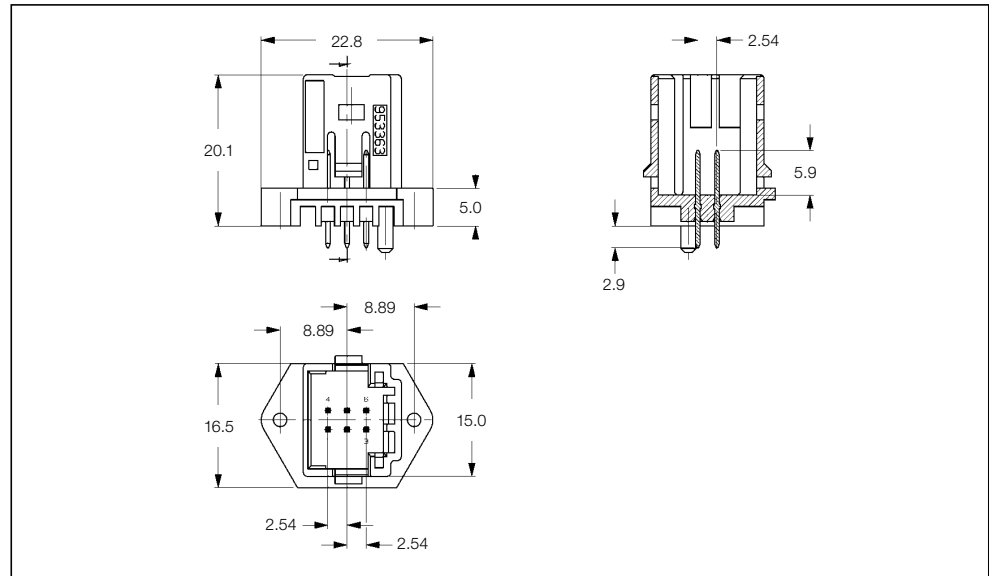
No. of Positions:
6 Positions with Ears

Housing Material:
PBT GF20

Material and Finish:
CuSn, post tin plated

Product Specification:
108-15199

Application Specification:
—



6 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Counter Part
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	
6	—	Black	—	953363-1	—	—	—	953382
		Brown	—	953363-3	—	—	—	

Technical Features

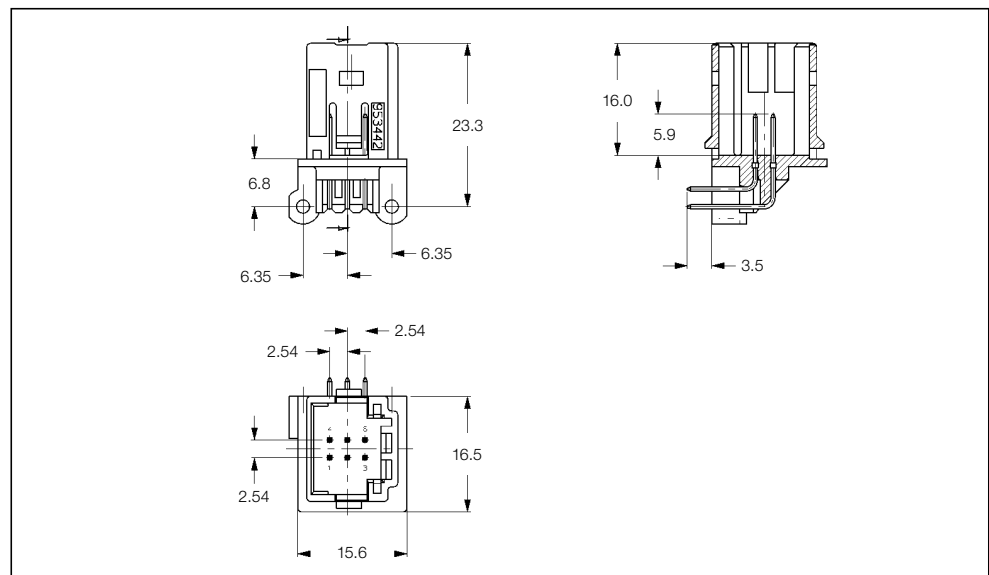
No. of Positions:
6 Positions with Ears

Housing Material:
PBT GF20

Material and Finish:
CuSn6, tin plated

Product Specification:
108-15150

Application Specification:
—



6 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Counter Part
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	
6	—	Black	953442-1	—	—	—	—	953382
		White	953442-2	—	—	—	—	
		Brown	953442-3	—	—	—	—	
		Green	953442-4	—	—	—	—	

Printed Circuit Board Headers

Technical Features

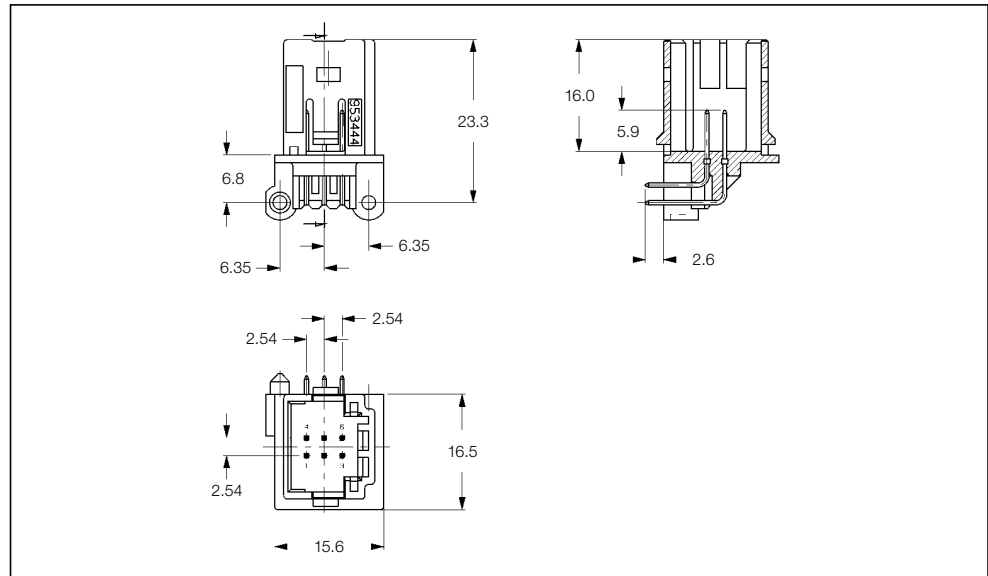
No. of Positions:
6 Positions with 1 Pin

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15150

Application Specification:
—



6 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Counter Part
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	
6	-	Black	953444-1	-	-	-	-	953382
		Brown	953444-2	-	-	-	-	

Technical Features

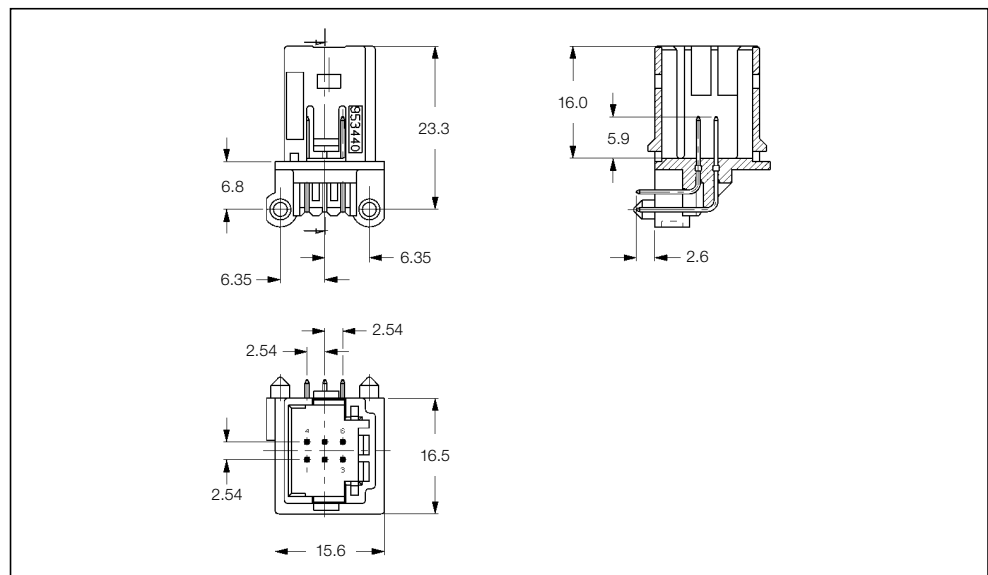
No. of Positions:
6 Positions with 2 Pins

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15150

Application Specification:
—



6 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Counter Part
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	
6	-	Black	953440-1	-	-	-	-	953382
		White	953440-2	-	-	-	-	
		Brown	953440-3	-	-	-	-	
		Green	953440-4	-	-	-	-	

Printed Circuit Board Headers

Technical Features

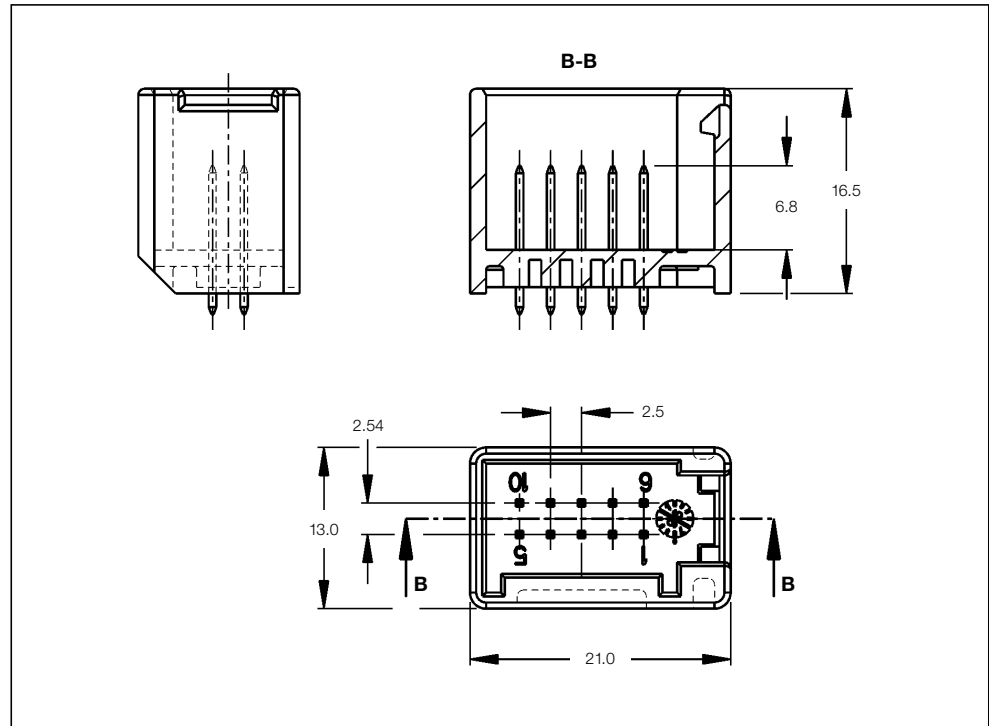
No. of Positions:
10 Positions Assembly (2 × 5)

Housing Material:
PBT GF15

Material and Finish:
CuSn, tin plated

Product Specification:
108-18692-0

Application Specification:
114-18630



10 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
10	-	Black	-	969587-1	-	-	-	1534125-1 &
			-	969587-2				1-1534171-1

Printed Circuit Board Headers

Technical Features

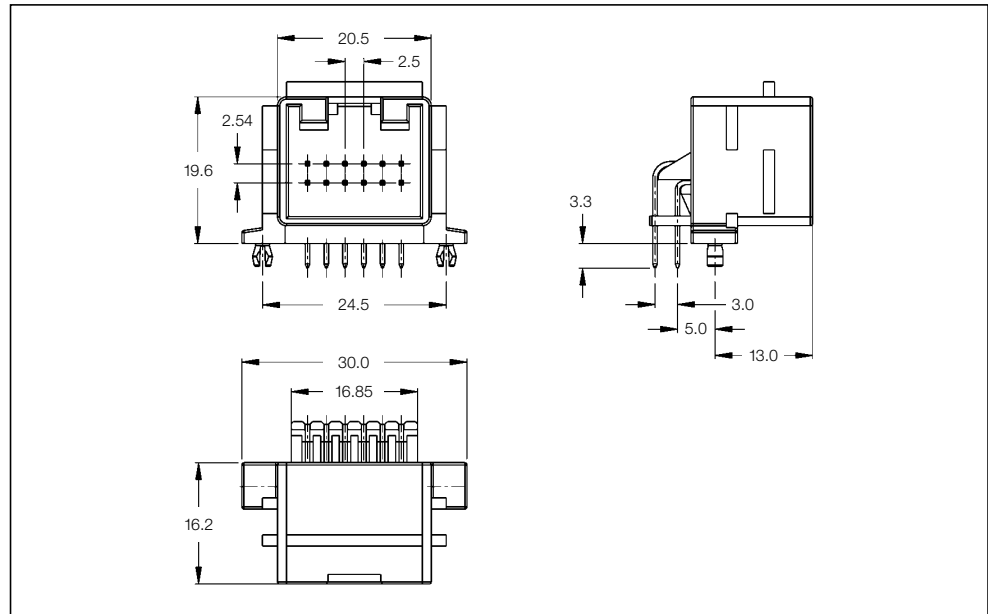
No. of Positions:
12 Positions Assembly (2 × 6)

Housing Material:
PBT GF15

Material and Finish:
CuSn, tin plated

Product Specification:
108-18692-0

Application Specification:
—



12 Position PCB Header

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
12	—	Black	967250-1	—	—	—	—	1534100-1 & 1-1534096-1

Technical Features

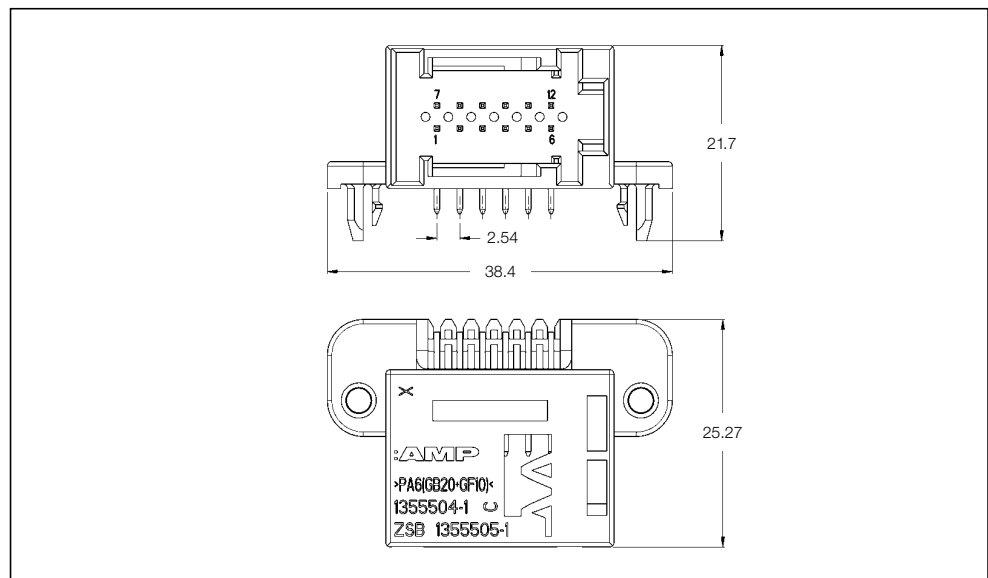
No. of Positions:
12 Positions

Housing Material:
PA 6 GF10 + GF20

Material and Finish:
CuSn, tin plated

Product Specification:
108-18671-0

Application Specification:
114-18314-0



12 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
12	Z	Black	1355505-1	—	—	929051-1	—	968473
	B	Light-Grey	1355505-3	—	—	—	—	
	B	Light-Grey	1355505-4*	—	—	—	—	

* **Material:** CuSn + CuFe

Printed Circuit Board Headers

Technical Features

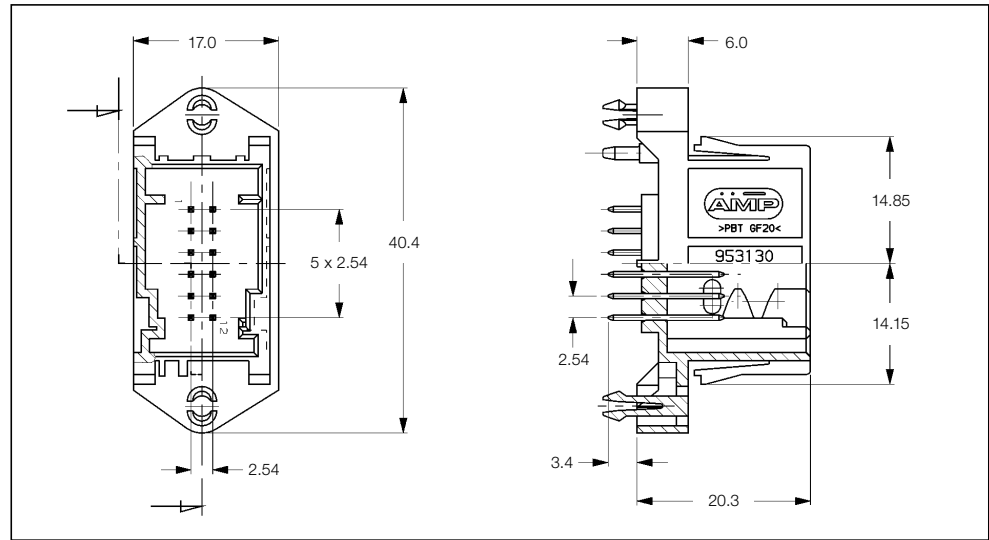
No. of Positions:
12 Positions with Board Locks

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15180

Application Specification:
—



12 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
12	—	Black	—	953130-1	—	—	—	185303
		Blue	—	953130-2	—	—	—	185341
		Brown	—	953130-3	—	—	—	185343
								1379095
								1379096

Technical Features

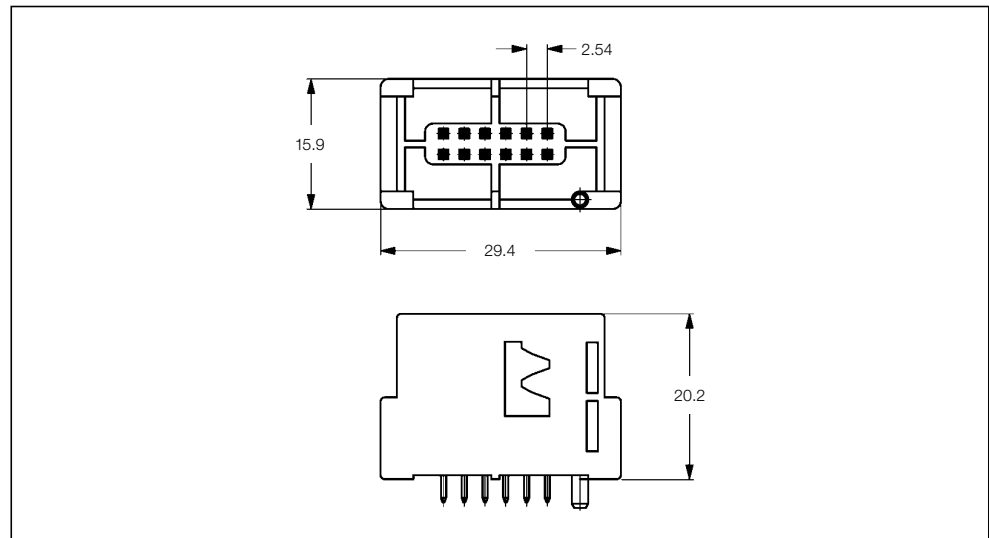
No. of Positions:
12 Positions

Housing Material:
PA 66

Material and Finish:
CuSn, pre-tin plated

Product Specification:
108-18545-0

Application Specification:
114-18173-0



12 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
12	A	Black	—	967646-1	—	929051-1	—	968473-1
	A	Black	—	1-967646-1	—	—	—	—
	B	Green	—	967646-2	—	—	—	—
	C	Blue	—	967646-3	—	—	—	—

Printed Circuit Board Headers

Technical Features

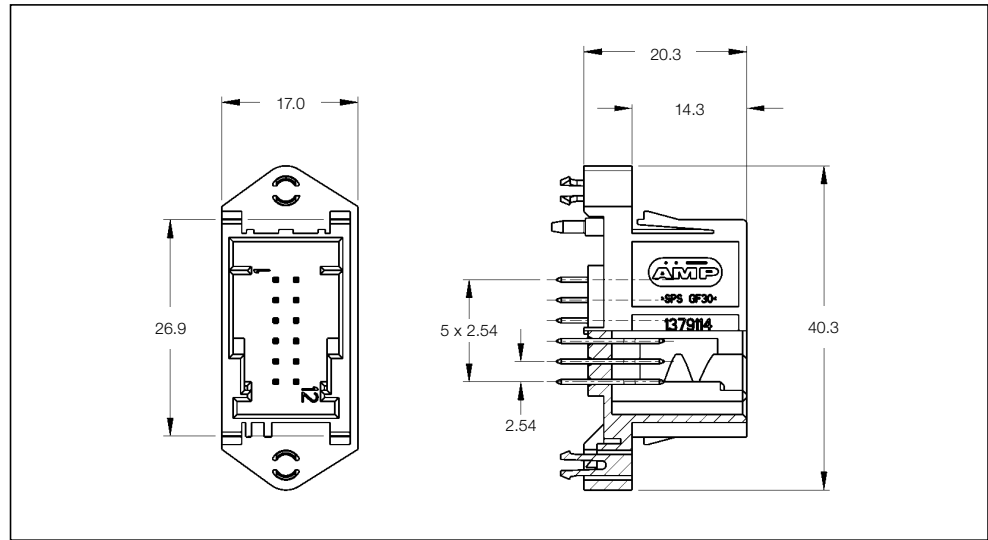
No. of Positions:
12 Positions with Board Locks

Housing Material:
SPS GF30

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15180

Application Specification:
—



12 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
12	—	Black	—	1379114-1	—	—	—	185303
		Blue	—	1379114-2	—	—	—	185341
		Brown	—	1379114-3	—	—	—	185343
			—	—	—	—	—	1379095
—	—	—	—	—	—	—	1379096	

Technical Features

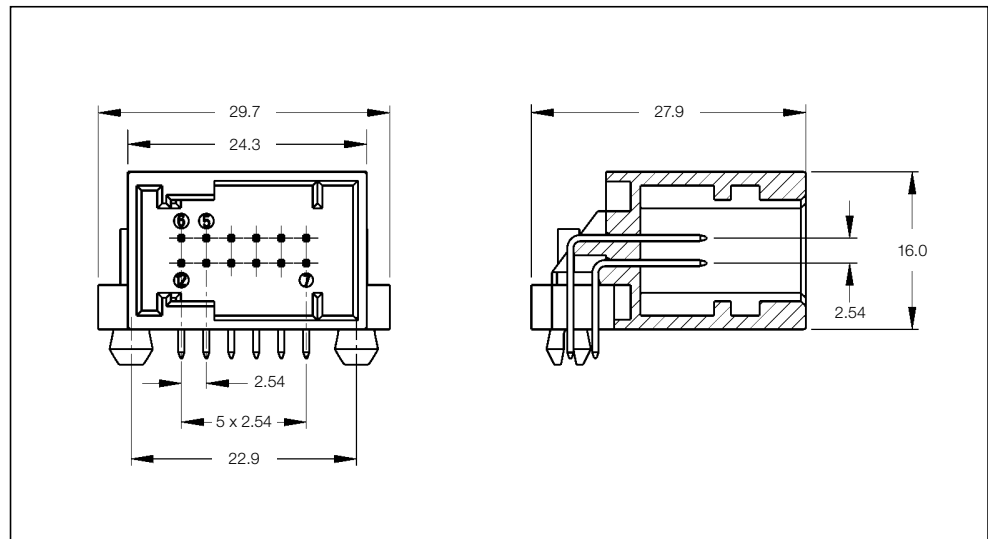
No. of Positions:
12 Positions with Board Locks

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15159

Application Specification:
—



12 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
12	—	Black	185740-1	—	—	—	—	185303
		Blue	185740-2	—	—	—	—	185341
		Brown	—	—	—	—	—	185343
			—	—	—	—	—	1379095
—	—	—	—	—	—	—	1379096	

Printed Circuit Board Headers

Technical Features

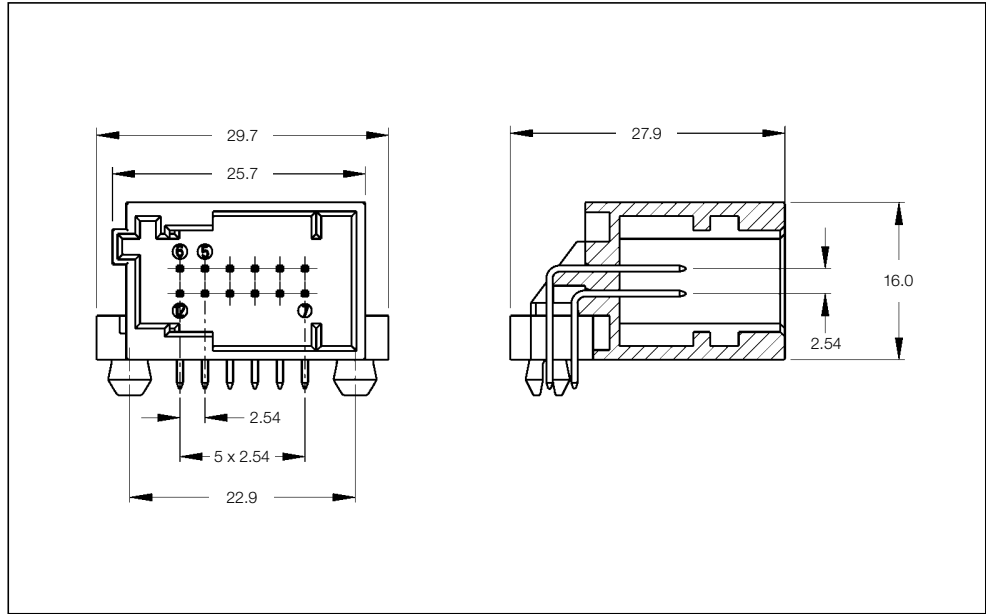
No. of Positions:
12 Positions

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15159

Application Specification:
—



12 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
12	—	Blue	1379030-1	—	—	—	—	185303
			—	—				185341
		Brown	—	—				185343
			1379030-3	—				1379095
							1379096	

Printed Circuit Board Headers

Technical Features

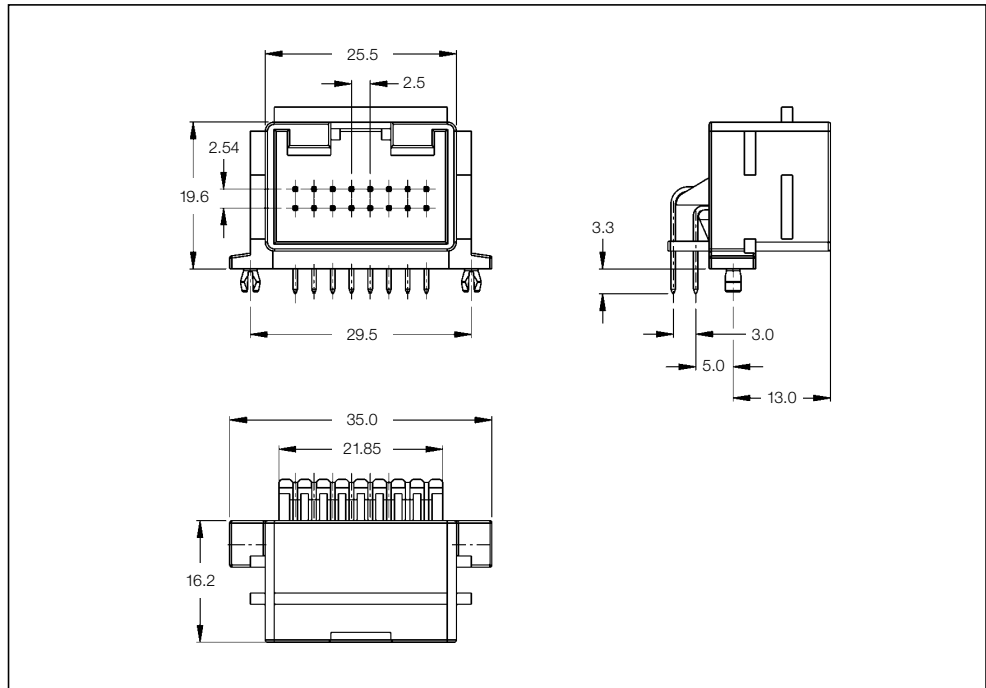
No. of Positions:
16 Positions Assembly (2 × 8)

Housing Material:
PBT GF15

Material and Finish:
CuSn, tin plated

Product Specification:
108-18692-0

Application Specification:
—



16 Position PCB Header

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
16	—	Black	966870-1	—	—	—	—	1534101-1 & 1-1534097-1

Printed Circuit Board Headers

Technical Features

No. of Positions:

18 Positions

Housing Material:

PBT GF30

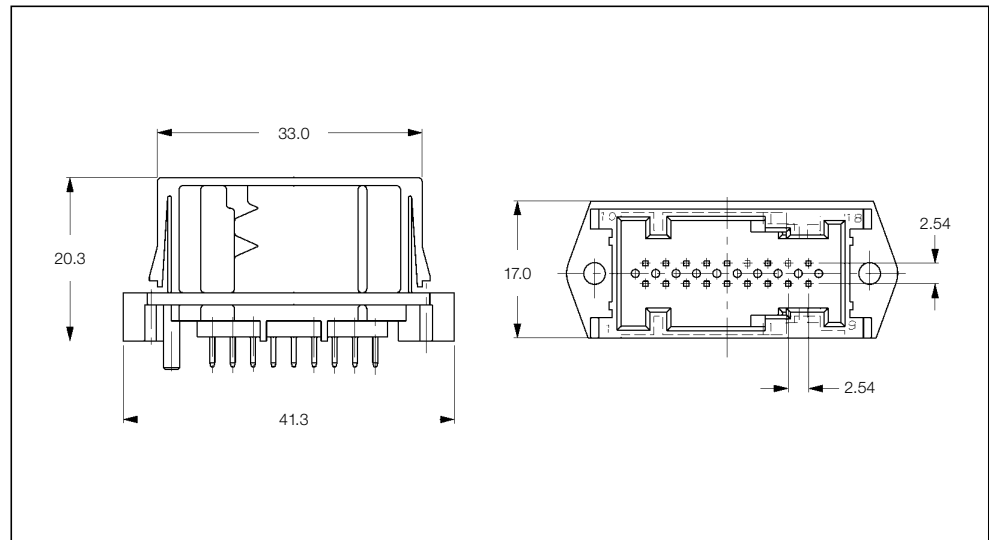
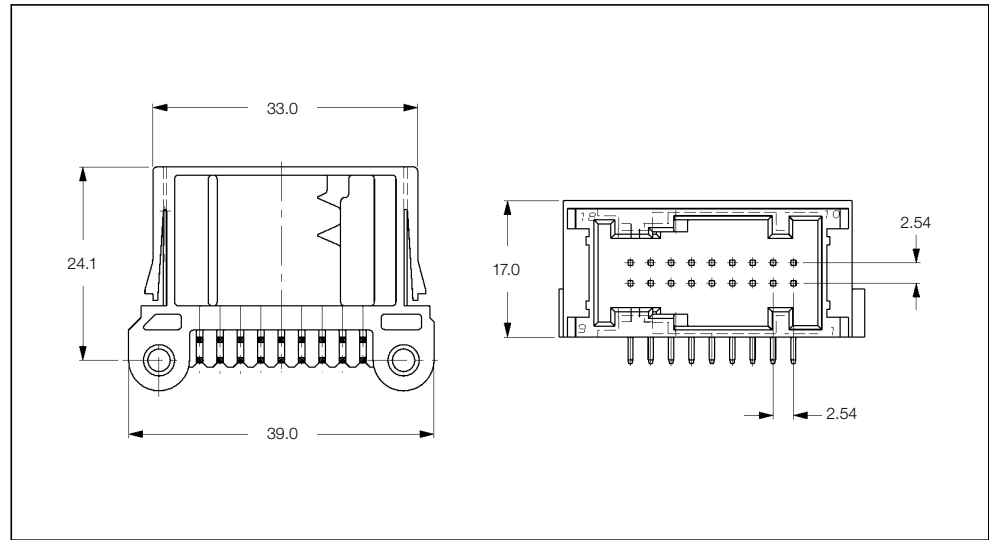
Material and Finish:

CuFe, tin plated

Product Specification:

108-18214

Application Specification:



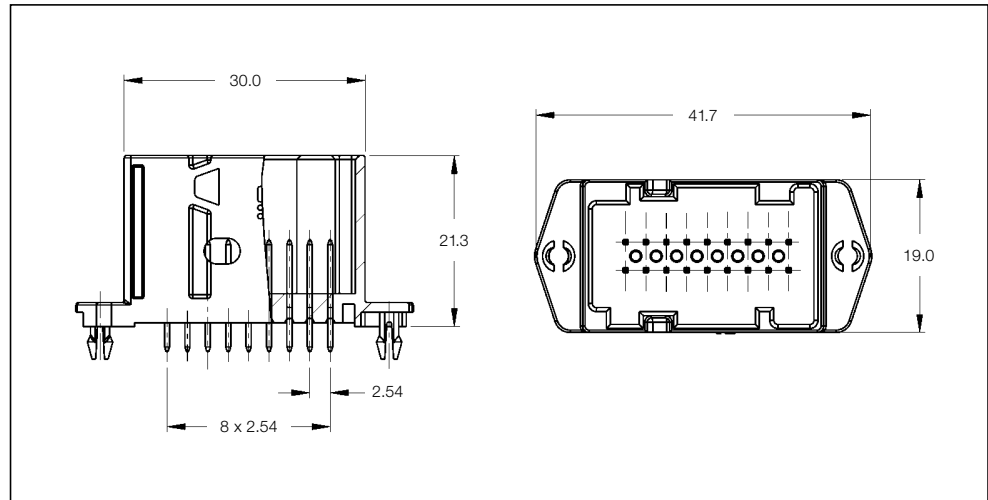
18 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
18	F	Black	1-963539-1	1-963540-1	—	1355350	—	1355348
			1-963539-2	—	—			

Printed Circuit Board Headers

Technical Features

- No. of Positions:**
18 Positions
- Housing Material:**
PBT GF30
- Material and Finish:**
CuZn, tin plated
- Product Specification:**
—
- Application Specification:**
—

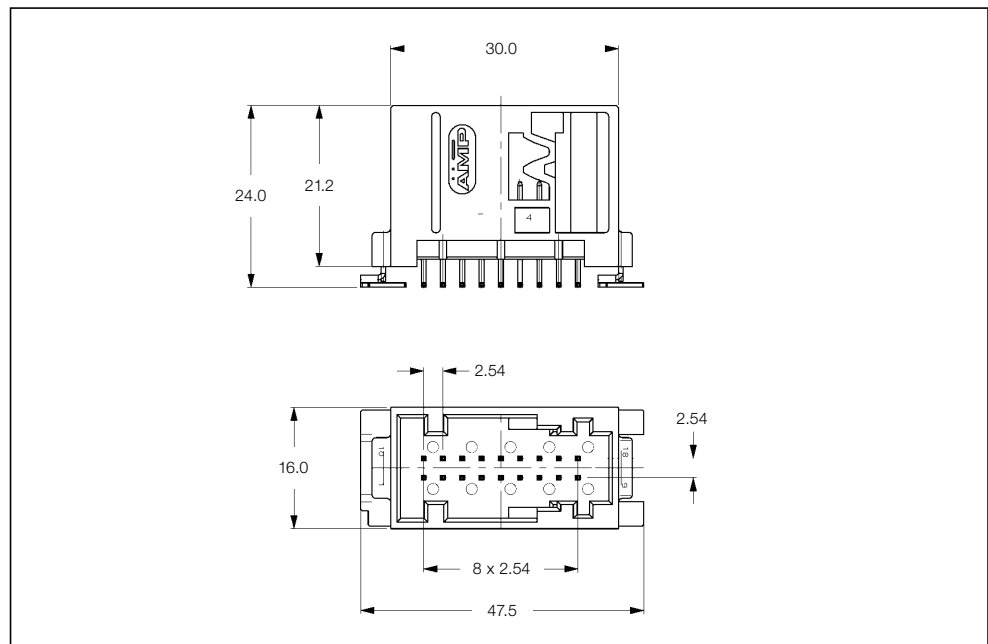


18 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
18	-	Black	-	953466-1	-	-	-	284134
		Grey	-	953466-2	-	-	-	

Technical Features

- No. of Positions:**
18 Positions SMT Version
- Housing Material:**
PCT GF30
- Material and Finish:**
CuSn6, post tin plated
- Product Specification:**
108-15171
- Application Specification:**
—



18 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Counter Part
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	
18	-	White	-	185458-1	-	-	-	185307
			-	-	-	-	185315	
		Black	-	-	-	-	-	185329
			-	185458-2	-	-	-	1379100
							1379101	

Printed Circuit Board Headers

Technical Features

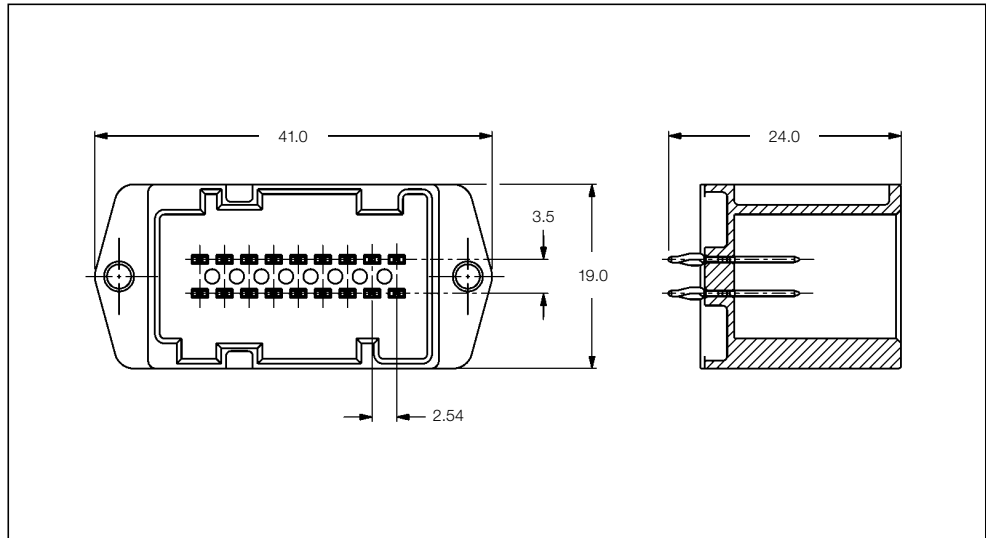
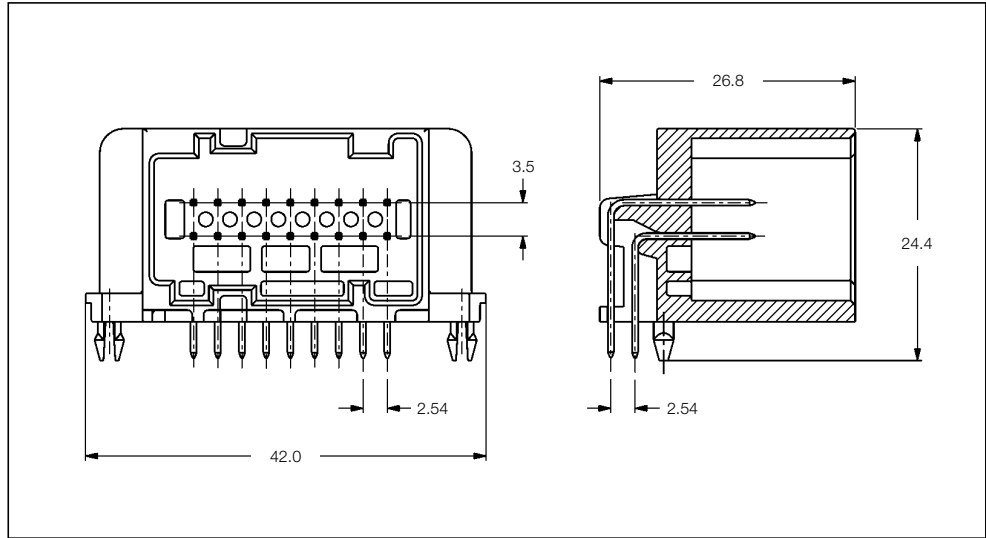
No. of Positions:
18 Positions Assembly

Housing Material:
PBT GF15

Material and Finish:
CuZn, tin plated

Product Specification:
108-20220
108-20224

Application Specification:
411-20056



18 Position PCB Header

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
18	–	Black	284522-1	284582-1	–	–	–	284134

Printed Circuit Board Headers

Technical Features

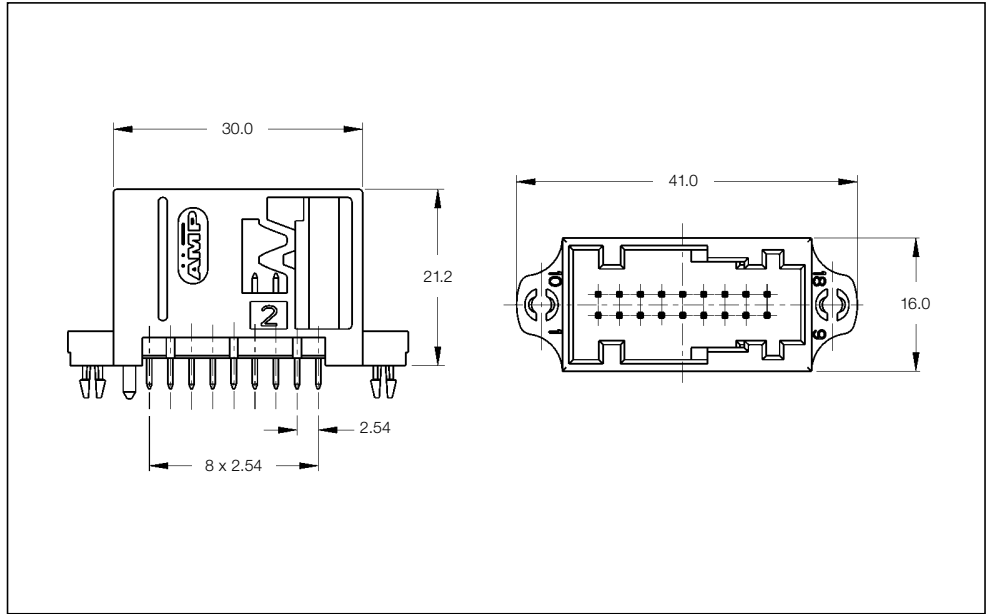
No. of Positions:
18 Positions with Board Locks

Housing Material:
PET GF30

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15195

Application Specification:
—



18 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
18	—	White (post no selective)	—	953264-1	—	—	—	185307
		White (post selective)	—	1-953264-1	—	—	—	185315
		Black (post no selective)	—	953264-2	—	—	—	185329
		Black (post selective)	—	1-953264-2	—	—	—	1379100
								1379101

Printed Circuit Board Headers

Technical Features

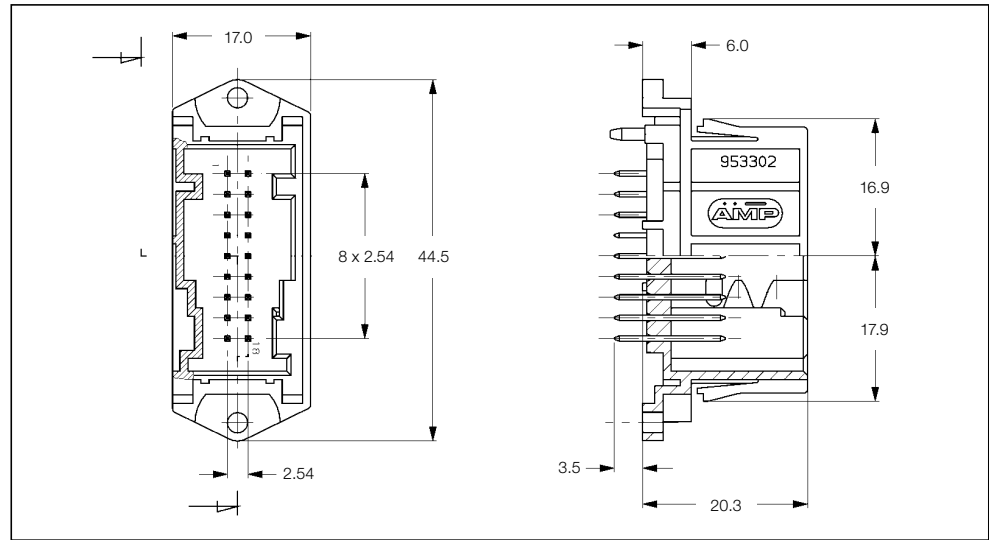
No. of Positions:
18 Positions with Ears

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15146

Application Specification:
—



18 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
18	—	Black	—	953302-1	—	—	—	185307
			—	—	—	—	—	185315
		White	—	953302-2	—	—	—	185329
			—	—	—	—	—	1379100
							1379101	

Technical Features

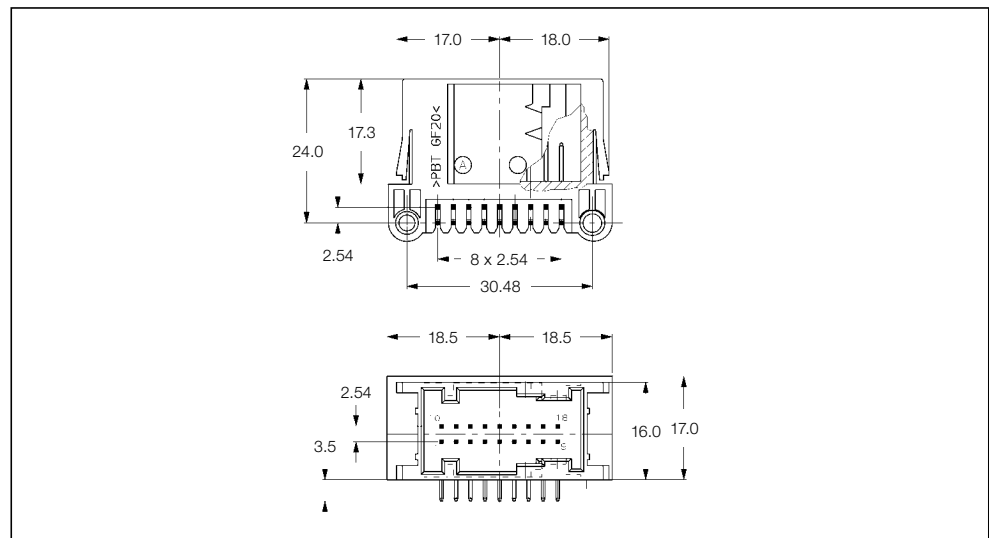
No. of Positions:
18 Positions with Ears

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15151

Application Specification:
—



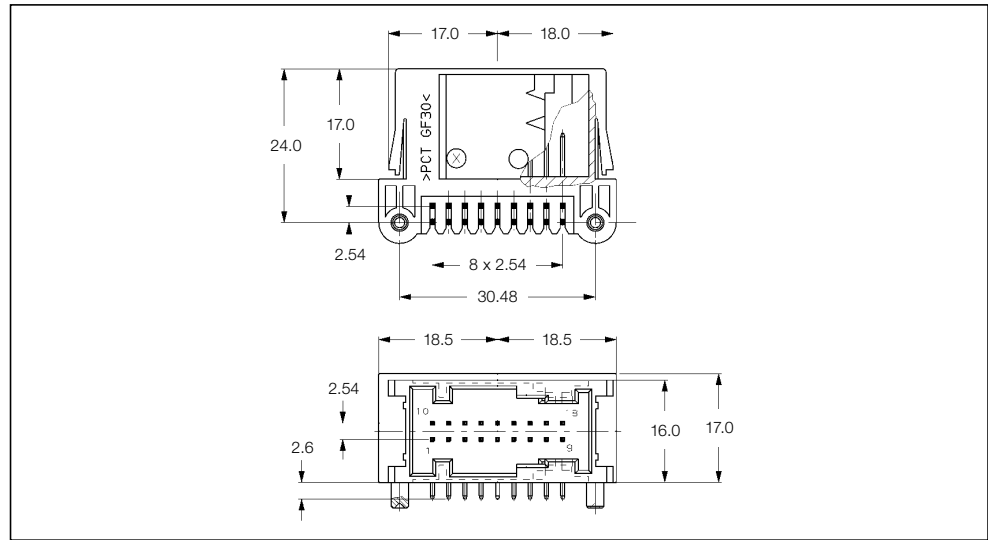
18 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
18	—	Black	185683-1	—	—	—	—	185307
			—	—	—	—	—	185315
		White	185683-2	—	—	—	—	185329
			—	—	—	—	—	1379100
							1379101	

Printed Circuit Board Headers

Technical Features

- No. of Positions:**
18 Positions
- Housing Material:**
PCT GF30
- Material and Finish:**
CuSn6, post tin plated
- Product Specification:**
108-15151
- Application Specification:**
—

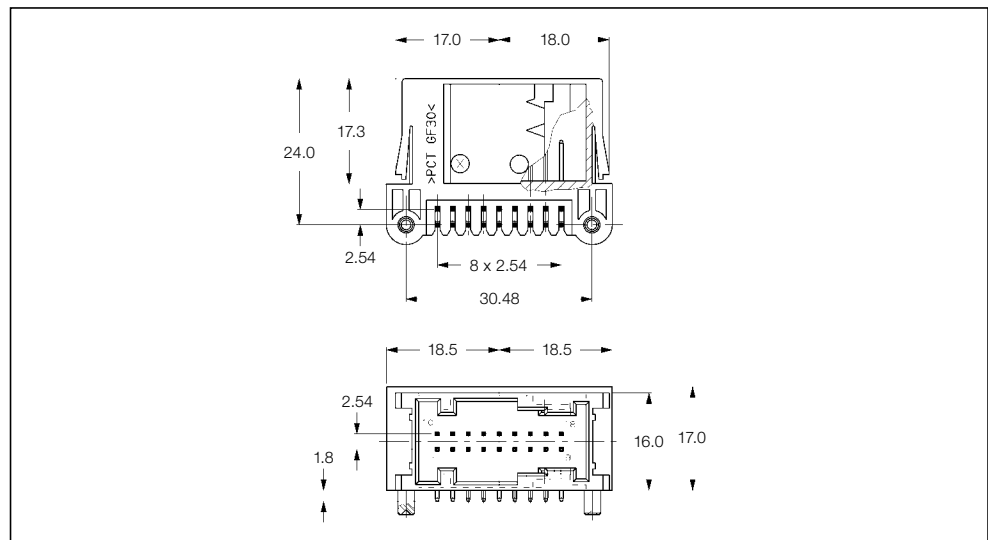


18 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
18	—	Black (Trays)	1379731-1	—	—	—	—	185307
		White (Trays)	1379731-2	—	—	—	—	185315
		Black (Sticks)	6-1379731-1	—	—	—	—	185329
		White (Sticks)	6-1379731-2	—	—	—	—	1379100
								1379101

Technical Features

- No. of Positions:**
18 Positions
- Housing Material:**
PCT GF30
- Material and Finish:**
CuSn6, post tin plated
- Product Specification:**
108-15151
- Application Specification:**
—



18 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers						
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part	
18	—	Black	185680-1	—	—	—	—	185307	
		White	185680-2	—	—	—	—	185315	
									185329
									1379100
								1379101	

Printed Circuit Board Headers

Technical Features

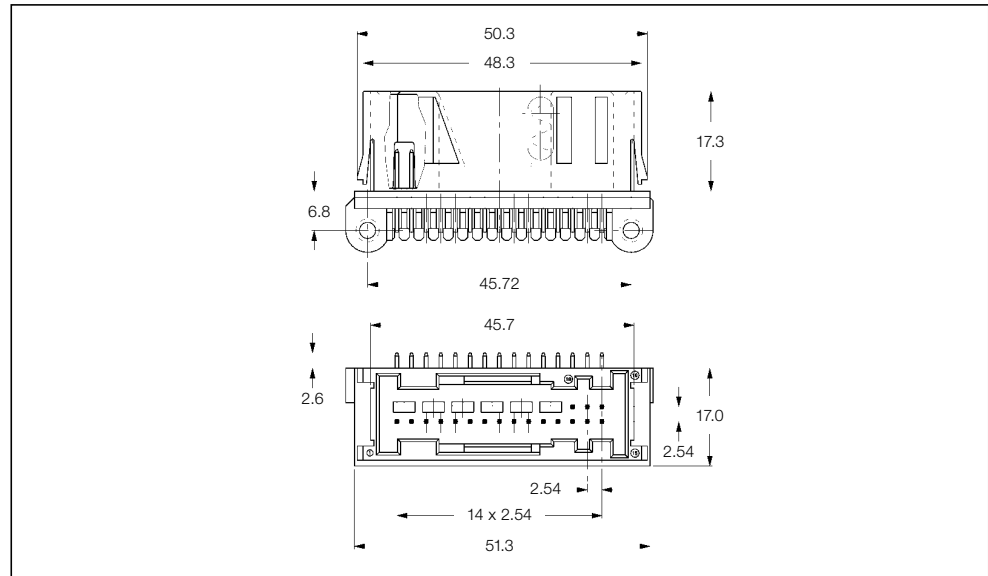
No. of Positions:
18 Positions + 6 Shunts

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
—

Application Specification:
—



18 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
18	—	Orange	144950-1	—	—	—	—	144951
		Yellow	144950-2	—	—	—	—	
		Red	144950-3	—	—	—	—	
		Green	144950-4	—	—	—	—	

Technical Features

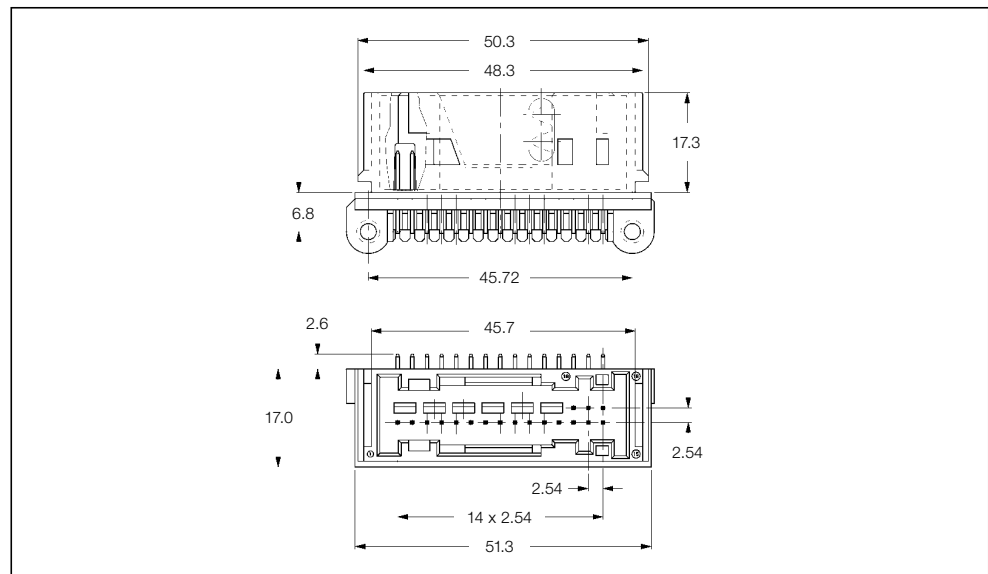
No. of Positions:
18 Positions + 6 Shunts

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
—

Application Specification:
—



18 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
18	—	Orange	185180-1	—	—	—	—	144951
		Yellow	185180-2	—	—	—	—	

Printed Circuit Board Headers

Technical Features

No. of Positions:

18 Positions

Housing Material:

PET GF30

Material and Finish:

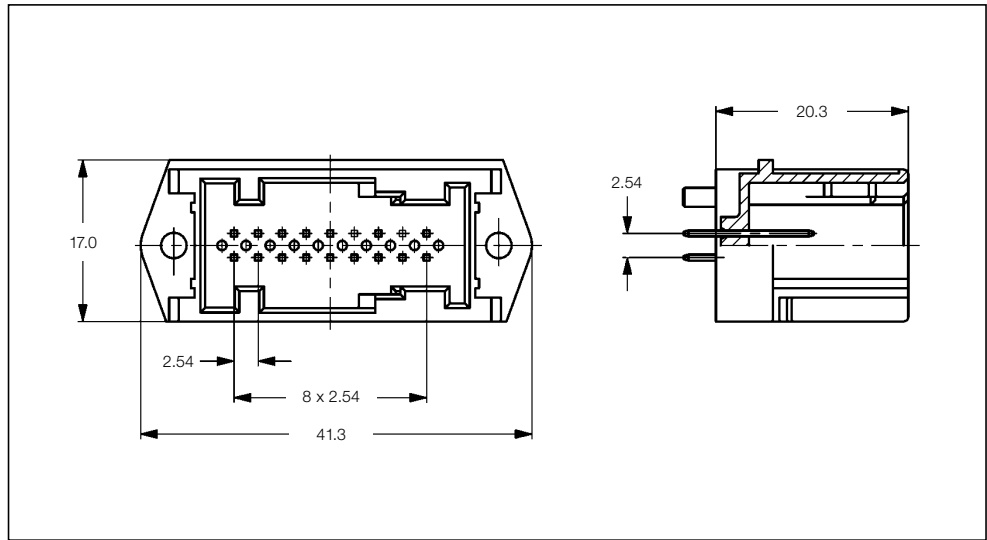
Sn over Ni, tin plated

Product Specification:

108-18030

Application Specification:

114-18021



18 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
18	A	Black	-	1-1355154-1				
	B	Natural	-	2-1355154-1	-	-	-	1355348
	B	Natural	-	3-1355154-1				

Printed Circuit Board Headers

Technical Features

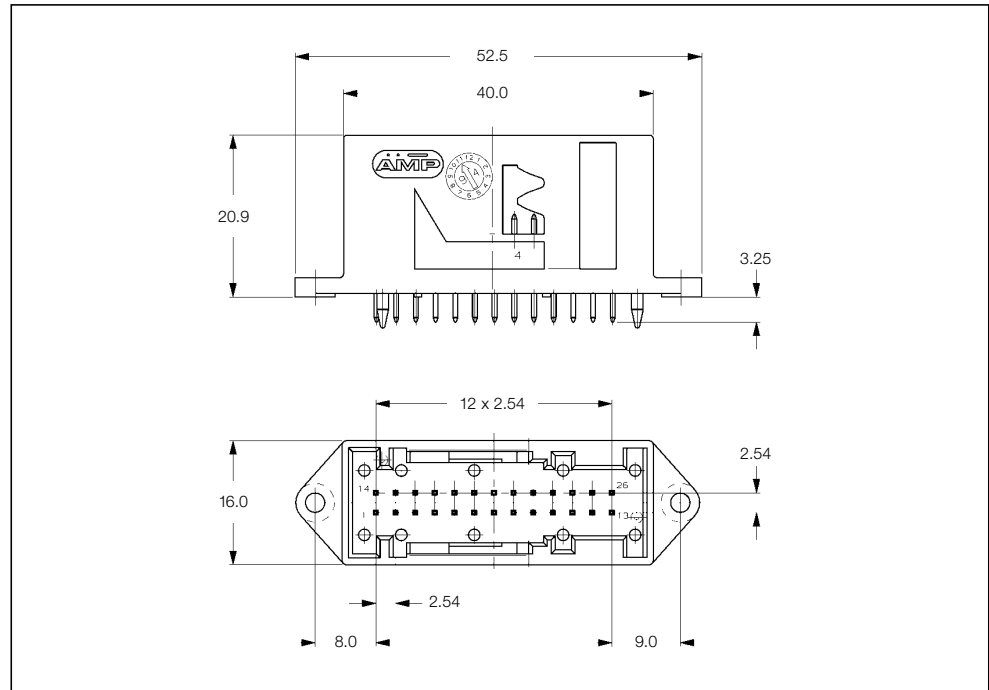
No. of Positions:
26 Positions

Housing Material:
PBT GF20

Material and Finish:
Tin, Gold over Nickel

Product Specification:
108-15106

Application Specification:
—



26 Position PCB Headers

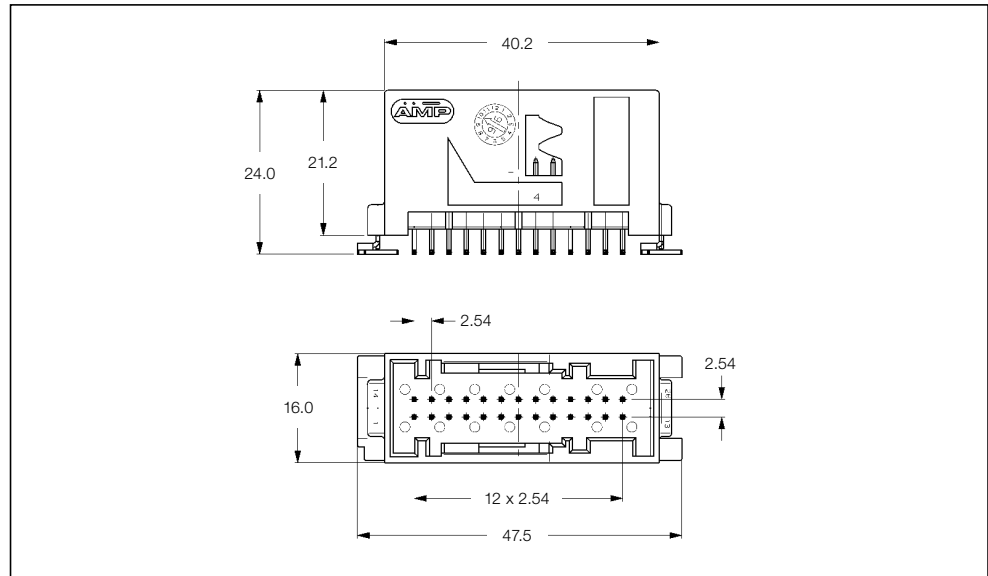
No. of Pos.	Keying Options*	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
26	A-E	Yellow	—	185226-1				
	B-F	Blue	—	185226-2				
	A-E	Black	—	185226-3	—	—	—	185879
	B-F	White	—	185226-4				144934
	A-E	Black	—	1-185226-3				
	B-F	White	—	1-185226-4				

* For details, see drawing

Printed Circuit Board Headers

Technical Features

- No. of Positions:**
26 Positions
- Housing Material:**
PCT GF30
- Material and Finish:**
CuSn6, post tin plated
- Product Specification:**
108-15171
- Application Specification:**
—

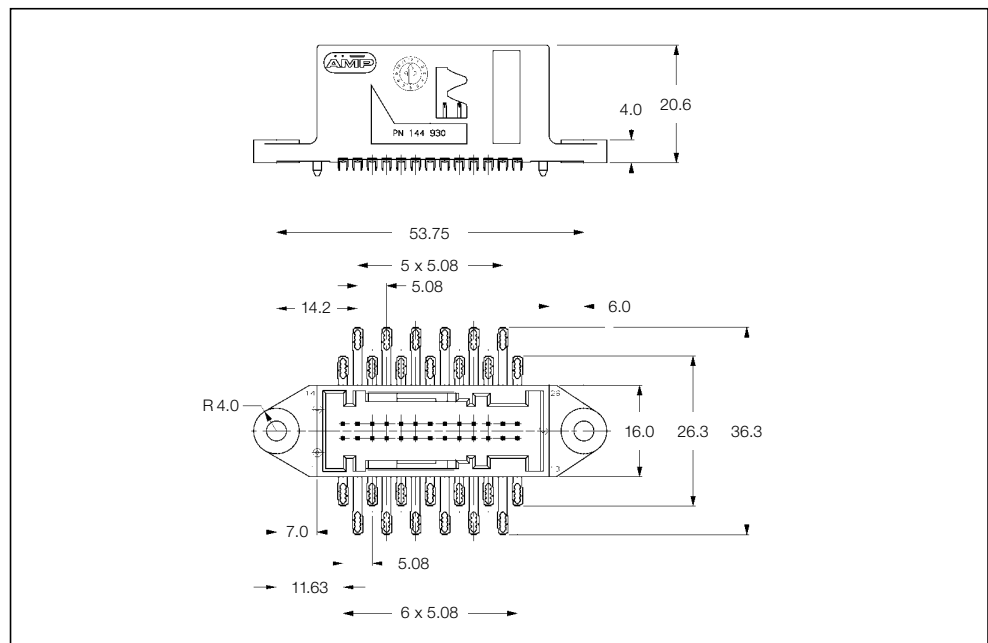


26 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Counter Part
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	
26	-	Yellow	-	185454-1	-	-	-	185879
		Blue	-	185454-2	-	-	-	144934

Technical Features

- No. of Positions:**
26 Positions
- Housing Material:**
PBT GF20
- Material and Finish:**
CuSn6, post tin plated
- Product Specification:**
108-15089
- Application Specification:**
—



26 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Counter Part
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	
26	-	Yellow	-	144930-1	-	-	-	185879
		Blue	-	144930-2	-	-	-	144934

Printed Circuit Board Headers

Technical Features

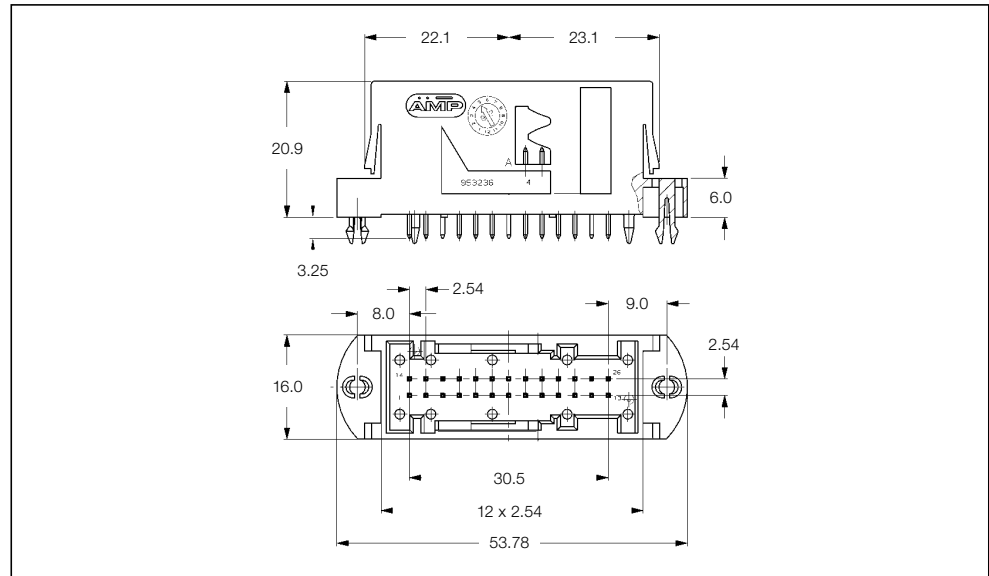
No. of Positions:
26 Positions with Board Locks

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15181

Application Specification:
—



26 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Counter Part
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	
26	—	Yellow	—	953236-1	—	—	—	185879
		Blue	—	953236-2	—	—	—	144934

Technical Features

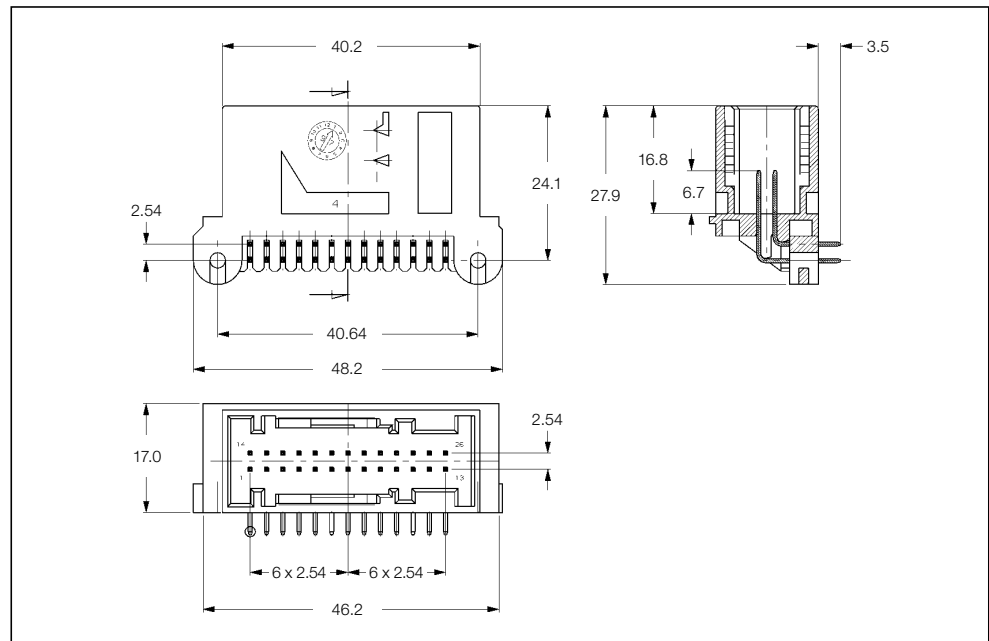
No. of Positions:
26 Positions

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15140

Application Specification:
—



26 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Counter Part
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	
26	—	Yellow	185890-1	—	—	—	—	185879
		Blue	185890-2	—	—	—	—	144934

Printed Circuit Board Headers

Technical Features

No. of Positions:

26 Positions

Housing Material:

PCT GF30

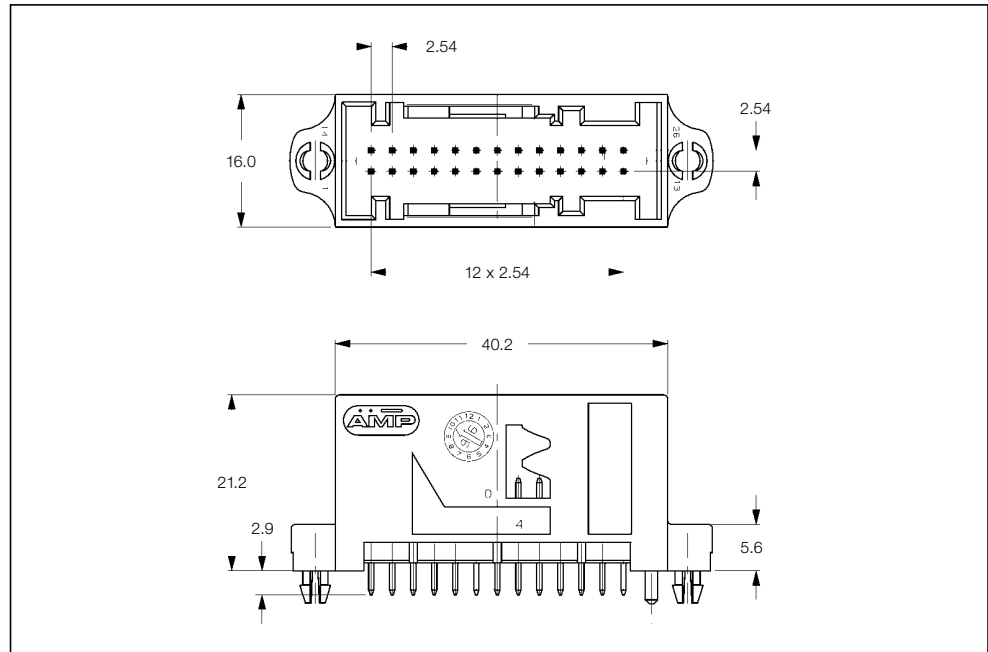
Material and Finish:

CuSn6, post tin plated

Product Specification:

108-15215

Application Specification:



26 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Counter Part
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	
18	-	Yellow (post no selective)	-	953472-1				
		Yellow (post selective)	-	1-953472-1				185879
		Blue (post no selective)	-	953472-2				144934
		Blue (post selective)	-	1-953472-2				

Printed Circuit Board Headers

Technical Features

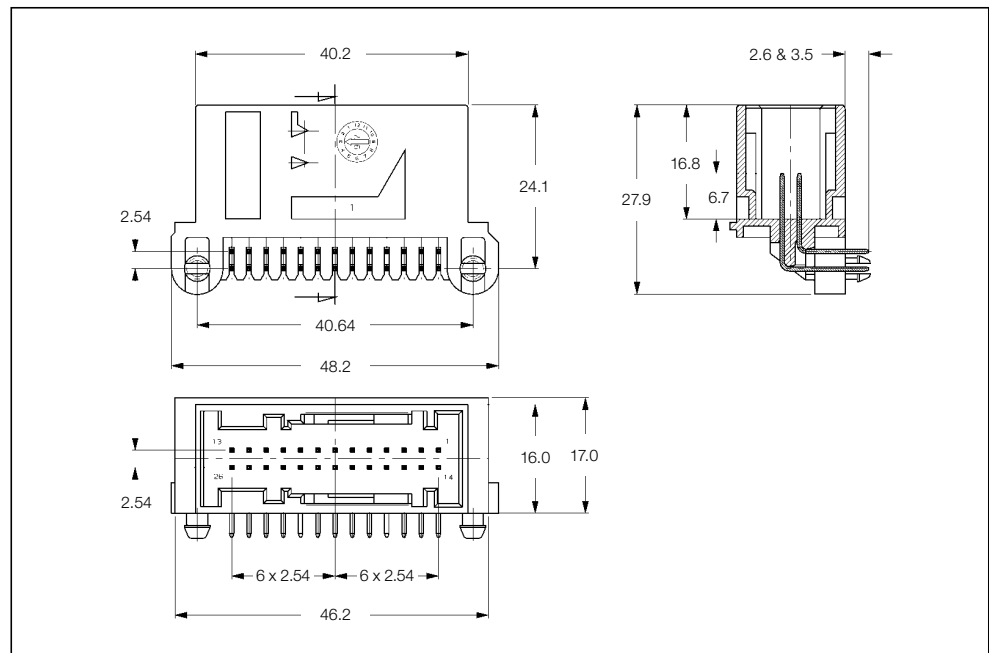
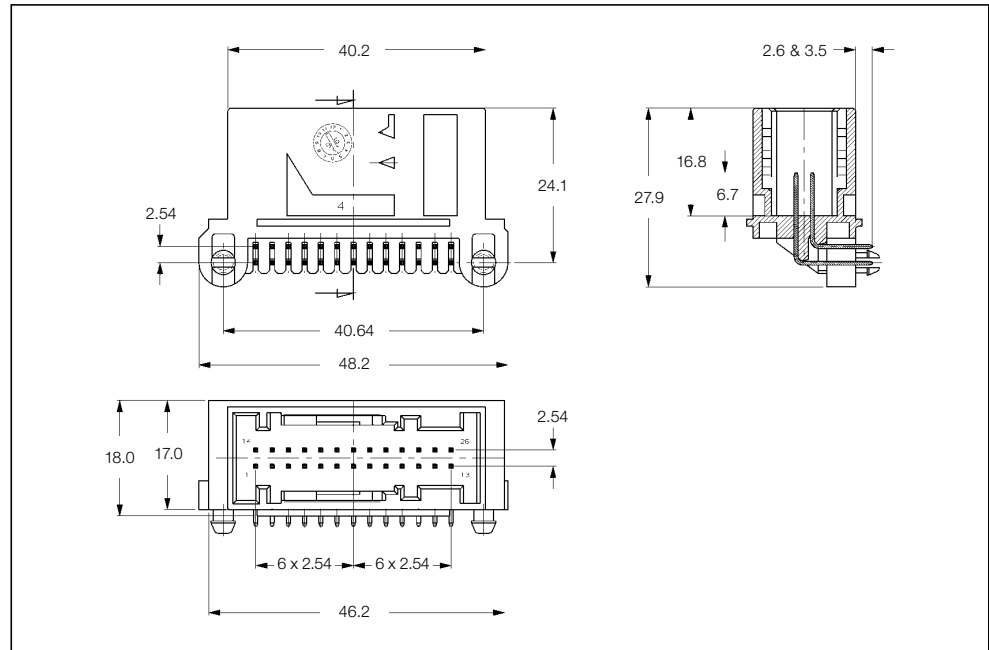
No. of Positions:
26 Positions with Board Locks

Housing Material:
PBT GF20

Material and Finish:
CuSn6, post tin plated

Product Specification:
108-15140

Application Specification:



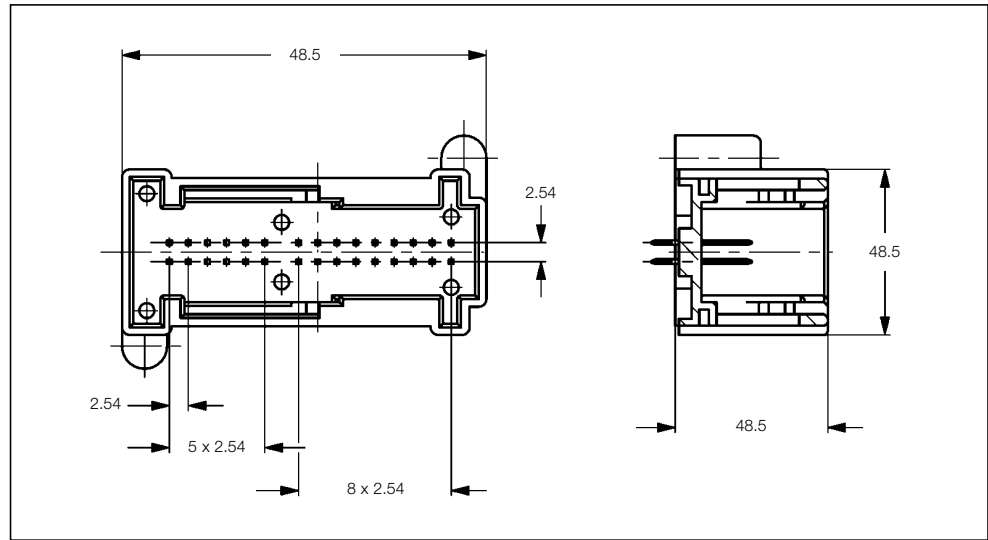
26 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
26	-	Yellow	185534-1	-	-	-	-	-
		Blue	185534-2	-	-	-	-	-
	with long pin	Yellow	185534-3	-	-	-	-	185879
		Blue	185534-4	-	-	-	-	144934
	reverse version	Yellow	185904-1	-	-	-	-	-
		Blue	185904-2	-	-	-	-	-

Printed Circuit Board Headers

Technical Features

- No. of Positions:**
30 Positions
- Housing Material:**
PET GF30
- Material and Finish:**
CuFe, tin plated
- Product Specification:**
108-18030
- Application Specification:**
114-18021

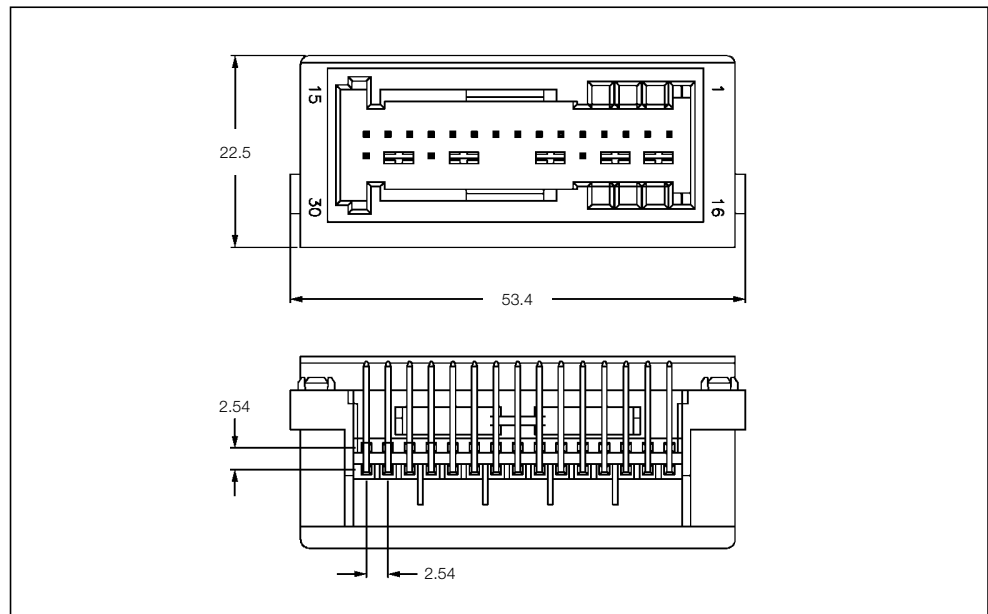


30 Position PCB Header

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
30	-	-	-	967267-1	-	-	-	-

Technical Features

- Application:**
Airbag
- No. of Positions:**
30 Positions Assembly
- Housing Material:**
PBT GF30
- Material and Finish:**
Mating Area Au
CuSn, tin plated
- Product Specification:**
108-61007
- Application Specification:**
114-18021



30 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
			85188-1/-9	-				
30	See Drawing	See Drawing	1-85188-1/-9	-	-	-	-	85189
			2-85188-1/-9	-				

Printed Circuit Board Headers

Technical Features

No. of Positions:

32 Positions

Housing Material:

PA 66

Material and Finish:

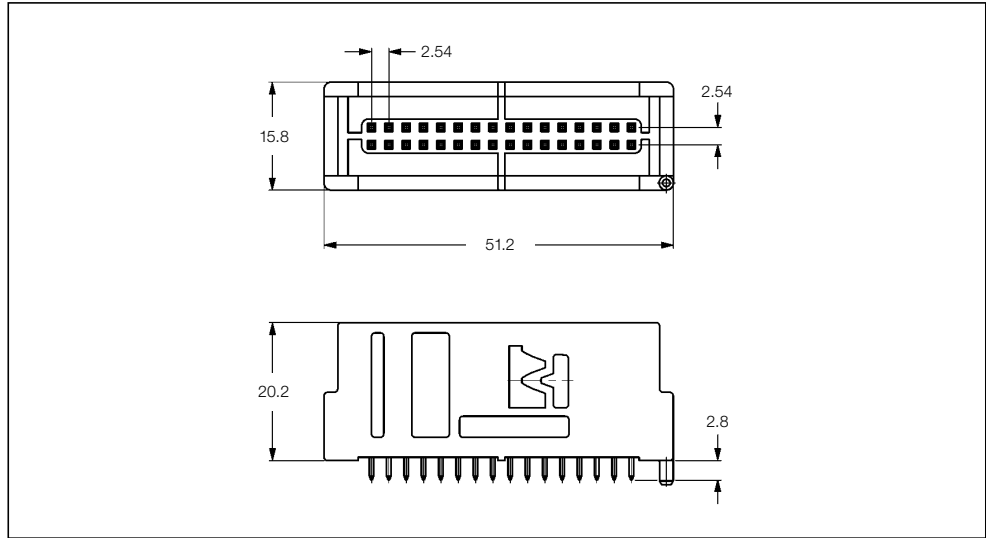
CuSn, pre-tin plated

Product Specification:

108-18547-0

Application Specification:

114-18174-0



32 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
32	A	Grey	-	967598-1	-	929051-1	-	968265-1
	B	Blue	-	967598-4	-	-	-	-
	A	Grey	-	1-967598-1	-	-	-	-
	B	Blue	-	1-967598-4	-	-	-	-
	C	Black	-	1-967598-5	-	-	-	-

Printed Circuit Board Headers

Technical Features

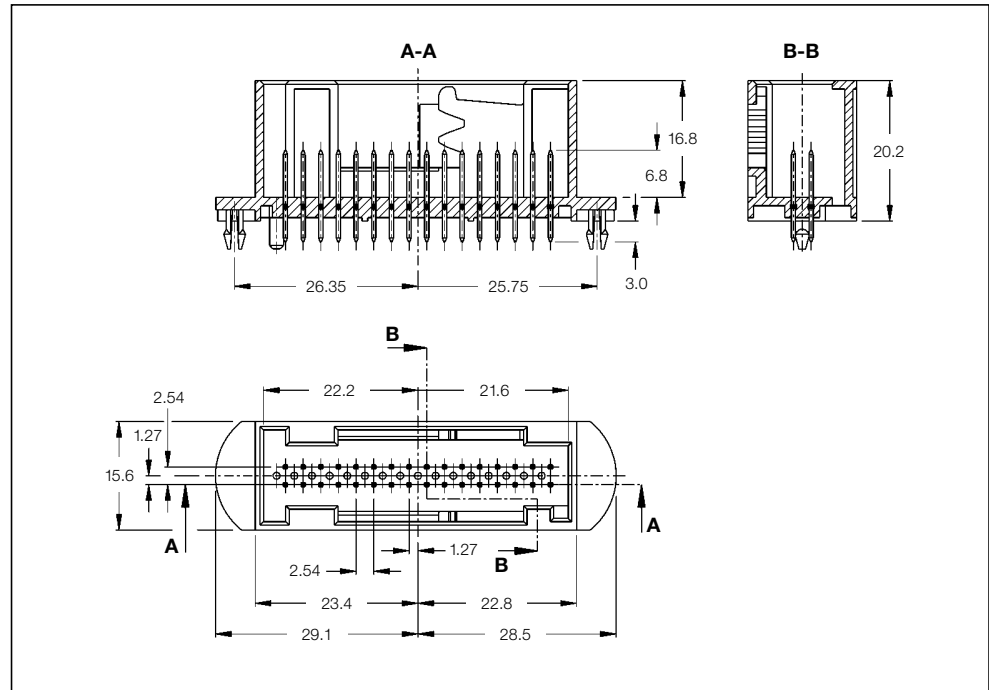
No. of Positions:
32 Positions Assembly (2 × 16)

Housing Material:
PBT GF15

Material and Finish:
CuSn, tin plated

Product Specification:
108-18692-0

Application Specification:
—



32 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Retainer Housing	Mating Receptacle Housing
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever			
32	A-F	Green	966658-1	—	—	—	—	1420000-1 1420001-1 & 1534222-1	
	C-D	Blue	966658-2	—	—	—	—	1420000-1 1420001-1 & 1534222-2	

Printed Circuit Board Headers

Technical Features

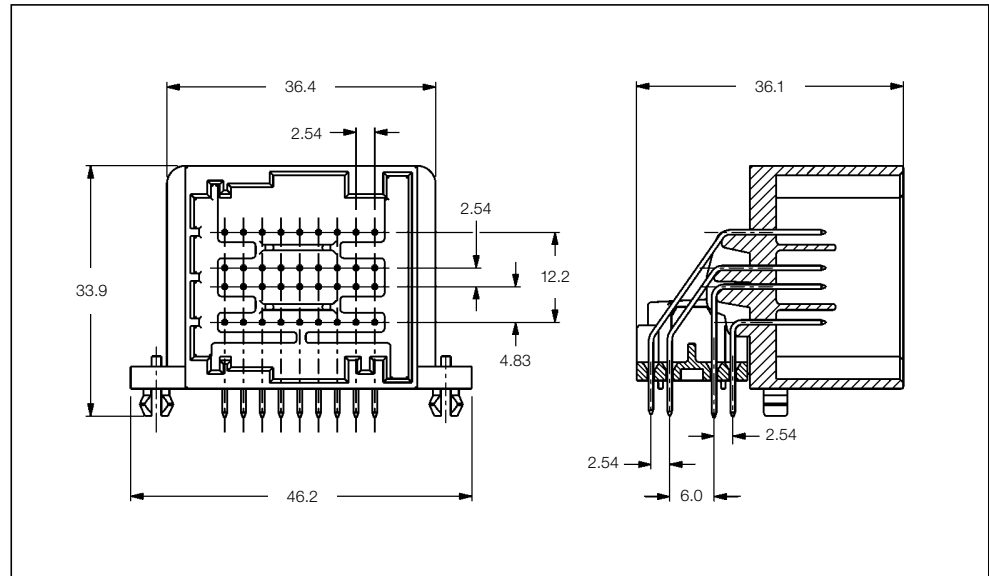
No. of Positions:
36 Positions Assembly

Housing Material:
PBT GF

Material and Finish:
CuZn, tin plated

Product Specification:
108-20220

Application Specification:
411-20056



36 Position PCB Header

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
36	-	Black	284520-1	284317-1 & -2	-	-	-	284134 & 953599

Technical Features

Application:
Body Computer

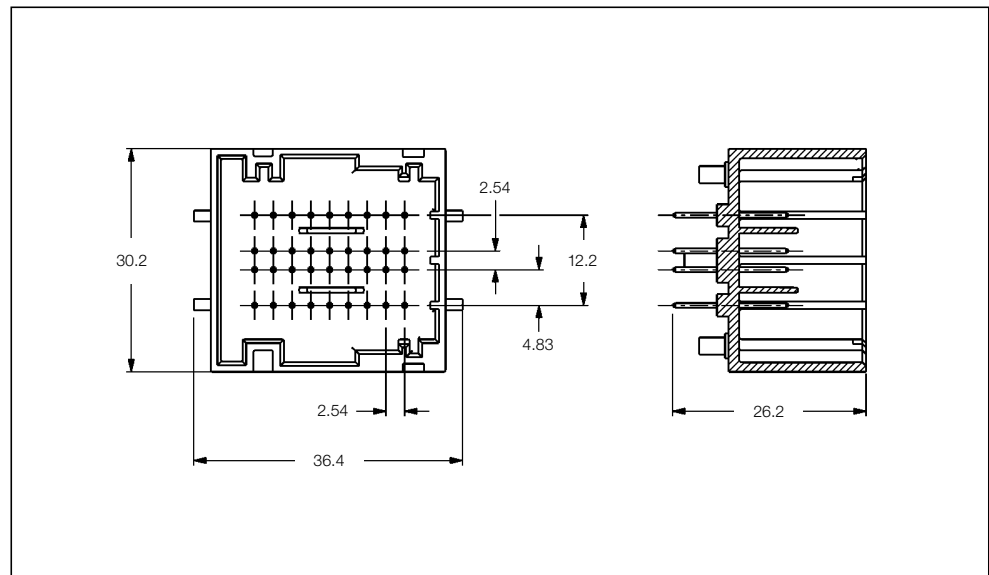
No. of Positions:
36 Positions Assembly

Housing Material:
PA 66 GF

Material and Finish:
Cu Alloy, tin plated

Product Specification:
108-20206

Application Specification:
—



36 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
36	-	Black	-	284317-1	-	-	-	284134 or 953599
			-	284317-2				

Printed Circuit Board Headers

Technical Features

No. of Positions:

40 Positions

Housing Material:

PBT GF20

Material and Finish:

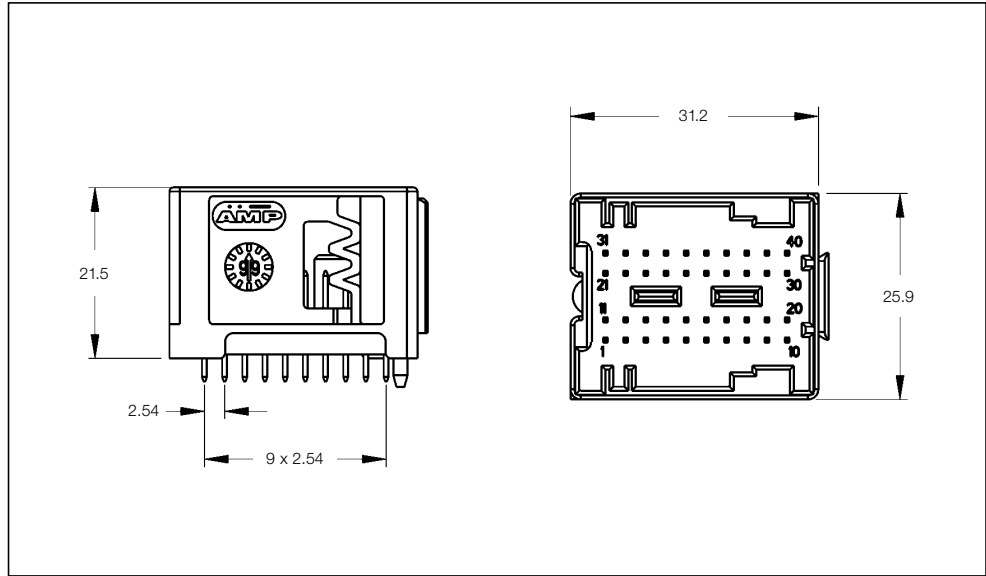
CuSn6, post tin plated

Product Specification:

108-15191

Application Specification:

—



40 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Counter Part
40	-	Black	-	953118-1 & -5				
		Grey	-	953118-2 & -6				
		White	-	953118-3 & -7	-	-	-	953122
		Blue	-	953118-4 & -8				
		Blue (gold & tin plated)	-	1-953118-4				

Printed Circuit Board Headers

Technical Features

Application:
Airbag

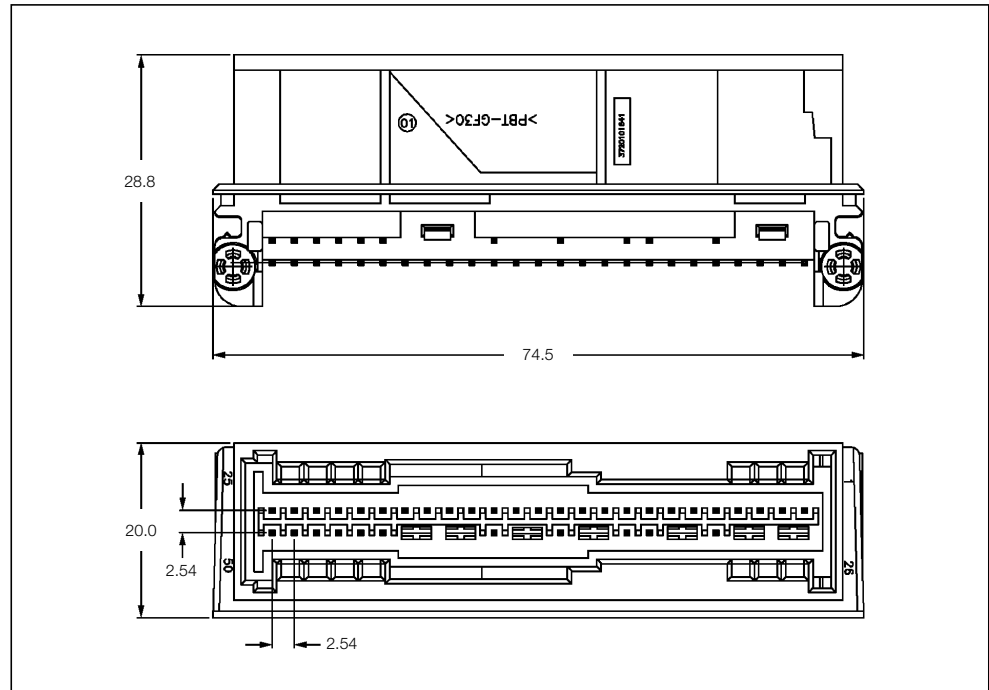
No. of Positions:
50 Positions

Housing Material:
PBT GF30

Material and Finish:
CuSn, gold/tin plated

Product Specification:
108-61031

Application Specification:
114-18021



50 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
50	See Drawing	See Drawing	368213-1 / -9	-				
			1-368213-1 / -9	-				
			2-368213-1 / -9	-				
			3-368213-1 / -9	-				
			4-368213-1 / -9	-	-	-	-	368233
			5-368213-1 / -9	-				
			6-368213-1 / -9	-				
			7-368213-1 / -9	-				
			8-368213-1 / -9	-				
9-368213-1 / -9	-							

Printed Circuit Board Headers

Technical Features

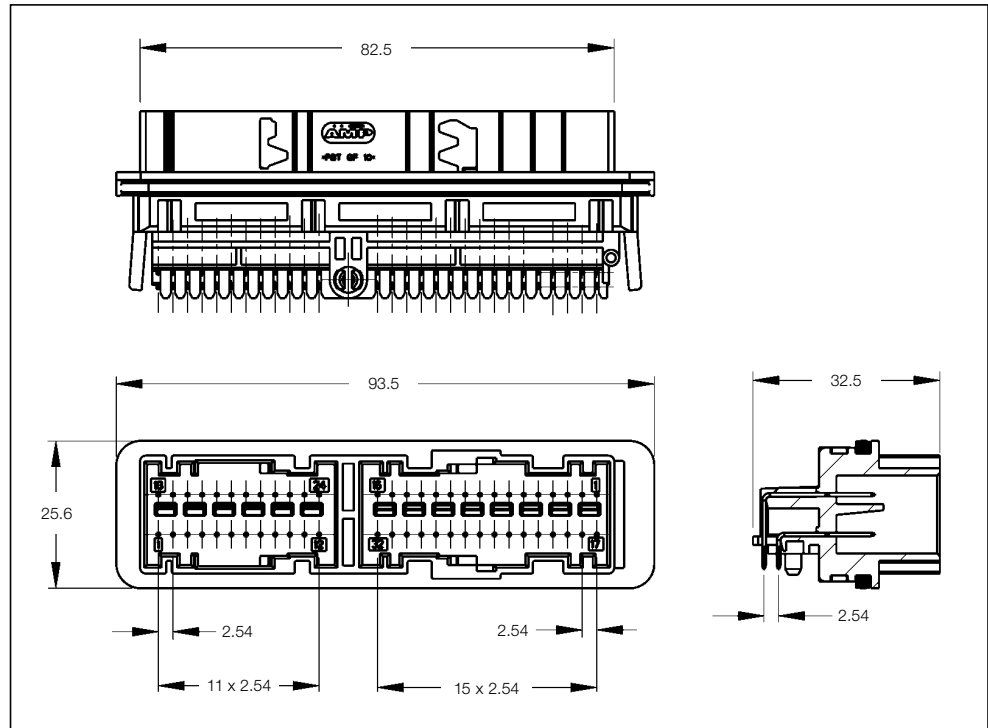
No. of Positions:
24 + 32 Positions Mixed

Housing Material:
PBT GF20

Material and Finish:
CuSn, post tin plated

Product Specification:
108-15312

Application Specification:
—



56 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					Mating Counter Part
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	
56	A-A	Black	1379046-1	—				
	B-A	Black	1379046-2	—				
	B-B	Black	1379046-3	—	—	—	—	284714 (24 pos.)
	B-C	Black	1379046-4	—				284715 (32 pos.)
	A-E	Black	1379046-5	—				

Printed Circuit Board Headers

Technical Features

Application:
Airbag

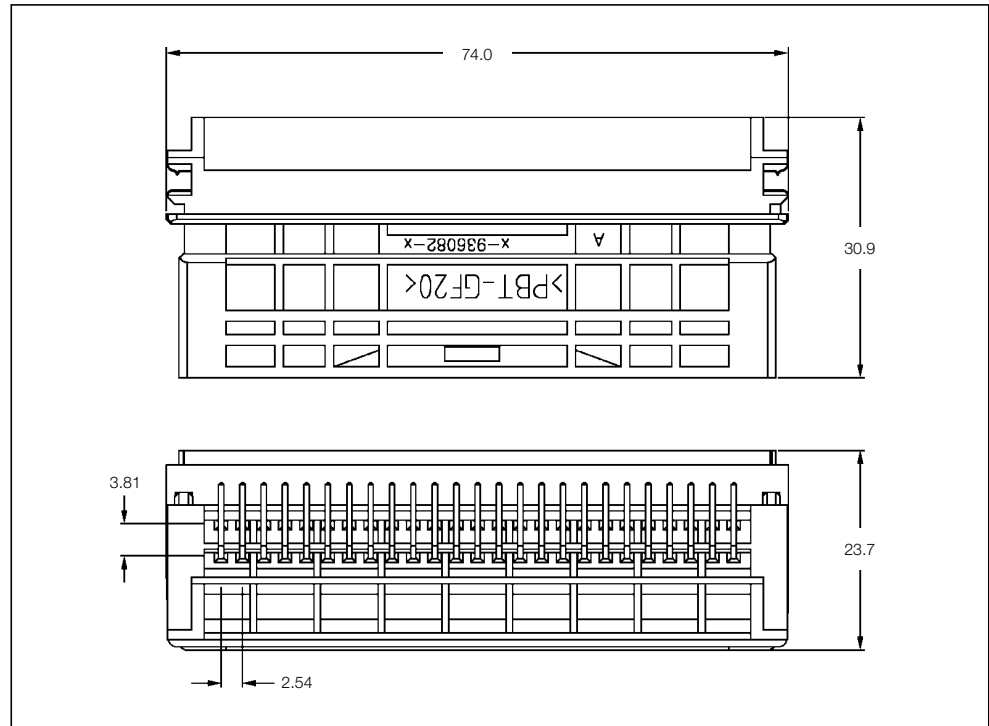
No. of Positions:
75 Positions

Housing Material:
PBT GF20

Material and Finish:
CuSn or CuAg
Mating Area: Au over Ni

Product Specification:
108-61051

Application Specification:
114-10021



75 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
75	See Drawing	See Drawing	936082-1/-9	-				
			1-936082-1/-9	-				
			2-936082-1/-9	-	-	-	-	-
			3-936082-1/-9	-				
			4-936082-1/-9	-				

Printed Circuit Board Headers

Technical Features

Application:

Body Computer

No. of Positions:

96 Positions

Housing Material:

PA 66 GF

Material and Finish:

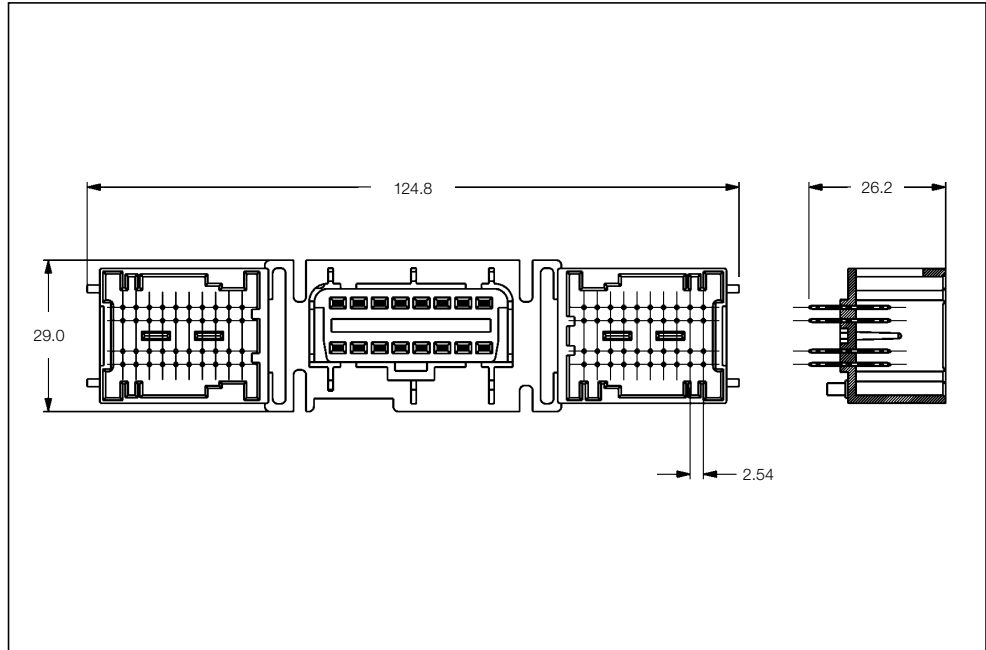
CuFe, tin plated

Product Specification:

—

Application Specification:

—



96 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
96	—	Black	—	284316-1	—	—	—	284229
			—	284316-2				
			—	284316-3				

Printed Circuit Board Headers

Technical Features

Application:
ECU

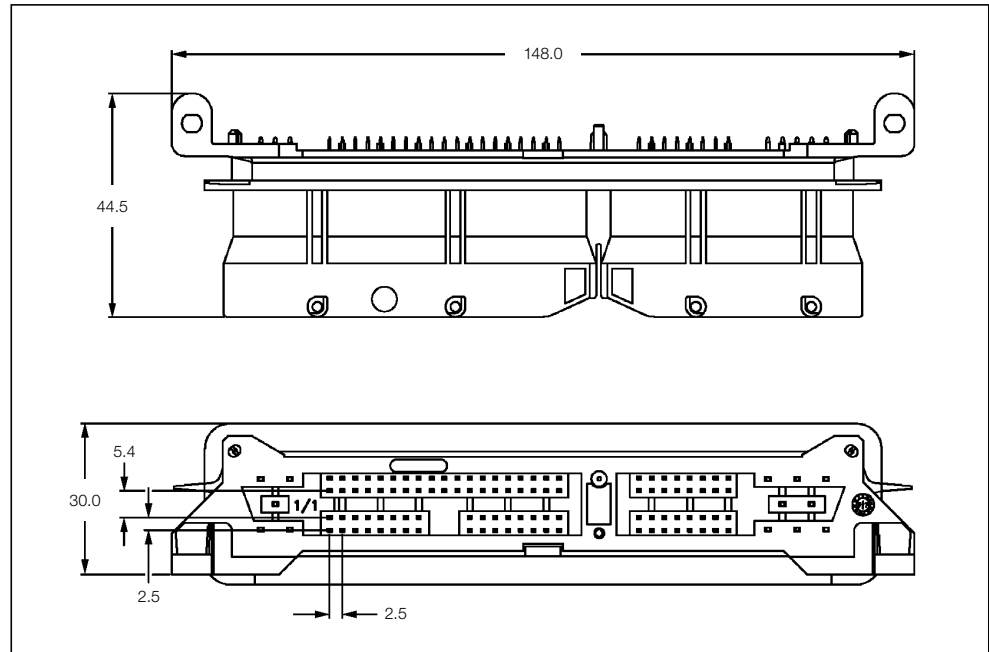
No. of Positions:
115 Positions

Housing Material:
PCT GF30

Material and Finish:
CuZn, gold/tin plated

Product Specification:
108-61039

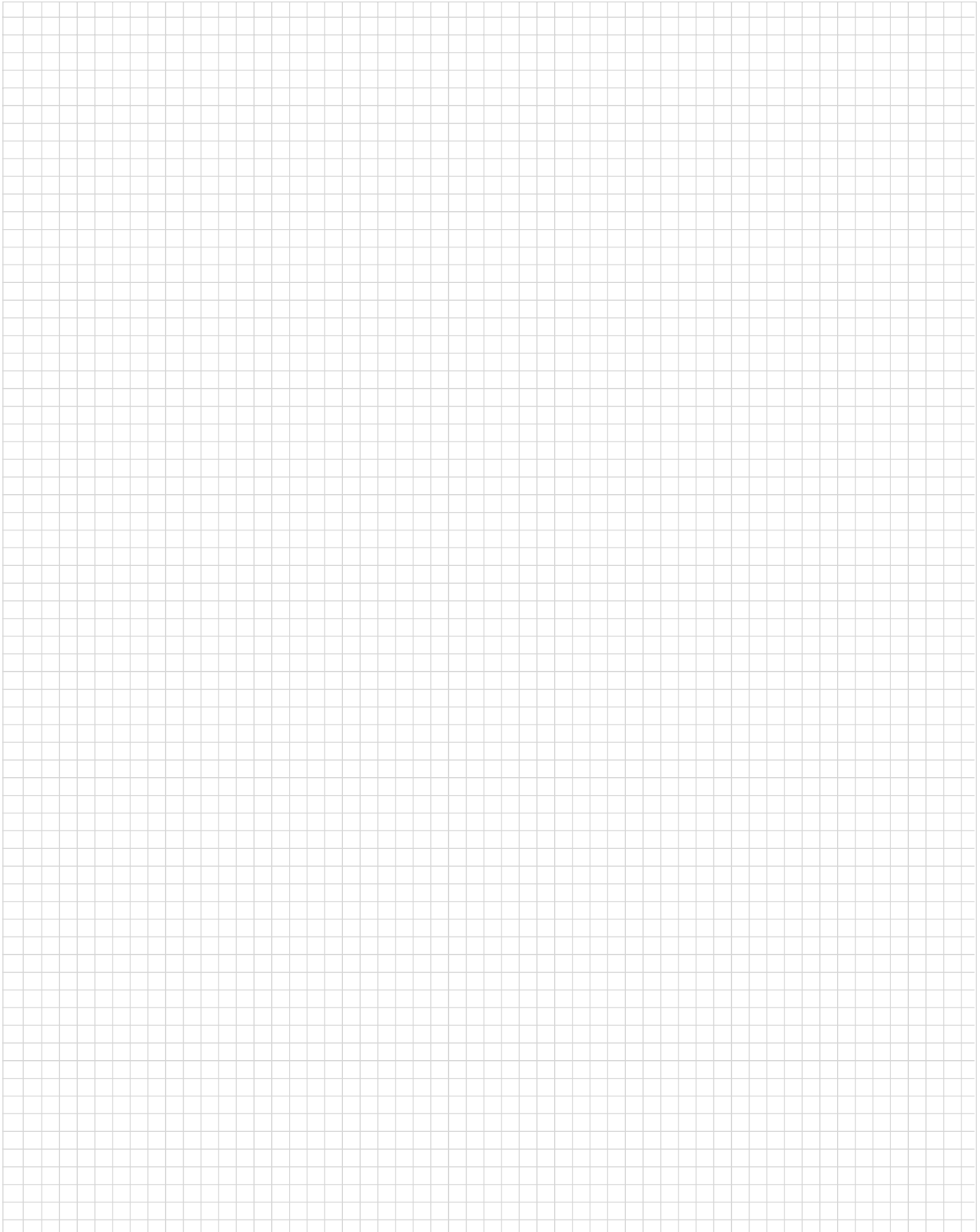
Application Specification:
114-18021-1



115 Position PCB Headers

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
115	-	Black	368146-1	-	-	-	-	-
			368146-2	-	-	-	-	368376
			368146-3	-	-	-	-	-

Engineering Notes



Receptacle Housings

Technical Features

No. of Positions:

2 Positions

Housing Material:

PBT GF15

Wire Size Range:

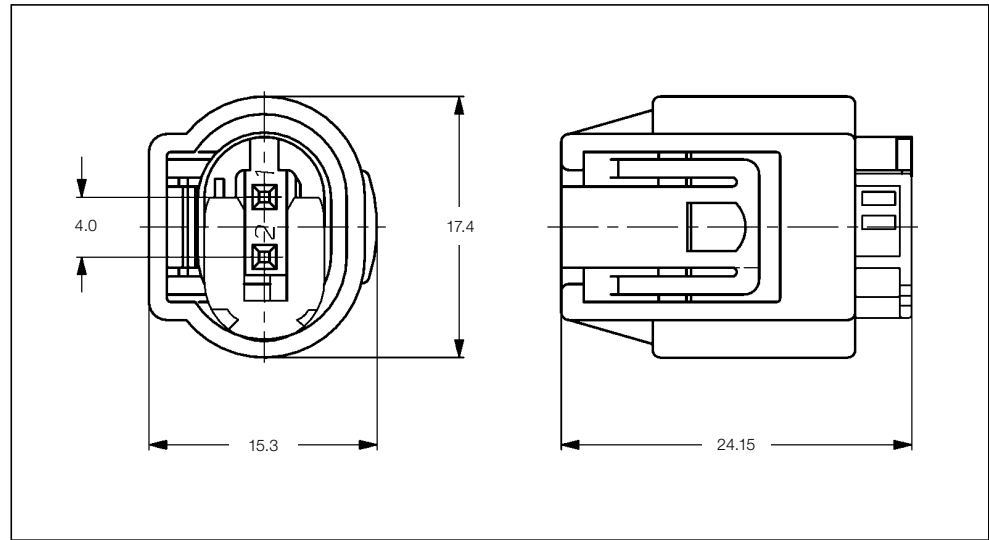
0.2–0.75 mm²

Product Specification:

108-18272-0

Application Specification:

114-18061



2 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
2	A	Black	1-967644-1	-	-	-	-	-	-	-
	B	Grey	2-967644-1	-	-	-	-	-	-	-

Technical Features

No. of Positions:

2 Positions

Housing Material:

PA 66 GF

Wire Size Range:

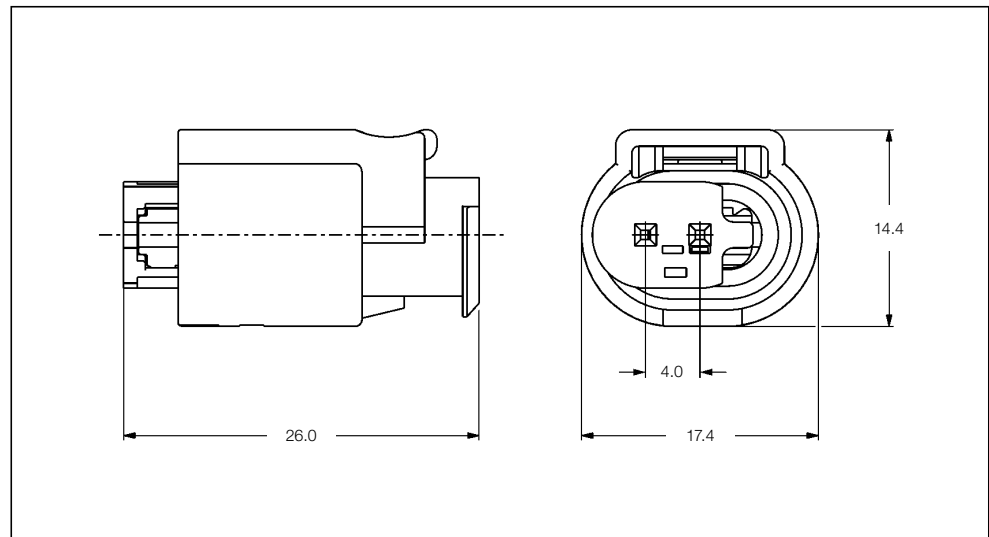
0.35–0.75 mm²

Product Specification:

108-20234

Application Specification:

411-20066



2 Position Receptacle Housing

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
2	A	Black	284703-1	-	-	-	-	-	-	-

Receptacle Housings

Technical Features

No. of Positions:

3 Positions

Housing Material:

PBT GF15

Wire Size Range:

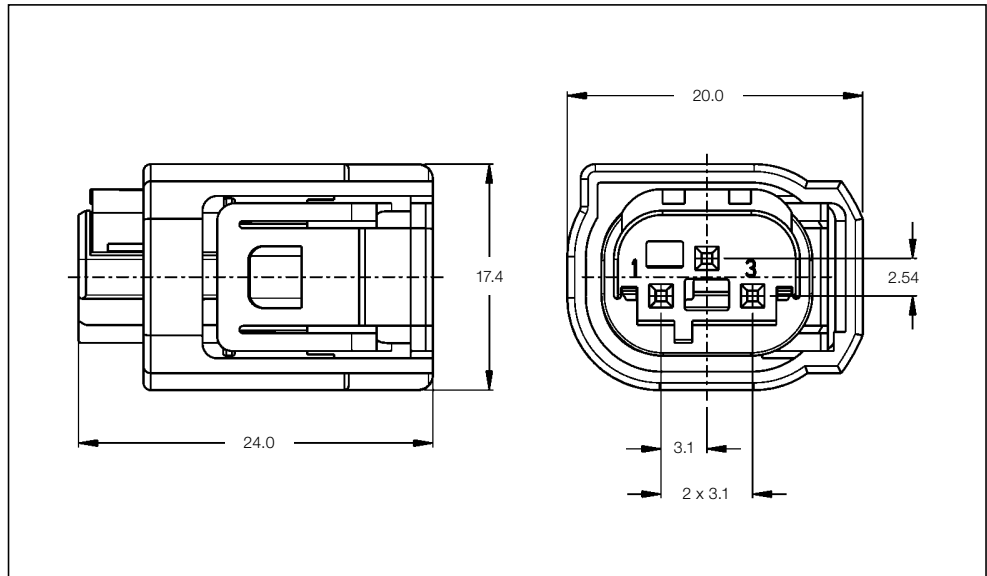
0.75 mm² Max.

Product Specification:

108-18272-0

Application Specification:

114-18061



3 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
3	A	Black	1-967642-1							
	B	Grey	2-967642-1							
	B	Grey	2-967642-2							
	E	Brown	5-967642-1							

Receptacle Housings

Technical Features

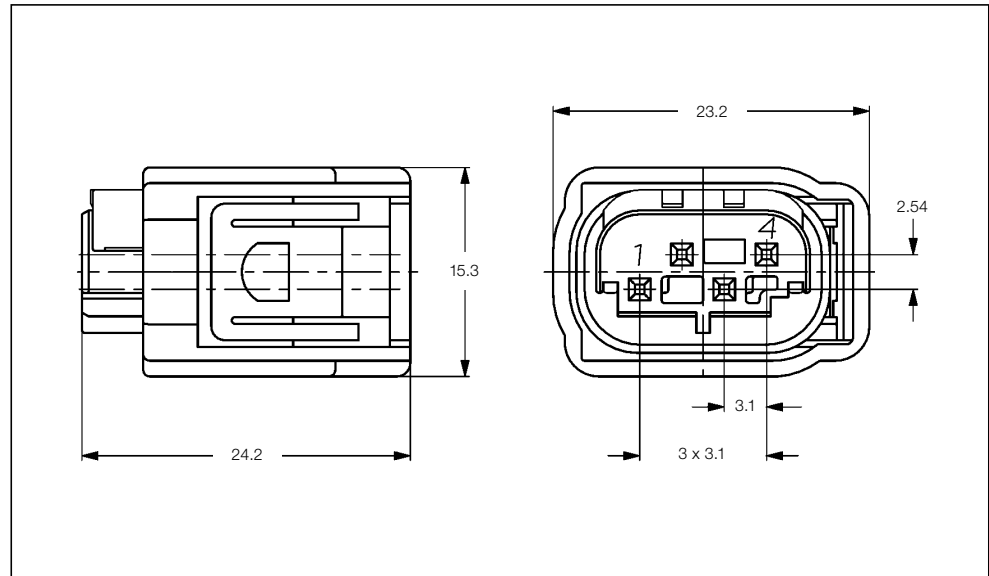
No. of Positions:
4 Positions

Housing Material:
PBT GF15

Wire Size Range:
0.75 mm² Max.

Product Specification:
108-18272-0

Application Specification:
114-18061



4 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers								
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical	
4	A	Black	1-967640-1	-	-	-	-	-	967584	967657	967439
	B	Grey	2-967640-1	-	-	-	-	-	-	-	-

Receptacle Housings

Technical Features

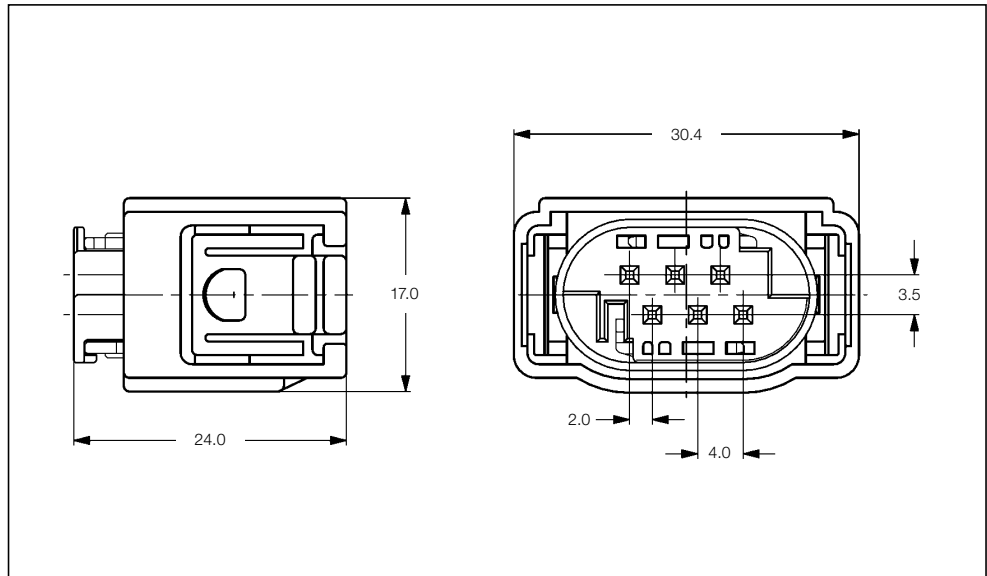
No. of Positions:
6 Positions

Housing Material:
PBT GF15

Wire Size Range:
0.75 mm² Max.

Product Specification:
108-18272-0

Application Specification:
114-18061



6 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
6	A	Black	1-967616-1							
	A	Black	1-967616-2							
	B	Grey	2-967616-1	-	-	-	-	967587	-	-
	C	Blue	3-967616-1							

Receptacle Housings

Technical Features

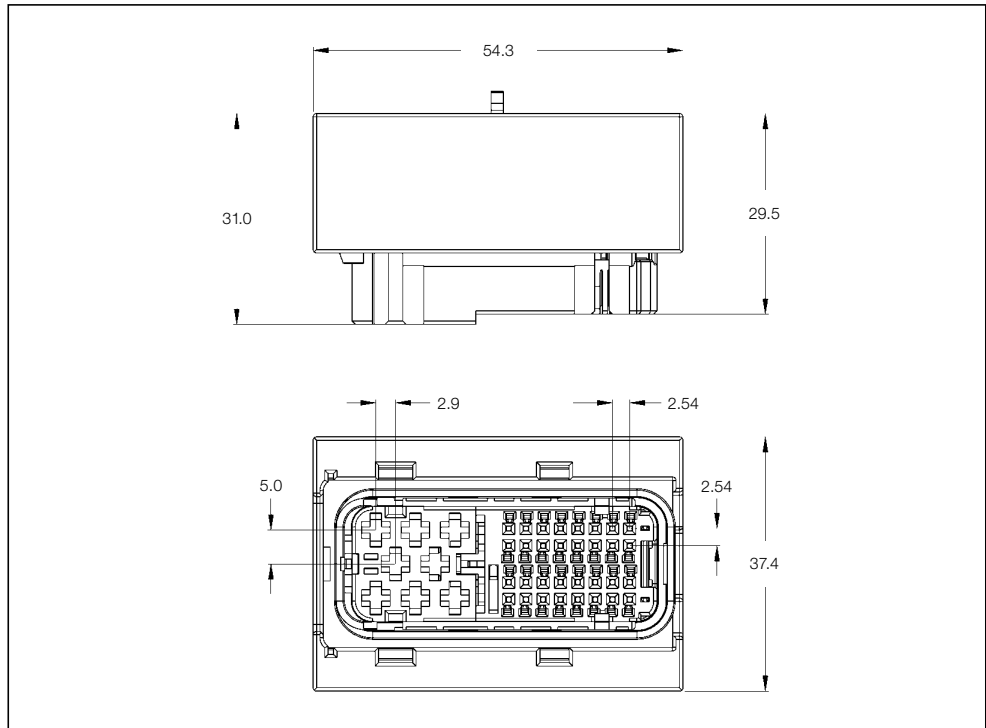
No. of Positions:
40 Positions Assembly

Housing Material:
PBT GF

Wire Size Range:
• 0.2–0.75 mm²
Micro Quadlok
• 0.2–2.5 mm²
Junior Power Timer

Product Specification:
108-5793

Application Specification:
411-78008



40 Position Receptacle Housing

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
40	–	–	1473252-1	–	–	1473255-1	368388-1	–	1241434	–

Receptacle Housings

Technical Features

No. of Positions:

60 Positions Assembly

Housing Material:

PA 66 / PBT ASA GF

Wire Size Range:

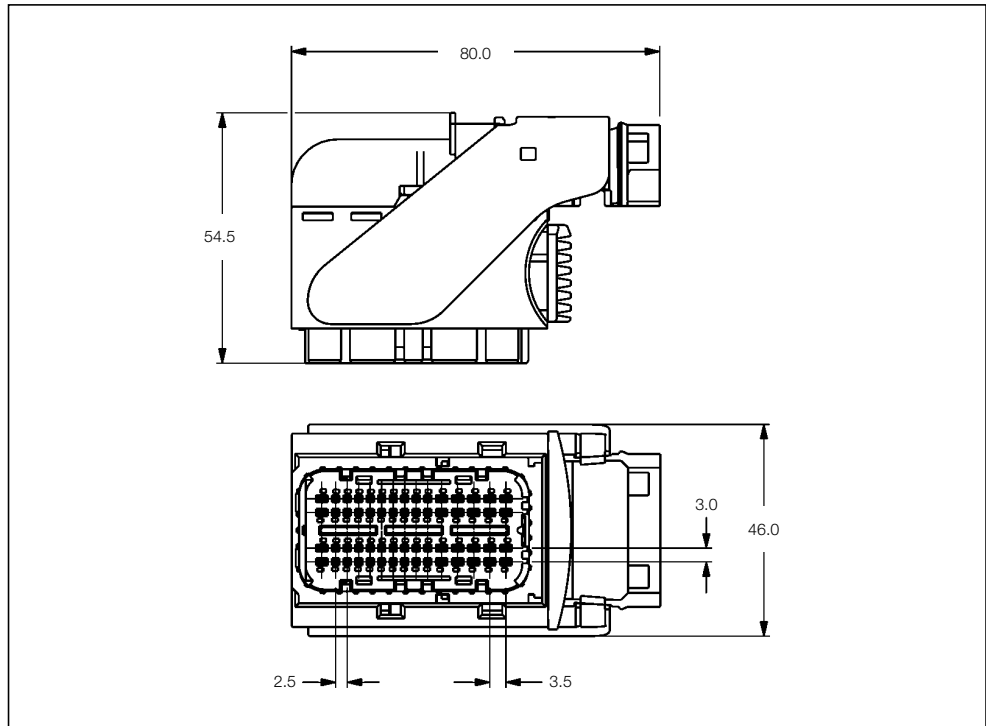
- 0.35–0.75 mm² Micro Quadlok
Clean Body 0.63 mm
- 0.75–1.5 mm² Micro Quadlok
Clean Body 1.5 mm

Product Specification:

108-20235

Application Specification:

411-20067



60 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
60	-	Black / Light-Brown	284742-1	-	-	-	-	-	-	-
			284742-2*	-	-	-	-	-	-	-

* No C.P.A. supplied

Receptacle Housings

Technical Features

No. of Positions:

64 Positions

Housing Material:

PA 66 GF

Wire Size Range:

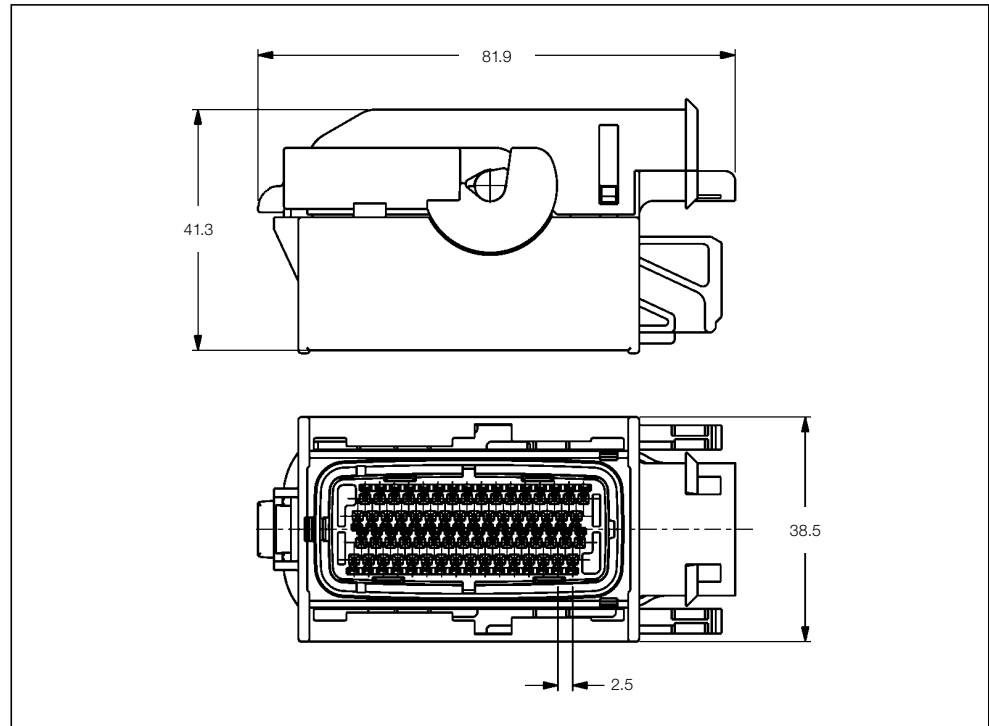
0.35–0.75 mm²

Product Specification:

108-20205

Application Specification:

411-20061



64 Position Receptacle Housing

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
64	–	Black	x-284272-x*	–	–	–	–	–	–	–

* For applications and versions see drawing

Receptacle Housings

Technical Features

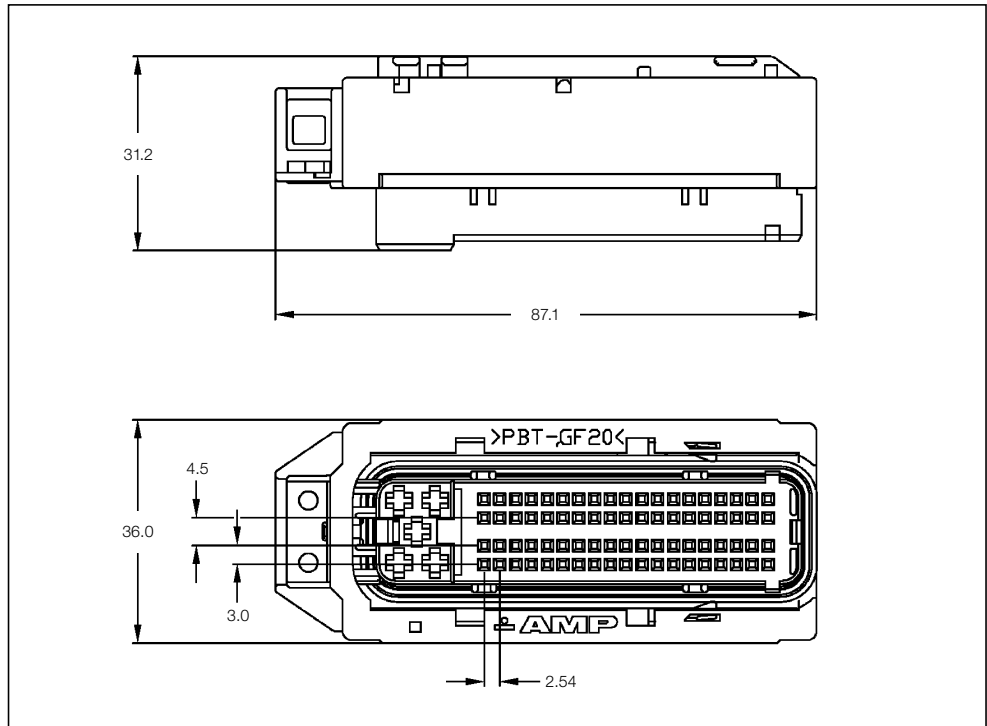
No. of Positions:
81 Positions Assembly

Housing Material:
PBT GF20

Wire Size Range:
• 0.3–0.75 mm²
Micro Quadlok
• 0.5–2.5 mm²
Junior Power Timer

Product Specification:
108-61036

Application Specification:
114-18021



81 Position Receptacle Housing

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
81	–	Black	936274-1	368333-1	–	–	–	–	–	–

Receptacle Housings

Technical Features

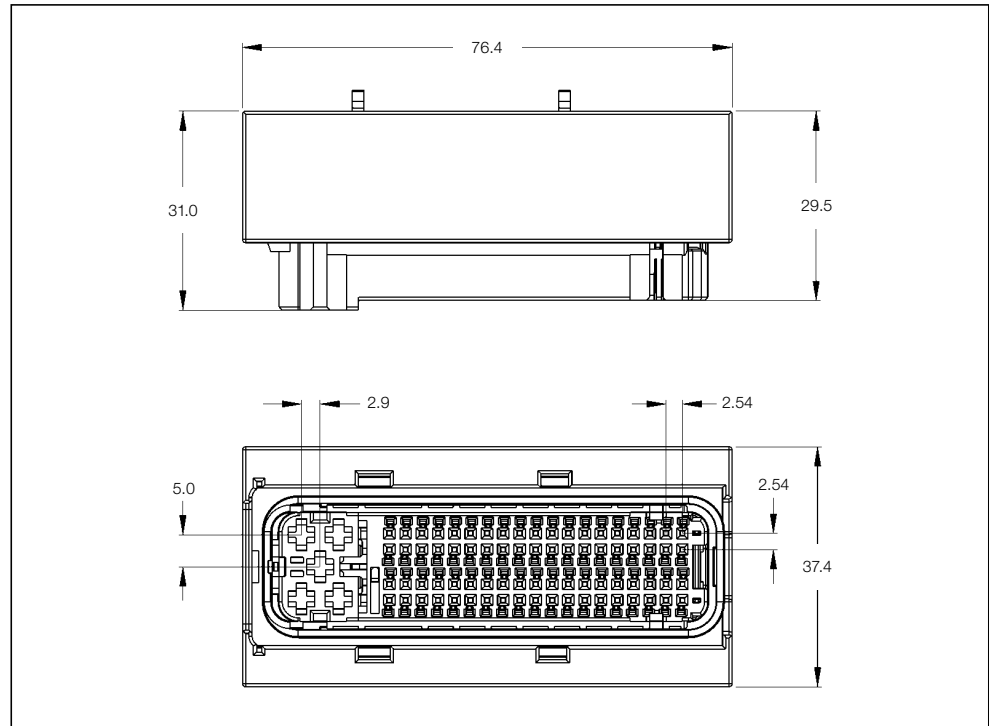
No. of Positions:
81 Positions Assembly

Housing Material:
PA 66 GF

Wire Size Range:
• 0.2–0.75 mm²
Micro Quadlok
• 0.5–2.5 mm²
Junior Power Timer

Product Specification:
108-5793

Application Specification:
114-18021/18050



81 Position Receptacle Housing

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
81	-	Black	1473244-1	-	-	1473247-1	368382-1	-	1241434-1	-
						(Type A)				
						1473250-1				
						(Type B)				

Receptacle Housings

Technical Features

No. of Positions:

94 Positions Assembly

Housing Material:

PA 66 / PBT ASA GF

Wire Size Range:

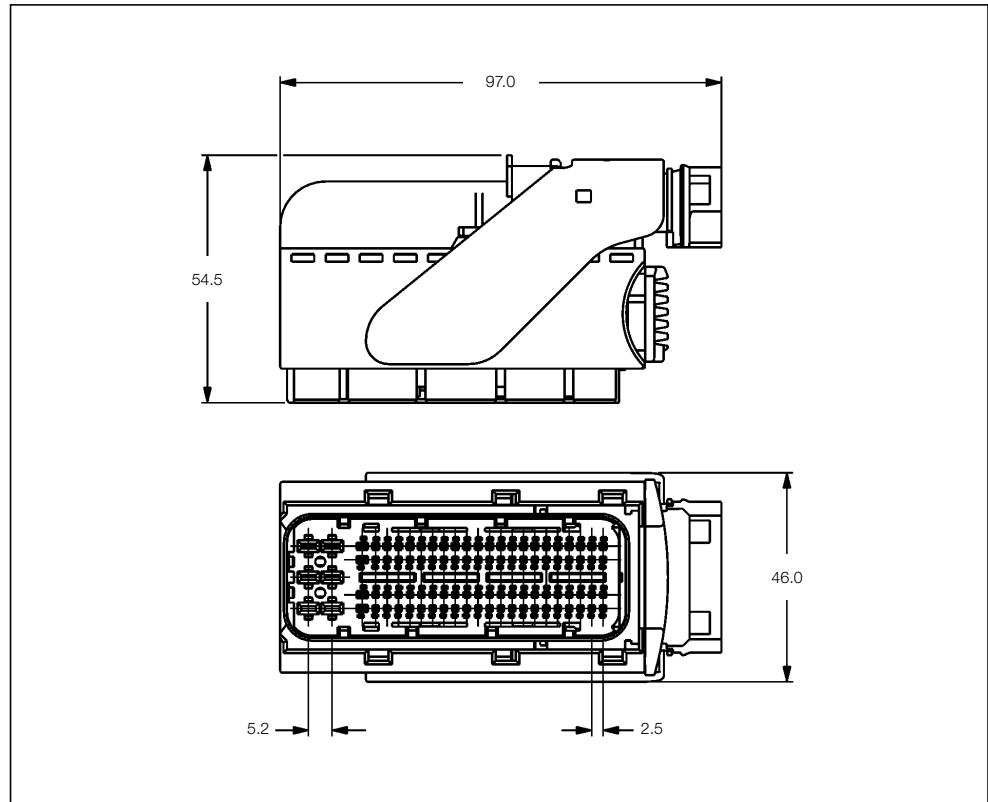
- 0.35–0.75 mm² Micro Quadlok
Clean Body 0.63 mm
- 0.5–2.5 mm²
AMP MCP 2.8K
- 0.75–1.5 mm² Micro Quadlok
Clean Body 1.5 mm

Product Specification:

108-20235

Application Specification:

411-20067



94 Position Receptacle Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers							
			Receptacle Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Tab Housing	Mating PCB Header Right-Angle	Mating PCB Header Vertical
94	-	Black /	284743-1	-	-	-	-	-	-	-
		Light-Brown	284743-2*	-	-	-	-	-	-	-

* No C.P.A. supplied

Tab Housings

Technical Features

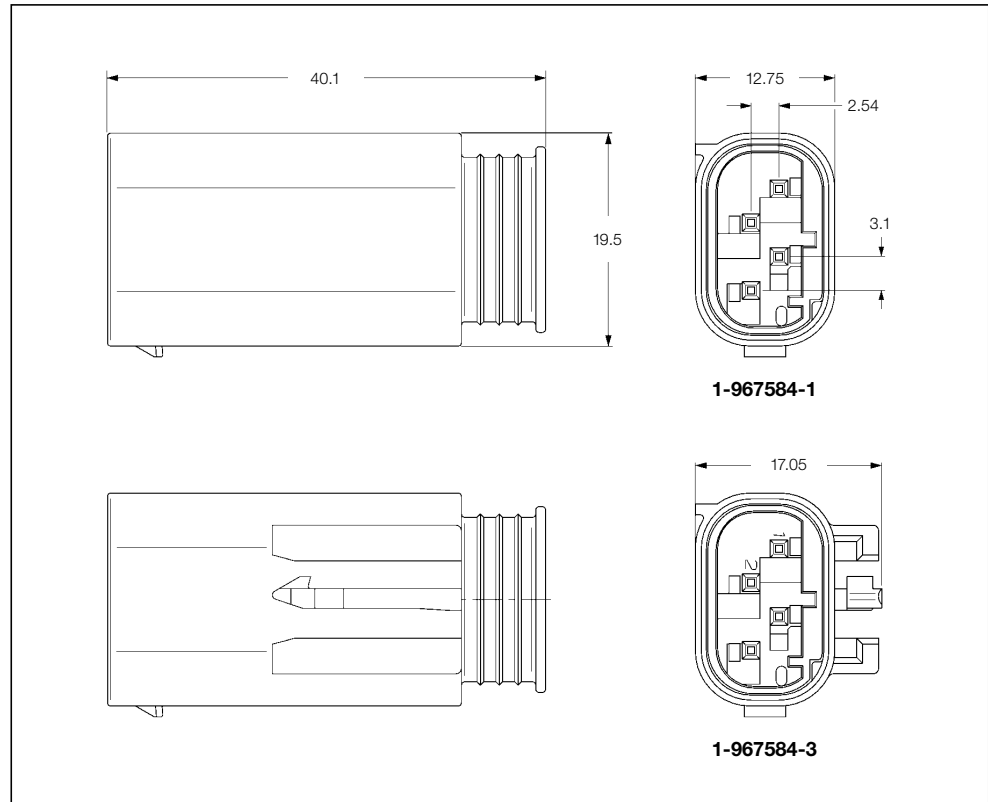
No. of Positions:
4 Positions

Housing Material:
PBT GF20

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-18569-0

Application Specification:
114-18061



4 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Receptacle Housing
4	A	Black	1-967584-1	-	-	-	-	967640
			1-967584-3	-	-	-	-	-
		Yellow	7-967584-3	-	-	-	-	-

Tab Housings

Technical Features

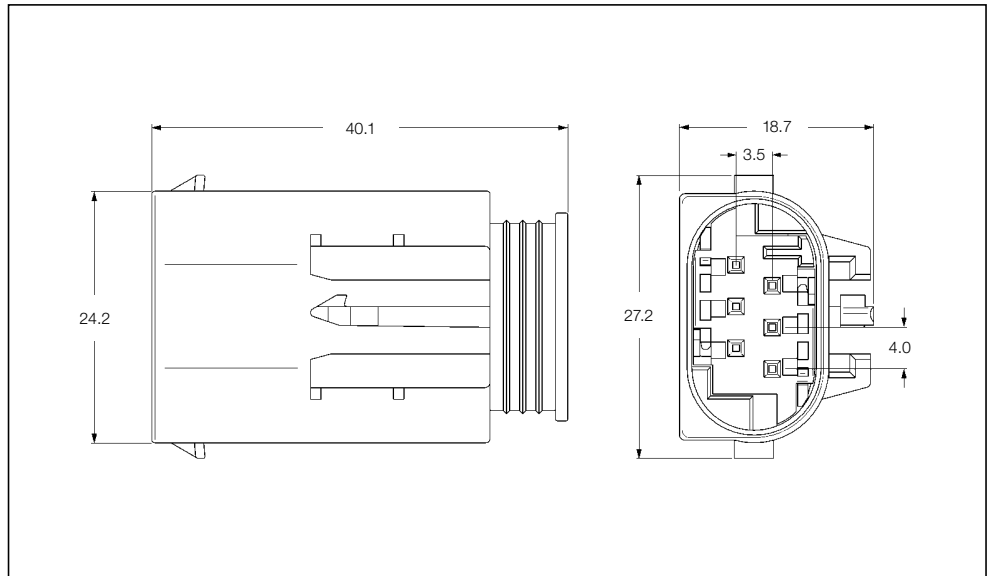
No. of Positions:
6 Positions

Housing Material:
PBT GF20

Wire Size Range:
0.35–0.75 mm²

Product Specification:
108-18569-0

Application Specification:
114-18061



6 Position Tab Housings

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			Tab Housing	Cover	Locking Device	Cover and Lever	Retainer Housing	Mating Receptacle Housing
6	A	Black	1-967587-3					
		Natural	2-967587-3					
	B	Black	6-967587-3	-	-	-	-	967616
		Yellow	7-967587-3					

Printed Circuit Board Headers

Technical Features

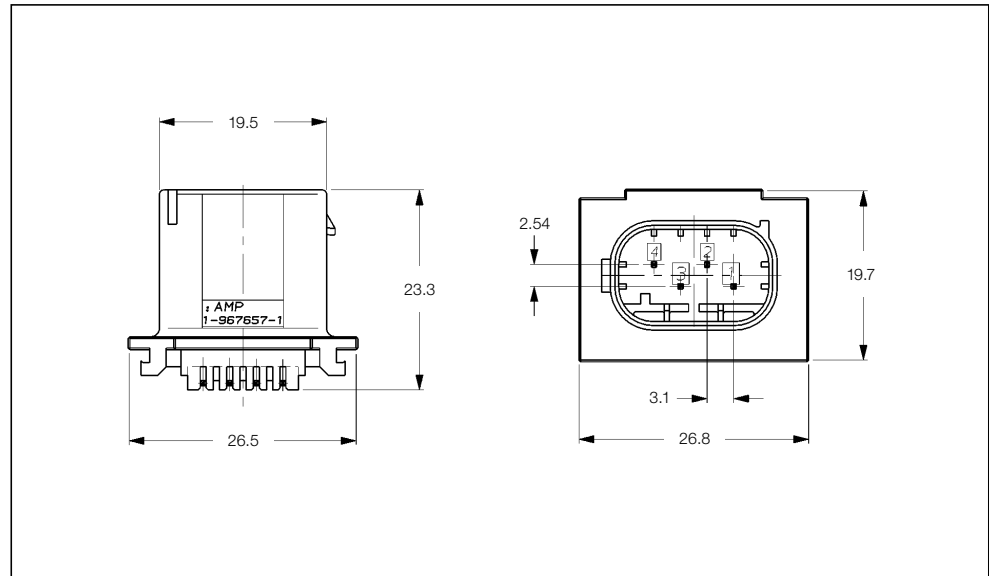
No. of Positions:
4 Positions

Housing Material:
PBT GF20

Material and Finish:
CuFe, tin plated

Product Specification:
108-18568

Application Specification:
—



4 Position PCB Header

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
4	—	Black	1-967657-1	—	—	—	—	967640

Technical Features

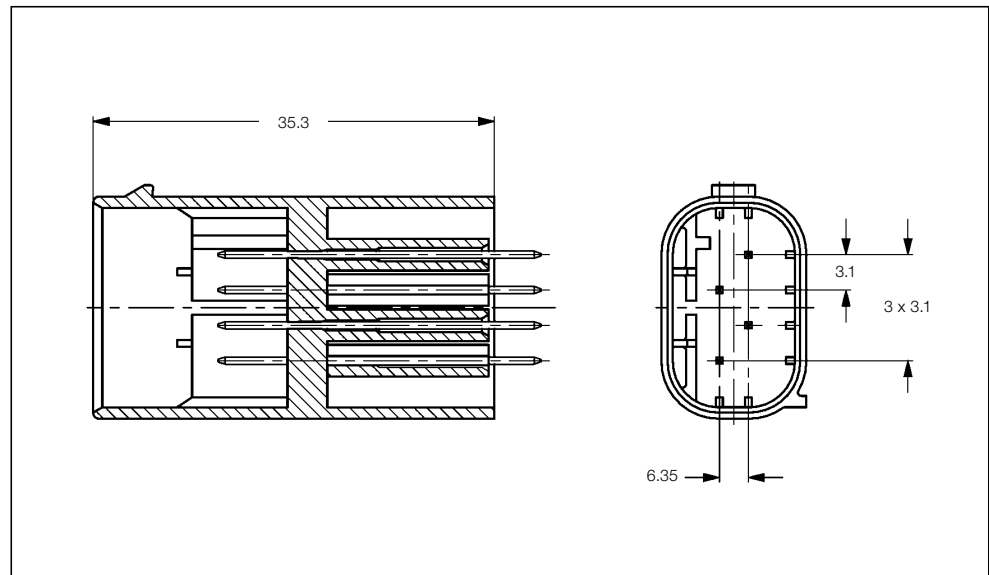
No. of Positions:
4 Positions Assembly

Housing Material:
PBT GF30

Material and Finish:
CuSn, pre-tin plated

Product Specification:
108-18030

Application Specification:
114-18021



4 Position PCB Header

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
4	—	Black	—	967439-1	—	—	—	967640

Printed Circuit Board Headers

Technical Features

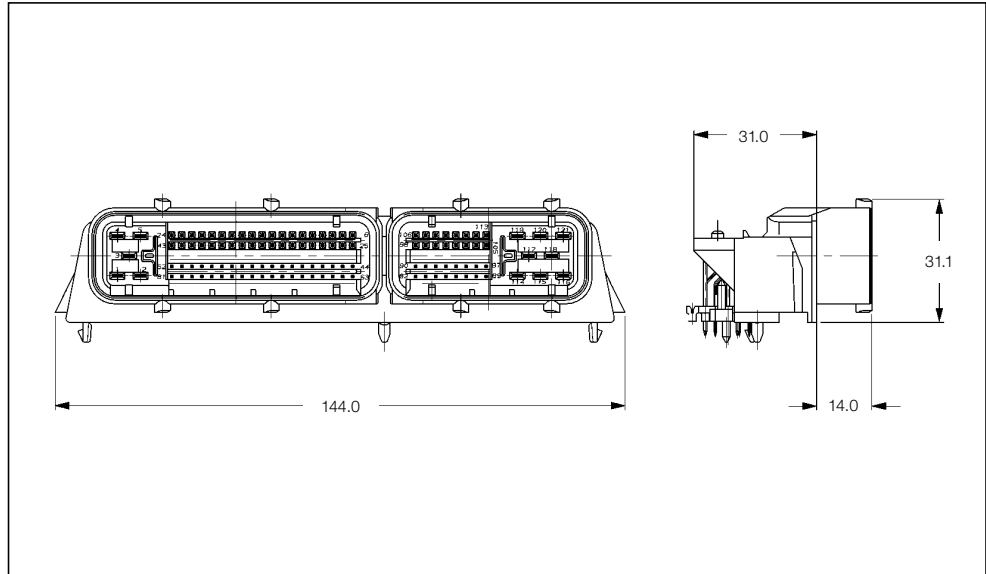
No. of Positions:
81/40 Positions Assembly

Housing Material:
PA 66 GF30

Material and Finish:
CuSn6, tin plated

Product Specification:
108-5793

Application Specification:
411-78008



81/40 Position PCB Header

No. of Pos.	Keying Options	Housing Color	Part Numbers					
			PCB Header Right-Angle	PCB Header Vertical	Cover	Cover and Lever	Retainer Housing	Mating Receptacle Housing
81/40	A	Black	1241434-1	-	-	-	-	1473252 1473244

Introduction



Application Tooling from Tyco Electronics is designed to perform perfect terminations, time after time. Beyond that, the result is productivity gains, yielding more terminations for less money at the time of application, and in service. It is this combination of superior quality at a lower installed final costs that distinguishes the Tyco Electronics system solution.

Because production requirements vary, GATD – Global Application Tooling Division – can provide various levels of tooling to meet the full spectrum of output requirements. Our program is comprised of hand tools, semi-automatic bench machines and fully-automatic turn key machine systems.

This is further enhanced by our ability to supply and support the complete product ranges of such renowned companies as ARA komax, SIMEL and Automation Services Group, Inc.

Specifically designed to terminate AMP's many different products, Tyco Electronics hand tools guarantee high quality terminations with a quick and easy application. Their compact design and ease of use make them ideal for on-site use.

Tyco Electronics also offers modular hand tools which are capable of terminating a variety of different products by means of interchangeable die sets.

Our bench machines process cables and reeled terminals, contacts and connectors. To meet our customers' specific requirements, these semi-automatic machines can be equipped with numerous monitoring and controlling features, including sensors for crimp quality monitoring, keying adjustment and precision adjustment of crimp height for faster, more accurate set-ups.

For manufacturers with large production volumes, we have a wide range of fully-automatic machines which de-reel wire, cut it to the correct length, strip the insulation and crimp contacts, and then assemble them into harnesses and cable assemblies.

Machines are available with many advanced features as standard, such as programmable set-ups, wire run-out and splice detection, and motorised pre-feed with wire straightener.

Equally comprehensive tooling ranges are of course available for terminal and connector products requiring other application technologies, such as insertion and placement.

The continuous support by our field service completes the Tyco Electronics system. Our field service engineers ensure the application equipment fulfil all requirements at any given time.

Introduction (continued)

Why Equipment from Tyco Electronics?

- Tyco Electronics offers equipment at current market prices
- Equipment can be purchased or rented
- Field Service close to the customer / short response times
- Sales Engineers close to the customer / short response times
- Process and Products from one source / system solutions

C-Frame Type Presses

- Hand operated
- Pneumatic versions
- Easy access
- Seating force range up to 60 kN

H-Frame Type Presses

- All electric servo actuation
- Total Quality control
- Semi- and fully-automatic versions
- Seating force range up to 107 kN

How are Tyco Electronics Products be offered?**Purchase / Rental / Lease**

- All equipment can be purchased outright
- Rental / lease terms and other payment options are available on request

Installation, Training and Service

- Available at competitive rates through our extensive and experienced field service organisation

Spare Policy

- Customer will be expected to hold essential and wearing spares at their expense
- Tyco Electronics will hold other parts for emergency cover and by agreement

<http://www.tooling.tycoelectronics.com/europe>

Introduction



Tyco Electronics is one of the leading manufacturers and suppliers of ACTION-PIN connector seating equipment varying from hand operated arbor presses, C-frame type pneumatic presses to fully-automatic servo electric PC controlled machines and accessories.

Connector Seating Applications

- Hand tools
- Electric presses
- Seating tools
- Repair tools

Find the latest Tooling and Equipment options for your application at: www.tooling.tycoelectronics.com/europe

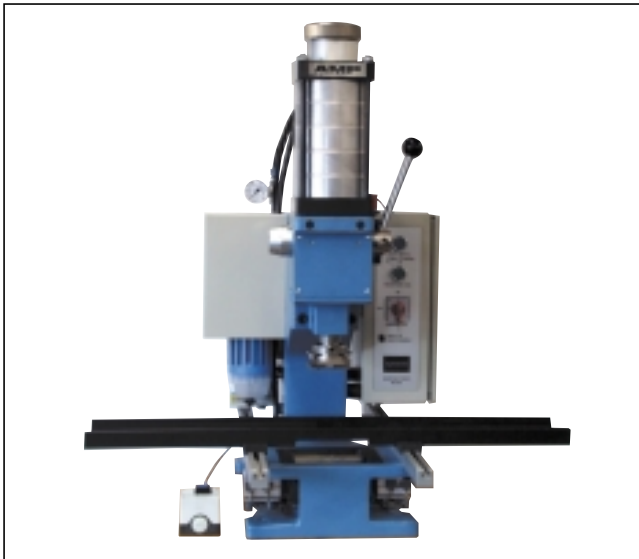
Connector Seating Equipment



Hand Press

Technical Features

- Well suited for prototype work and low volume production
- Can be used for removal of connectors
- Equipped with upper and lower quick change tool holders
- Mechanical, adjustable stop to prevent overpressing
- Max. seating force 15 kN
- Throat depth 125 mm



Pneumatic Press

Technical Features

- Manual stroke for correct connector alignment
- Pneumatic power stroke for actual seating of connector
- Equipped with upper and lower quick change tool holders
- Mechanical, adjustable stop prevent overpressing
- Adjustable seating force
- XY-table optional
- Max. seating force 27.5 kN
- Throat depth 250 mm



Universal 2-Stroke Press

Technical Features

- Suitable for all SIPAC connectors and accessories
- Equipped with upper and lower quick change tool holders
- PCB-thickness sensor, pneumatic controlled
- Pneumatic pre-centering stroke
- Hydraulic controlled force stroke
- Max. seating force 60 kN
- PCB capacity max. 600 x 550 mm

Connector Seating Equipment



BMEP 2K

Technical Features

- Low Cost Servo Electric Press
- PC controlled Low Cost Electric Servo Press
- C-Frame "flat rock" design with 305 mm (12") throat depth
- Affordably priced highly controlled pressing process
- Data driven fully-automatic set up, no adjustments required
- Automatically controls speed, force and height
- Variety of cycle termination techniques including press to height
- PQM™ QC on min/max force and seated height
- Real Time SPC X-bar & R-charts, CPK
- PCB tracking by serial number with 100% tracability on every component seated
- Available touch screen monitor
- Available Bar Code serial number entry
- Available with ergonomic air table
- Available turn-key tooling packages



BMEP-3T / 5T

Technical Features

- All electric servo actuation
- PC controlled, touch screen monitor
- Bar code PCB tracking with 100% tracability on each connector seated
- QC on min/max force and seated height
- On-line SPC X-bar & R-charts
- Fully-automatic set up, no adjustments
- Data driven process automatically controls speed, force and height
- Variety of cycle termination techniques
- Manually movable head side to side to press wider PCB's
- Safety light curtains
- Available with ergonomic air table
- 27 or 44 kN (3 or 5 ton) force
- PCB capacity 600 x 460 mm



MEP-6T / 12T

Technical Features

- Same features as the BMEP-3T / 5T
- 53 or 107 kN (6 or 12 ton) force
- PCB capacity MEP-6T 900 x 600 mm
- PCB capacity MEP-12T 1200 x 900 mm

Connector Seating Equipment

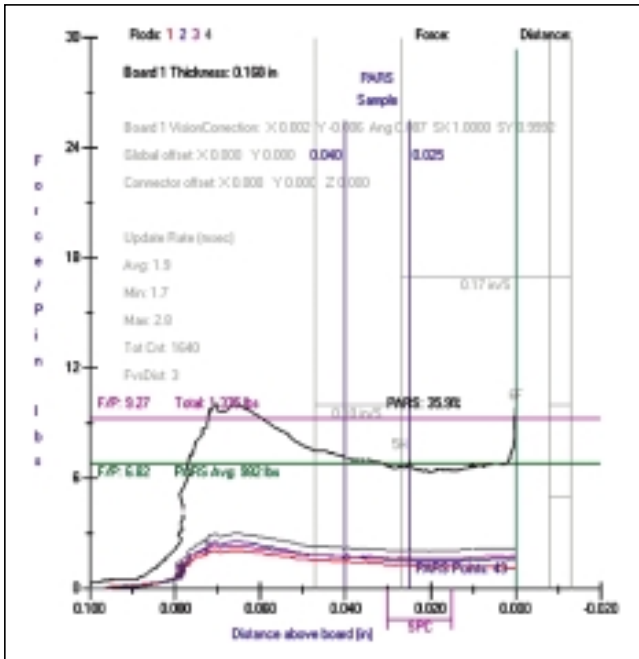


AP3

Technical Features

- Automatic Pick, Place and Press
- PC controlled servo electric press for fine control of speed, force and height up to 8 tons [71 kN] of pressing capacity
- Board capacity of 18" x 30" [457 mm x 762 mm]
- Monitors insertion force of every connector pressed to assure that minimum force is reached and maximum force is not exceeded
- Ability to stop in mid press cycle if errors are detected to reduce or eliminate requirement for re-work
- Continuous motion inspection of each connector to assure that components with bent or missing pins are not processed
- Data driven software for simple programming
- Full SPC data of every component pressed for quality assurance
- Ability to process press-fit and odd-form components
- SMEMA interface

Connector Seating Equipment



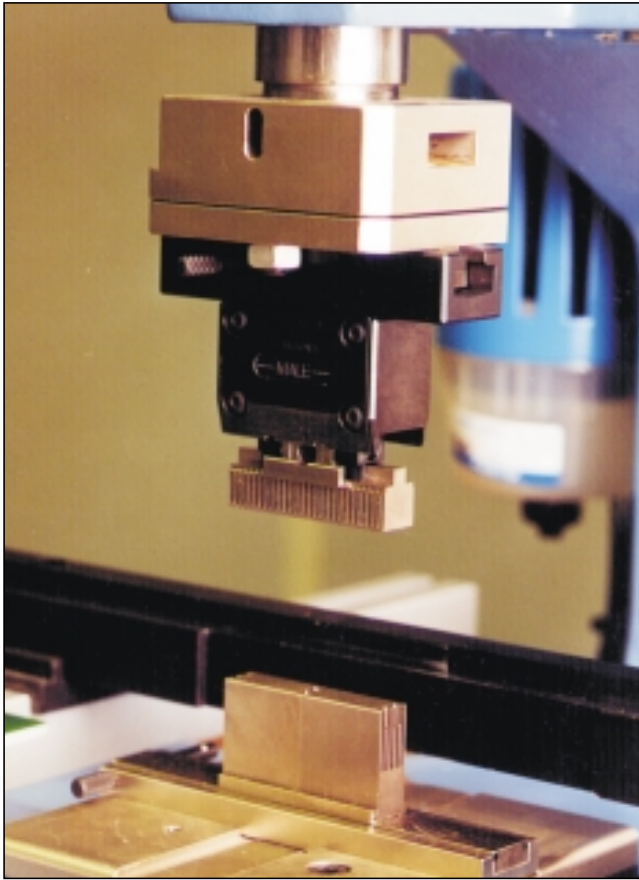
PQM (Press Quality Monitor)

PQM is a system of hardware and software that is specifically designed to enhance the quality of the pressfit process. PQM eliminates most human errors, virtually guarantees a repeatable process and provides process documentation.

It includes the following Key Features:

- **PC Control**
Superior operator interface, flexible control scheme, data collection and storage and network capable
- **Servo Electric Press Head**
Speed control, force control, height feed back and control, flexible/programmable pressing cycle, no compressible fluids, no connector “slamming”, no oil leaks
- **Automatic Set-Up**
Data driven process provides automatic set-up, eliminating set-up errors
- **Connector Assembly Defect Detection**
Bent pins & off grid connectors are detected before pressing
- **Real Time Force Control**
During each pressing cycle the actual pressing force is monitored continuously and only enough force required to fully seat the connector is applied
- **Min/Max. Force Monitor**
Pressing force for each connector is verified to be above the minimum and below the maximum recommended force
- **SPC**
On-screen X-Bar R/S charts for each connector and PCB, all data is stored on the hard drive and charts can be printed
- **Traceability**
Each connector pressed is 100% traceable with PCB serial number, data, time, operator, program revision level and actual force /distance data for the complete pressing cycle
- **First Article Inspection**
First article inspection signoff with password
- **Error Log**
Each error condition detected is logged by date and time
- **Operator Log**
Each operator must log in with a password and each event is logged by date and time

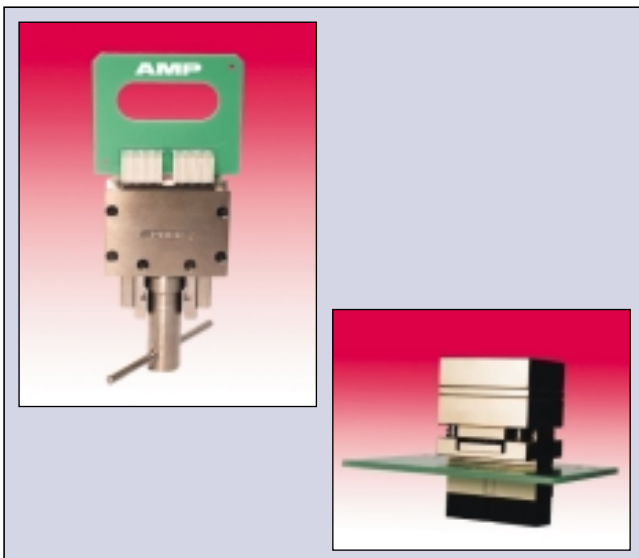
Connector Seating Equipment



Seating Tools

Technical Features

- Variety of connector specific seating tools available
- Upper tool for alignment and seating
- Lower tool for PCB support
- Quick Change Style
- Please contact Tyco Electronics for further details



Repair Tools

Technical Features

- Variety of repair tools available
- Safe connector removal
- Preservation of plated through holes
- Availability of
 - Housing removal tools
 - Contact removal tools
 - Support anvils
 - Connector removal tools
- For best results on repair work please contact Tyco Electronics

These seating tools are to use with the presses shown on the previous pages. The customer supplies the lower board support tooling.

Introduction

**Insertion Machines from Global Application Tooling**

Tyco Electronics GATD – Global Application Tooling Division – offers a wide range of production equipment for insertion technology.

The presented insertion machines are fulfilling the most different customer requirements. A large range of accessories which can be used in different combinations allows the production of different customer specific printed circuit boards.

This section gives an overview over available insertion machines and related accessories. The aim of Tyco Electronics GATD – Global Application Tooling Division – is to provide the optimal solution to the production needs of our customers.

Our experts would be more than happy to assist you in selecting the optimal machine configuration. The resulting benefit is obvious because customer specific applications are guaranteeing high productivity and high quality. Combined with an agreed time of usage you can keep your investments low.

The Tyco Electronics tooling offering is complemented by competent field service resulting in a high uptime of your machines.

Find the latest Tooling and Equipment options for your application at: www.tooling.tycoelectronics.com/europe

Insertion Machines for Single Contacts



Insertion Machine P 100

Solderless interconnection have been popular in electrical and electronic applications with world-wide success for decades. They provide reliable electrical and mechanical stability and offer cost savings across the board.

The P 100 consists of a semi-automatic bench machine equipped with a pneumatic insertion head with rotary insertion finger.

The available heads insert a large variety of Tyco Electronics terminals from sockets and posts to tabs and receptacles.

The insertion heads can easily be changed to increase the flexibility of the machine.

The air-powered bench machine is equipped with a board fixturing. The fixture is a manually-operated X/Y-positioning system with dual handles equipped with a triggering switch.

The insertion cycle is initiated by depressing the switches each time you locate a hole.

The machine won't cycle unless the insertion hole is correctly located over the anvil. A locating pin and lighting are provided to simplify this process.

Other features include: convenient push-button control panel with LCD display, clinch lower tooling and vacuum scrap removal.

Insertion Machines for Single Contacts

**Insertion Machine P 200**

An X/Y-table with flexible PCB fixture is mounted on the base plate of the machine. The X/Y table positions the PCBs in the desired position.

The product specific insertion tool cuts the contacts off the carrier strip and inserts them into the PCB.

The lower tool absorbs the insertion force during this process thus preventing the PCB from being bent.

Sensors in the lower tooling detect the presence of the contact after insertion. That guarantees that the PCB will be completely populated.

An adjustable fixture allows the production of PCBs with a maximum size of 210 x 300 mm.

A simple operator and programming interface together with a large failure diagnosis make the operation of the machine extremely simple.

The P 200 is equipped with a modem for remote diagnostic.

Insertion Machines for Single Contacts

**Insertion Machine P 300**

An X/Y table takes the PCB and positions it program controlled under the insertion tool. The product specific insertion tools cut the contact off the carrier strip and insert it into the PCB. The lower tool supports the PCB during the insertion process and prevents the PCB from being bent. Sensors in the lower tool monitor the production quality.

The high capability multi tasking control allows for ease of programming and operation of the machine.

With a large range of accessories the P 300 can be adapted to different production environments.

The basic model is equipped with a fixture for PCBs up to a maximum size of 600 mm x 400 mm.

Loading and unloading is carried out manually. The stepper motors of the X/Y-table and the 3-phase motor for the insertion tool allow an insertion rate of 90 pins per minute at a pitch of 2.54 mm.

With the high end version, equipped with server motors for the X/Y-table, the insertion tool and the lower tool, insertion rates of up to 180 pins per minute at a pitch of 2.54 mm can be achieved.

A vision system for the position check of the insertion holes prior to the insertion process and a force monitoring system for the insertion force guarantee a high level production quality.

The P 300 is equipped with a modem for remote diagnostic.

Insertion Machines for Single Contacts

**Insertion Machine P 350**

The P 350 is a fully-automatic insertion machine with the ability to handle a large variety of Tyco Electronics terminals as well as customer specific terminals.

A Standard P 350 machine comes with three base Insertion Tools mounted onto an Automatic Tool Changer.

These base tools can easily be equipped with existing or customer specific conversion kits for a large range of terminals.

All heads are equipped with rotary insertion fingers to allow the insertion of terminals at different angles without the need to rotate the board.

The PCB transfer belts enable the machine to be incorporated into an automatic production line.

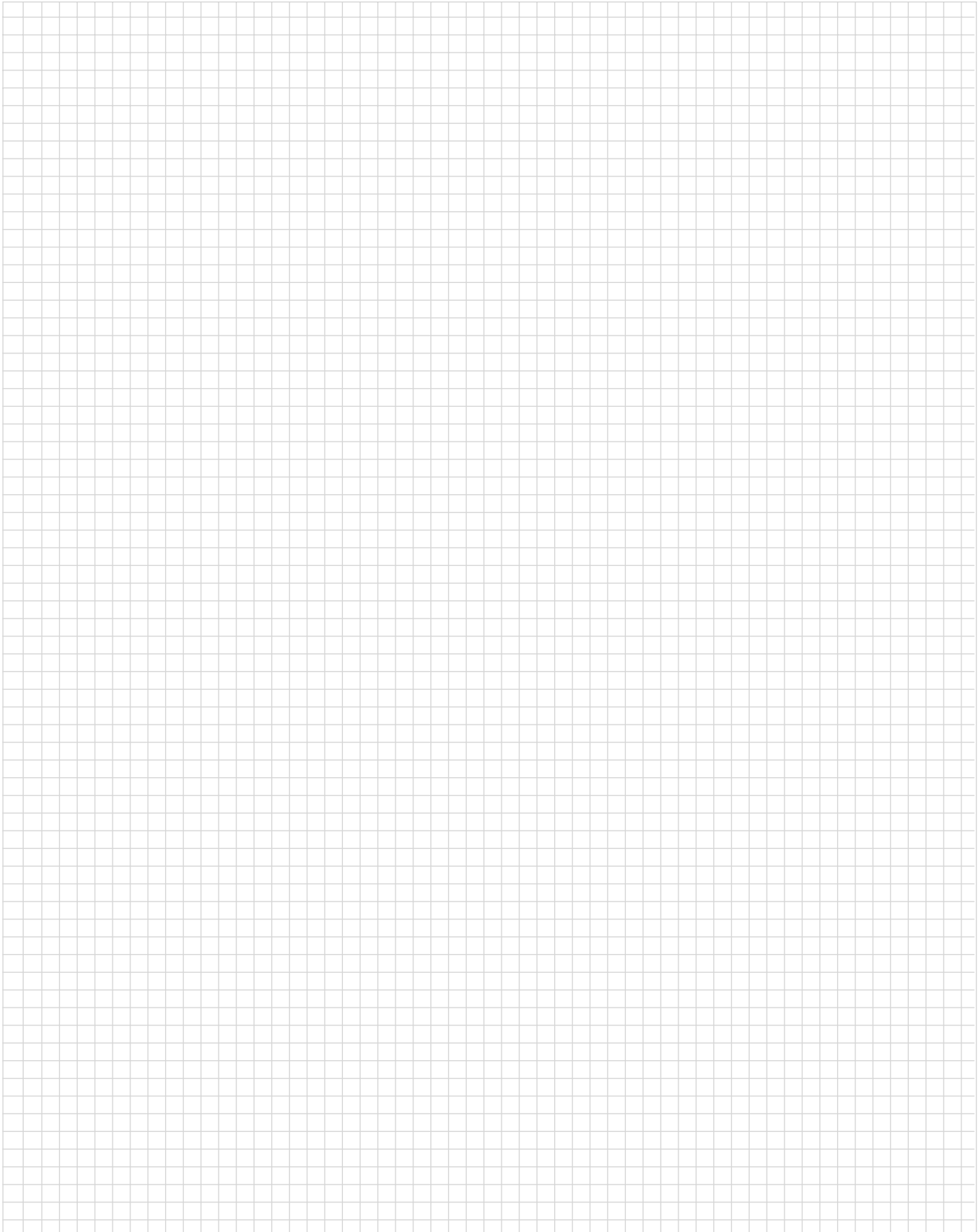
A Standard Insertion Force Monitoring System guarantees a 100% quality check for each press-fit terminal.

Our new operator interface has been designed for easy use and provides the insertion force and a variety of production data to be collected at an open interface.

With a maximum insertion rate of 5 cycles per second we provide a production capacity which is difficult to match in the market place.

The programmable insertion of two 0.63 mm pins per cycle doubles the output.

Engineering Notes



Introduction



Komax is globally one of the leading manufacturers of cable processing systems and automatic production machines, ranging from simple cutting and stripping machines to complex equipment for assembling and testing of entire cable harnesses, components or modules.

Semi-Automatic Wire Processing

- Cutting to Length – K 206 S and K 206
- Stripping – Delta-Serie
- Cutting to Length, Stripping – Kappa-Serie
- Crimping – Bench Top Machines (Bt)

Fully-Automatic Wire Processing

- Lead Maker – Gamma- and Alpha Series
- Harness Maker – ARA, Zeta, Lambda

Find the latest Tooling and Equipment options for your application at: www.tooling.tycoelectronics.com/europe

komax Products



delta 50

Stripping Unit for Cross Sections up to 2 mm²

Bench-top semi-automatic stripping machine 220 V, 50/60 Hz

- No pneumatics
- Strip lengths up to 25 mm
- Half and full strip
- Quick and easy setting change



delta 60

Stripping Unit for Cross Sections up to 35 mm²

**Bench-top semi-automatic stripping machine 220 V, 50/60 Hz
with all the features of the delta 50 plus**

- Strip lengths up to 95 mm
- Processing of multi-core cable

komax Products



kappa 210

Cut and Strip Unit for Cross Sections up to 3 mm²

Bench-top automatic cut and strip machine 220 V, 50/60 Hz:

- No pneumatics
- Half and full strip also in multiple steps
- Quick change tooling (no tools required)
- Optional wire collector with taping/labelling, wire deposit system
- Optional hot stamp marking

Pricing based on a machine comprising:

- kappa 210 automatic stripping machine with V blades, plasma feed rollers, 4 mm cable guide and 4 mm swivel guide



kappa 220

Cut and Strip Unit for Cross Sections up to 6 mm²

Bench-top automatic cut and strip machine 220 V, 50/60 Hz with all the features of the kappa 210 plus:

- Capability of processing of larger wire sizes
- Ribbon and multi-core cable
- RS-232 interface for remote connections
- Optional hot stamp or ink-jet marking (additional software)

Pricing based on a machine comprising:

- kappa 220 automatic stripping machine with V blades, plasma feed rollers, 6 mm cable guide and 6 mm swivel guide, vertical wire straightening device and passive wire deposit system



kappa 225

Cut and Strip Unit for Cross Sections up to 10 mm²

Bench-top automatic cut and strip machine 220 V, 50/60 Hz with all the features of the kappa 220 plus:

- Capability of processing larger wire sizes
- Post feed encoder for precise wire measuring

Pricing based on a machine comprising:

- kappa 225 automatic stripping machine with V blades, knurled feed rollers, 6 mm cable guide, 6 mm swivel guide and passive wire deposit system

komax Products



kappa 235
Cut and Strip Unit

For cutting and stripping wires of 0.22 mm² up to 25 mm², max. outside diameter for multicore cable 15 mm.

Optionally suitable for flat ribbon cables up to 40 mm width, slitting and inner conductor processing.

To compliment the kappa 235 in a production line, additional accessories like de-reelers, markers, work tables and deposit systems can be integrated.

Basic Equipment:

- Stripping machine incl. control unit
- RS-232 port and interface possibility for pre- and post devices
- Radius blades 2 mm
- Elastomer drive rollers
- Cable guide 10 mm
- Blade calibration plates

Further equipment configurations available on request.



kappa 240
Cut and Strip Unit for Cross Sections up to 35 mm² (95 mm²)

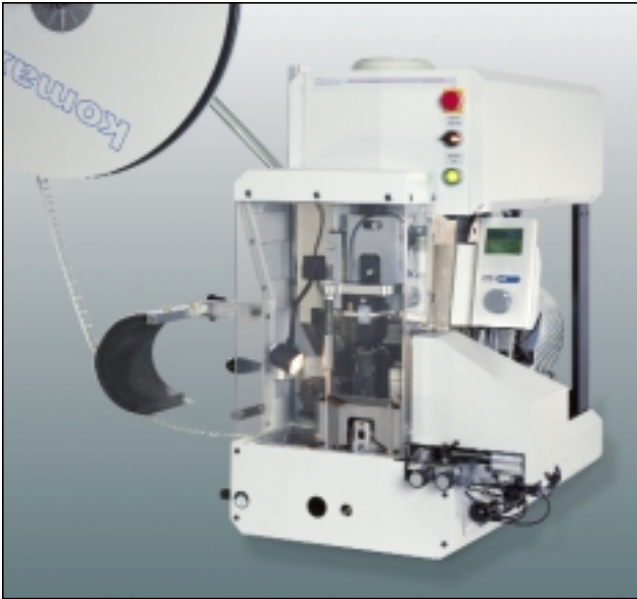
Bench-top automatic cut and strip machine 220 V, 50/60 Hz with all the features of the kappa 230 plus:

- Capability of processing of larger wire sizes
- Optional larger head (95 mm²)
- Slitting and intermediate slitting

Pricing based on a machine comprising:

- kappa 240 automatic stripping machine with programmable swiveling / stripping head, V blade set, rubber coated or knurled steel feed rollers and one set of cable guides (choice of sizes)

komax Products



bt 700

Strip, Seal and Crimp Unit for Cross Sections between 0.2–6.0 mm²

Bench-top semi-automatic machine 220 V, 50/60 Hz

- Utilises many makes of applicator

Pricing based on a machine comprising:

- Crimping press with integral CFA, programmable press stroke 10–40mm, stripping unit 1–10 mm, seal applicator, work light and quick clamp system for applicators
- Seal application set complete



bt 711

Strip and Crimp Unit for Cross Sections between 0.2–2.5 mm²

Bench-top semi-automatic machine 220 V, 50/60 Hz

- Utilises many makes of applicator

Pricing based on a machine comprising:

- bt711 crimping press for cross sections up to 6 mm² with integral CFA, programmable press stroke 10–40 mm, work light and quick clamp system for applicators
- SC-11 stripping unit for cross sections up to 2.5 mm² and between 1 mm and 10 mm strip length

komax Products



gamma 255

Lead Maker for Cross Sections up to 1.0 mm²

CNC fully-automatic crimping machine, CE-conformant, for 4 processing modules (example: one crimp and tinning module on each side), for cutting to length, stripping and crimping of wires 0.0123 mm² up to 1.0 mm², conveyor belt basic module 500 mm.

Configuration Example:

- Gamma 255 incl. standard blade set
- Pre-feeder
- Knot detection
- Wire run out detection
- Side 1 crimp module ioc 709
- Side 2 crimp module ioc 709

Further equipment configurations available on request.



gamma 333 PC

Lead Maker for Cross Sections up to 5 mm²

Fully-automatic lead making machine 220 V, 50/60 Hz – 6 kVA

- 3 processing stations for cutting and stripping, with options for crimping, twisting and tinning, doubling, seal and sleeve application
- Standard conveyor length 1.5 m
- Topwin software

Pricing based on a machine comprising:

- Base machine with safety cover and standard blade set
- Side 1:** ● Crimp station bt 711 press (40 mm stroke) with integral CFA, terminal guiding for side and end feed and paper take-up devices
- Sealing station mci 761 with one application set
- Side 2:** ● Crimp station bt 711 press (40mm stroke) with integral CFA, terminal guiding for side and end feed and paper take-up devices
- Sealing station mci 761 with one application set

komax Products



alpha 433-S

Lead Maker for Cross Sections up to 6 mm²

Fully-automatic lead making machine 220 V, 50/60 Hz – 10 kVA

- 4 processing stations for cutting and stripping, with options for crimping, twisting and tinning, doubling, seal and sleeve application
- Standard conveyor length 2 m
- Topwin software

Pricing based on a machine comprising:

- Base machine with safety cover and standard blade set
- Side 1:**
 - Crimp station bt 711 press (40 mm stroke) with integral CFA, terminal guiding for side and end feed and paper take-up devices
 - Sealing station mci 761 with one application set
- Side 2:**
 - Crimp station bt 711 press (40 mm stroke) with integral CFA, terminal guiding for side and end feed and paper take-up devices
 - Sealing station mci 761 with one application set



alpha 433-L

Lead Maker for Cross Sections up to 6 mm²

Fully-automatic lead making machine 220 V, 50/60 Hz – 10 kVA

- 5 processing stations

alpha 433-H

Lead Maker for Cross Sections up to 16 mm²

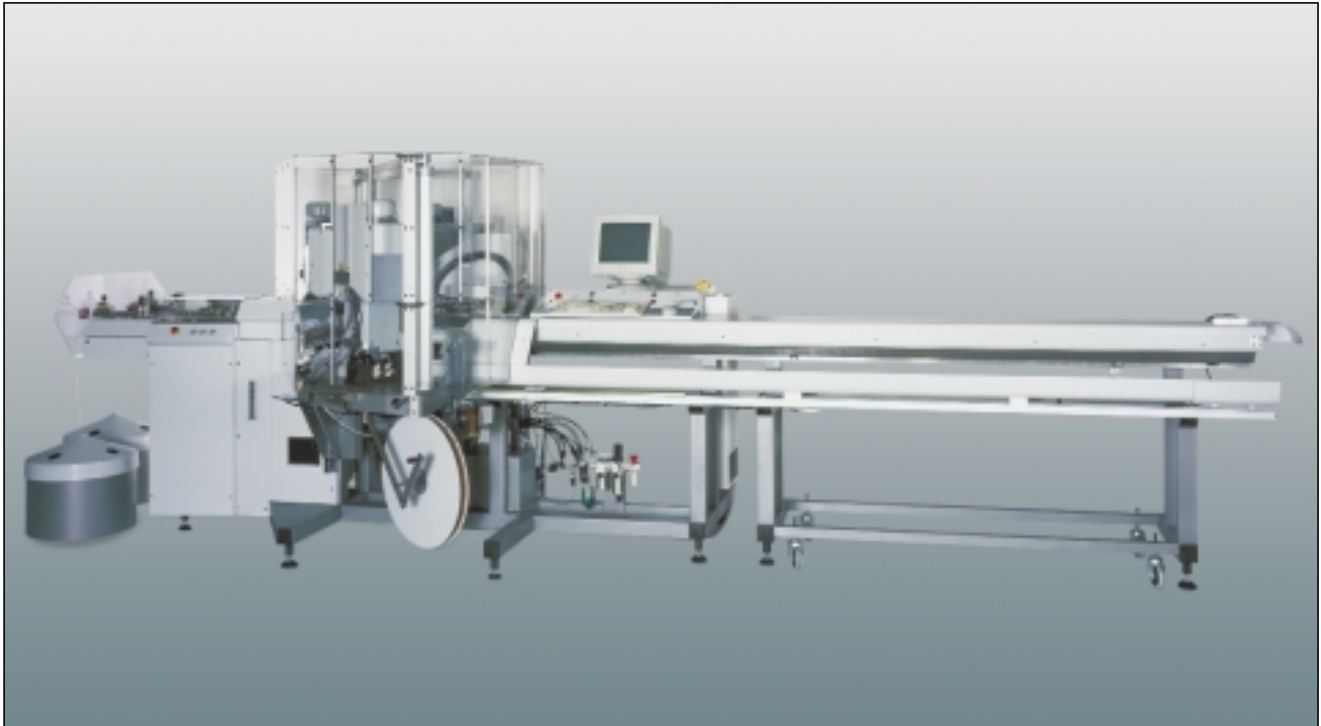
Fully-automatic lead making machine 220 V, 50/60 Hz – 10 kVA

- 3 processing stations

Pricing based on a machine comprising:

- Base machine with safety cover and standard blade set
- Side 1:**
 - Crimp station (x2) each with bt 711 press (40 mm stroke) with integral CFA, terminal guiding for side and end feed and paper take-up devices
 - Sealing station 1 mci 761 with one application set
- Side 2:**
 - Crimp station bt 711 press (40 mm stroke) with integral CFA, terminal guiding for side and end feed and paper take-up devices
 - Sealing station mci 761 with one application set

komax Products



alpha 477

Lead Maker for Cross Sections up to 4 mm² (Doubling 6 mm²)

Fully-automatic lead making machine 220 V, 50/60 Hz – 7 kVA

- Process two different wires simultaneously
- 6 processing stations for cutting and stripping, with options for crimping, doubling, seal and sleeve application
- Standard conveyor length 2 m
- Topwin software

Pricing based on a machine comprising:

- Base machine with safety cover and standard blade set

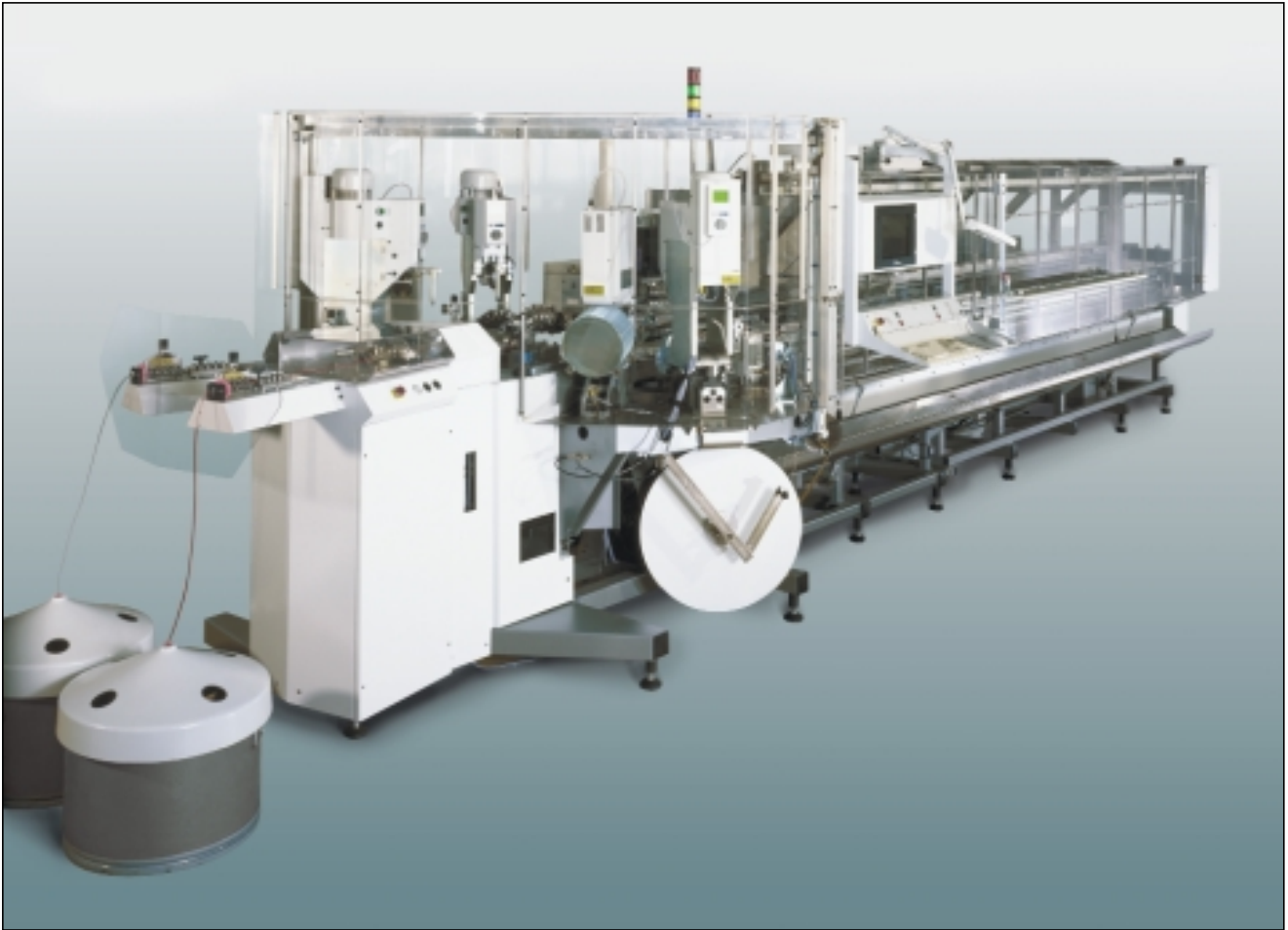
Side 1: ● Crimp station (x2) each with bt 711 press (40 mm stroke) with integral CFA, terminal guiding for side and end feed and paper take-up devices

- Sealing station (x2) mci 761 with one application set

Side 2: ● Crimp station bt 711 press (40 mm stroke) with integral CFA, terminal guiding for side and end feed and paper take-up devices

- Sealing station mci 761 with one application set

komax Products



alpha 488

Twisting Machine for Cross Sections 2 x 1.5 mm² (2 x 2.5 mm²)

Fully-automatic lead making machine 220 V, 50/60 Hz – 7 kVA

- 6 processing stations for twisting, cutting and stripping, with options for crimping and seal application
- Lead lengths 4 m, 7 m and 10 m
- Topwin software

Pricing based on a machine comprising:

- Base machine 7 m with safety cover and standard blade set

Side 1: ● Crimp station (x2) each with bt 711 press (40 mm stroke) with integral CFA, terminal guiding for side and end feed and paper take-up devices

- Sealing station (x2) mci 761 with one application set

Side 2: ● Crimp station bt 711 press (40 mm stroke) with integral CFA, terminal guiding for side and end feed and paper take-up devices

- Sealing station mci 761 with one application set

komax Products



zeta 633

Lead Maker for Cross Sections up to 4 mm² (Doubling 6 mm²)

Tyco also supplies many other specialised komax lead-makers and harness-makers, which feature all of the aforementioned processes and more; block-loading, IDC applications, head to head and butt splicing by ultrasonic welding, daisy chain configurations and processes for many other complex connector applications.

Due to the immense range of possible variation, that is wholly dependent on customer specific applications – please contact the local representative to discuss your particular application in detail.

Introduction



Tyco Electronics is the worldwide leader in the field of interconnection devices utilizing Insulation Displacement technique (IDC). A comprehensive range of application equipment is available, from hand tooling up to fully-automatic equipment.

High precision and performance at optimal costs speak for themselves.

Our specialists would like to advise you regarding the available Tyco Electronics application equipment best suited to your specific requirements.

Micro Quadlok

- Pistol Grip Hand Tools
- Repair Hand Tool
- IDC Workstation
- IDC Harness Maker

Find the latest Tooling and Equipment options for your application at: www.tooling.tycoelectronics.com/europe

Insulation Displacement Technique



Pistol Grip Hand Tool

Hand tool for processing of Micro Quadlok IDC connectors

- Manual loading of discrete wires
- Clamps the wire, cuts and inserts into the IDC slot within the same cycle
- Automatic connector feed
- Ratchet device ensures completion of termination stroke
- Precise insertion length due to wire cut
- Corrects the termination position of the connector by means of release pin
- Each connector type requires the appropriate hand tool

Types of connectors:

- 9 position with 2.54 mm pitch
- 9 position with 3.5 mm pitch
- 6 position with 3.5 mm pitch



Pistol Grip Hand Tool Combi

Multi functional hand tool for 9 position Micro Quadlok IDC connectors with 2.54 mm pitch, 9 position connectors with 3.5 mm pitch and 6 position connectors with 3.5 mm pitch

- Manual loading of discrete wires
- Manual initiation of the termination cycle
- Manual feed of the connector
- Ratchet device ensures completion of termination stroke
- Precise insertion length due to wire cut
- Simple and fast set up due to interchangeable tooling kits



Pistol Grip Hand Tool

Pistol grip hand tools for cutting polarizing keys on connector housings

- Simple operation
- Manual feed of the connector
- Different pitches of 2.54 mm and of 3.5 mm require the appropriate hand tool

Insulation Displacement Technique



IDC Workstation

Semi-automatic processing of IDC connectors with 2.54 mm pitch and with 3.5 mm pitch

- Display of wire color via PC
- Automatic termination of wire and contact
- Automatic cutting of polarization keys
- Electrical continuity testing
- Marking of successfully tested connectors
- Version for single row IDC-connectors

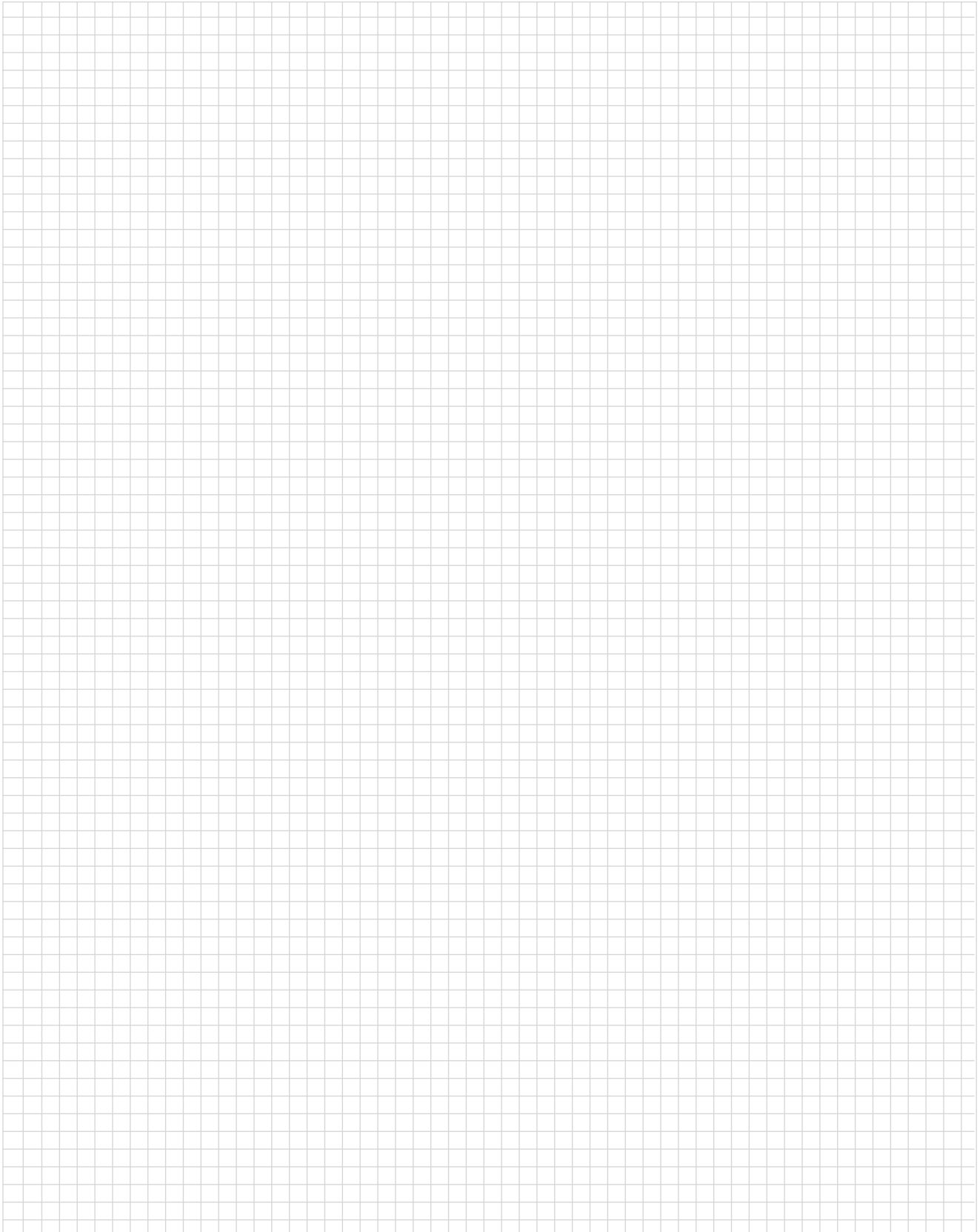


IDC Harness Maker

Fully automatic processing of IDC-connectors with 2.54 mm pitch and 3.5 mm pitch

- Automatic cutting of polarizing keys
- Electrical continuity testing
- Marking of tested product - good/bad separation after test
- Automatic insertion of completed harness assemblies into packaging tubes
- Crimp contact on one wire end possible
- Version for single row IDC-connectors

Engineering Notes



Introduction



Tyco Electronics is one of the leading manufacturers and suppliers for FFC/FPC contacts and offers as well tools and machines to crimp these contacts to Flexible Flat Cables (FFC) and/or Flexible Printed Circuits (FPC).

FFC/FPC Applications

- Hand tools
- Bench mounted tools
- Semi-automatic work-stations
- Fully-automatic solutions

Find the latest Tooling and Equipment options for your application at: www.tooling.tycoelectronics.com/europe

FFC and FPC Equipment



**FFC Hand Tool
for 1 to 10 Position MQS Terminals**

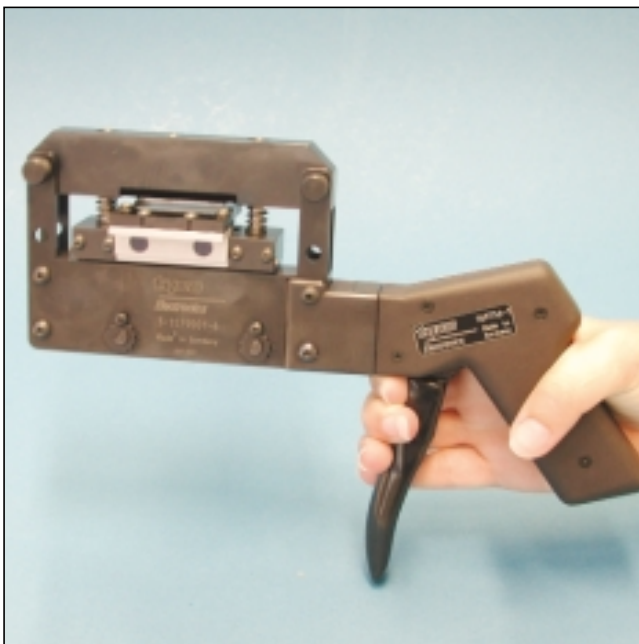
- Ratchet provides complete control over crimping cycle
- Suitable for MQS terminals in loose-piece form
- Crimps 1 to 10 positions FFC foil with 2.54 mm pitch
- Adjustable foil stop

This tool allows crimp connections to be made between foil and FFC terminals. It is specially designed for the crimping of 1 to 10 position FFC foil with a pitch of 2.54 mm.

Flexibility is built in, through the hand tools variable settings for both the foil stop and foil guide. The settings have to correspond to the specification. The crimp height is set for 70 µm thick foil.

An integrated ratchet mechanism ensures, that a correct and repeatable crimp process is achieved.

Only when the hand grips are fully closed can the crimped connection be released.



FFC Hand Tool Set for FFC MQS Terminals

- Termination of 13 individual MQS contacts to a 13 position foil within one cycle
- Simple and easy loading of the terminals by due to a movable fixture

This hand tool set allows the termination of FFC MQS terminals to FFC foils.

The nest of the hand tool is designed to accept 13 loose piece terminals.

They can be loaded easily due to a movable fixture.

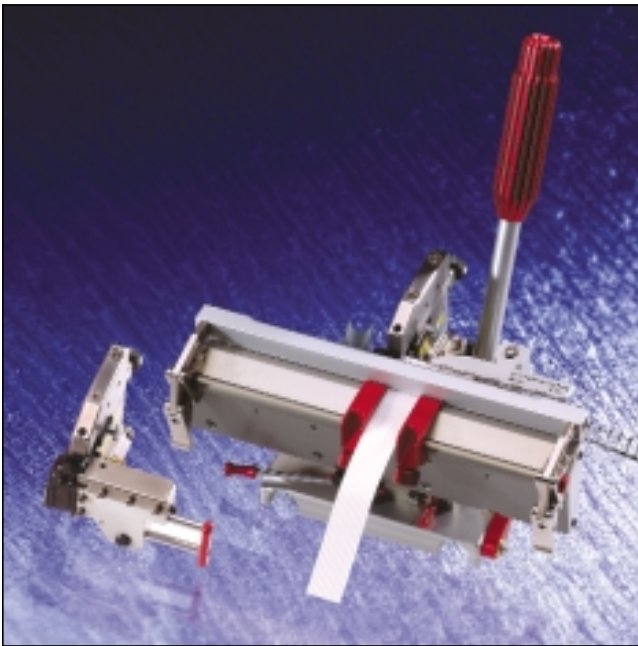
During one crimp cycle all 13 FFC MQS contacts are simultaneously terminated to the FFC foil.

The FFC Foil is processed as yard goods.

The hand tool set consists of a basic tool frame and a termination head.

The set is supplied in a plastic case.

FFC and FPC Equipment

**Bench Press for FFC Terminals**

- Semi-automatic process
- Accepts foils up to a width of 200 mm
- Automatic feed of terminals on a 2.54 mm or 5.08 mm pitch
- Automatic feed of the foils, adjustable for 2.54 mm or 5.08 mm pitch
- Ratchet mechanism to ensure completion of crimp cycle
- Integrated carrier strip chopper
- Adjustable crimp heights
- Tool sets for various terminal types are available

The bench press performs crimp joints between foils and FFC terminals.

Adjustable guides on either side ensure ease of foil positioning.

The correct insertion depth is also controlled by a stop.

Insertion and clamping of the foil is carried out manually. The tool is also manually moved into the crimping position and fixed.

Operating the hand lever will cause the feed mechanism to index the terminal strip by one pitch, whilst at the same time the anvil is moved upwards. During this up-stroke, one terminal is separated from the carrier strip and the crimp connection is executed.

Within the same work cycle, the foil is indexed by one pitch and the chopper cuts off the carrier strip chip.

Bench Presses are compatible to following Tyco Electronics Terminals

- AMPMODU .100
- AMPMODU .050
- MQS
- Junior Timer
- FFC-FFC Splice

FFC and FPC Equipment



FFC Termination Machine

- Alignment of the cable is effected in the machine
- Number of pins can be programmed
- Pitches between 1.27 mm and 5.08 mm can be programmed
- Individual wire positions can be skipped
- Operator friendly interface via touch screen
- Integrated crimp force monitoring by CQM (optional)
- Interchangeable applicators available for different products
- Quick change of the applicator

The Termination Machine is an electrically driven semi-automatic assembly machine that uses different die sets to terminate reel-feed FFC contacts to manually supplied FFC cables.

The machine terminates a predefined number of contacts to the supplied cable end.

Individual wire positions can be skipped during the assembly sequence.

Options for Harnessing

- FFC Cables
- Flex Printed Circuits

Processable widths are dependent on the number of connector positions and on the foil contour.

Possible Number of Crimps:

- Raster 5.08 mm = 19 crimps
- Raster 2.54 mm = 38 crimps

Other rasters upon request.



Base Machine with CQM

- CQM, Optional

Applicators

- FFC MQS
- FFC JT
- FFC MODU .100
- FFC MODU .050
- FFC Card Edge

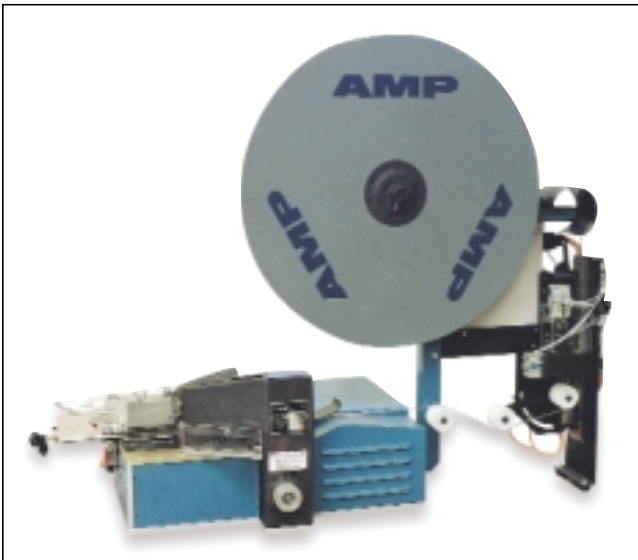
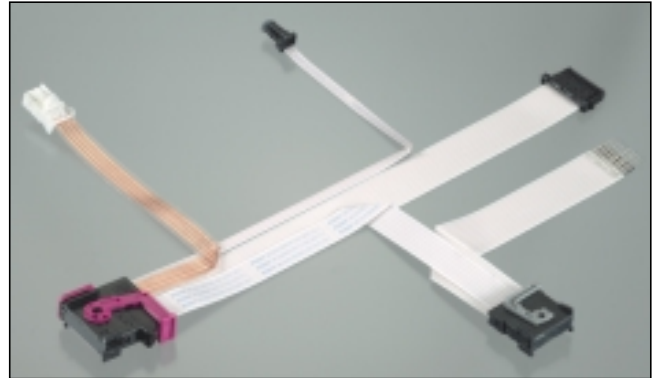
FFC and FPC Equipment



**Flexible Film Termination Machine,
Standard Version**

Semi-automatic machine crimps solder tab contacts and FFC reel-mounted receptacles

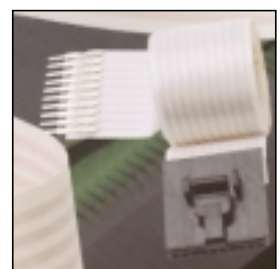
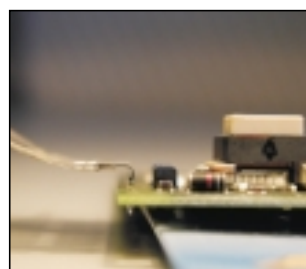
- 1.27 mm, 2.54 mm or 5.08 mm centerline to flexible films, flexible flat conductor cable (FFC) and flexible etched circuitry
- A special programming kit allows the machine to strip any combination of conductors when inserting the contacts
- Product centering line adjustments
- Special programme kit to strip any combination of conductors when inserting the contacts can be added



**Termination Machine
with Pre-Bending Unit**

FFC Semi-Automatic Termination Machine for Flexible Sensor Foil

- Semi-automatic bench machine to terminate FFC solder contacts on Flexible Flat Cable (FFC), Flexible Etched Circuitry (FEC) and Flexible Printed Circuits (FPC) with Tyco reel-mounted receptacles and solder tab contacts
- Centerline 1.27 mm, 2.54 mm or 5.08 mm
- Sequentially crimping of 4 contacts onto the foil
- Before being inserted into the machine, the contacts are bent over at the tip in a pneumatically powered unit in order to guarantee a strain relief on the printed circuit board when assembled
- For each cable or circuit, the contacts are automatically applied sequentially in a straight sequence
- To skip positions, a programmer control box is available
- Crimp height is easily adjustable



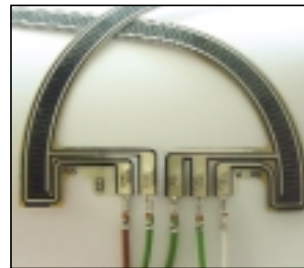
FFC and FPC Equipment



FFC Termination Machine

Semi-automatic termination of splices with sensor foil on one side and flexible leads or diodes on the other

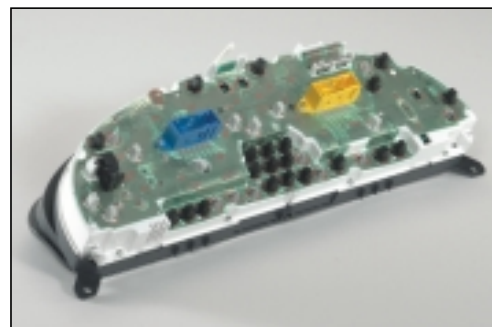
- Pneumatically operated with manual feed for pre-centering the product
- Separate crimping force trigger button as two-handed operation
- Contact and splice monitoring
- Automatic back stroke after Bottom Dead Centre
- Large foil support surface
- Bottom Dead Centre limit by means of a stop in the tool



P 300

High-capacity X-Y Insertion Machine guarantees good workmanship on a high level

- Programmable control unit
- Simple programming and operation due to Multi-Tasking control unit
- Integrated quality control by means of sensors and optional force measuring system
- Vision system to check the insertion position prior to insertion
- Various accessories and extension components are available



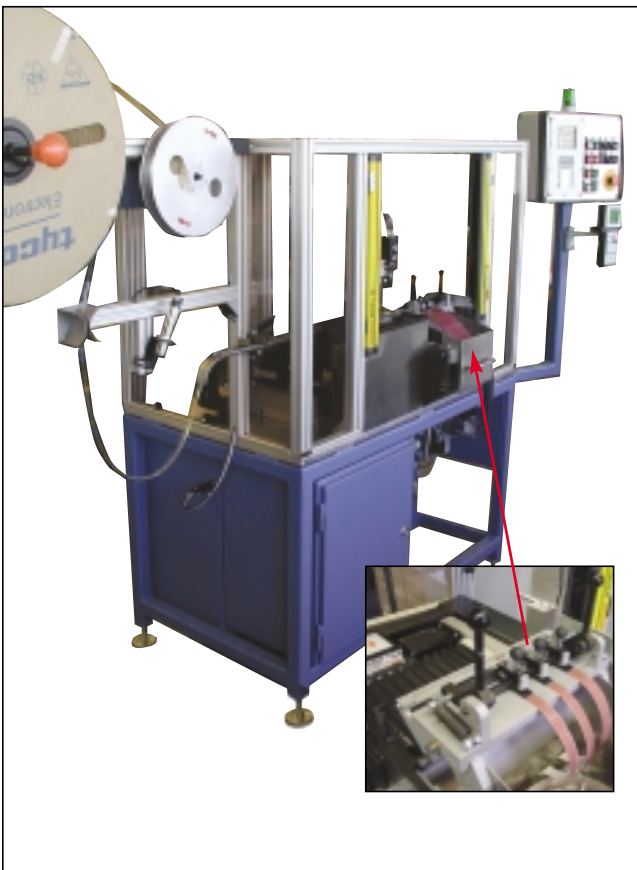
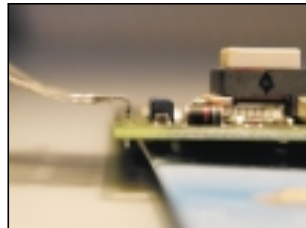
FFC and FPC Equipment



Assembly Machine to Connect FFC & PCB

This machine has been specially designed to connect a Flexible Printed Sensor with a PCB by using an ACTION PIN/FFC-Contact

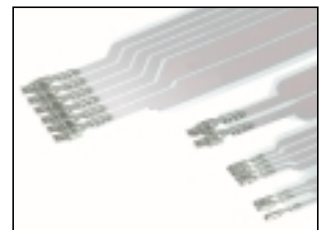
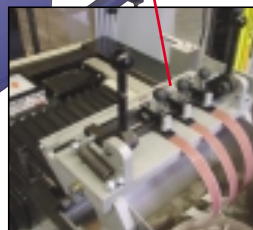
- Easy-to-use operator interface with touch screen
- Insertion head mounted on linear axes
- Manual loading of flexible sensor and PCB
- Insertion head bends ACTION PIN 90° prior to insertion
- Vision system for verification of conductor location
- The force to insert the ACTION PIN into the PCB is monitored by a force sensor
- Up to 29 contacts are forming the complete connection between the sensor and the PCB



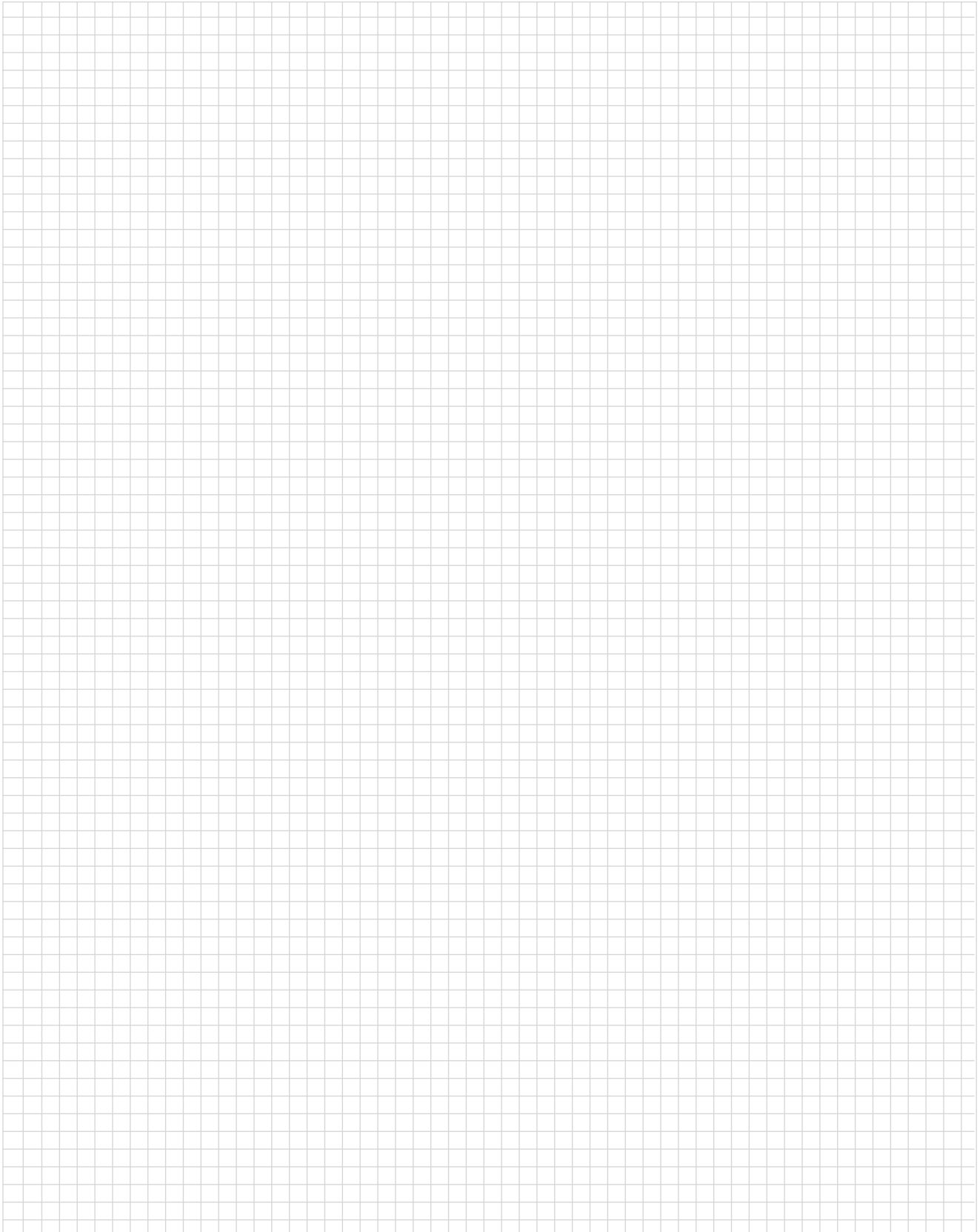
FFC/FPC Bench Machine

The FFC/FPC bench machine creates electrical connections between FFC terminals and flexible flat cables

- Operator friendly interface via touch screen
- Vision system for verification of conductor location
- Integrated crimp force monitoring
- Retrofittable for different products
- Faulty crimp cut off device
- Adaptable circuit fixture
- Applies FFC and FPC, conductor thickness up to 200 µm
- Output: Two crimps per second on a 5.08 mm pitch



Engineering Notes



Introduction



Tyco Electronics is one of the leading manufacturers and suppliers of Applicators, Crimping Presses, Stripper Crimpers, Crimp Quality Monitoring Equipment and Accessories.

This range covers the entire spectrum, from competitively priced entry level tooling up to fully featured equipment design-ed to meet the most exacting performance specifications.

Applicators

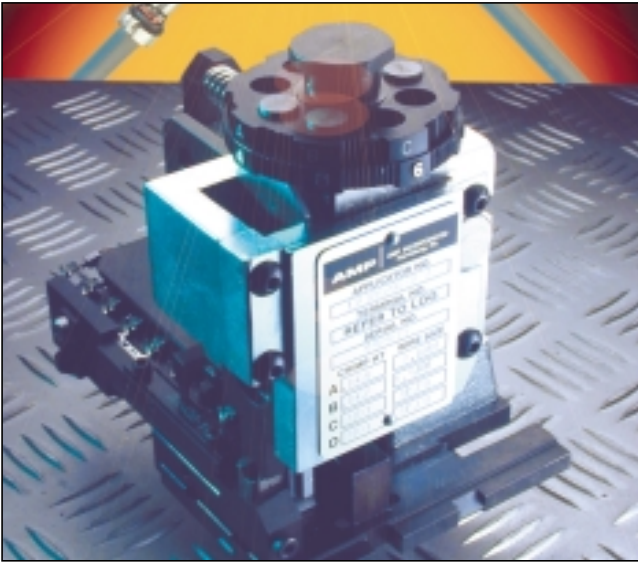
- Applicators with pre-set crimp heights – HD-I and HDM
- Applicators with crimp height fine adjust – HD-I, HDF and NSF
- Applicators for large wire cross sections – HWR

Crimping Presses

- ELT – up to 2.5 mm²
- G-Terminator – up to 6 mm²

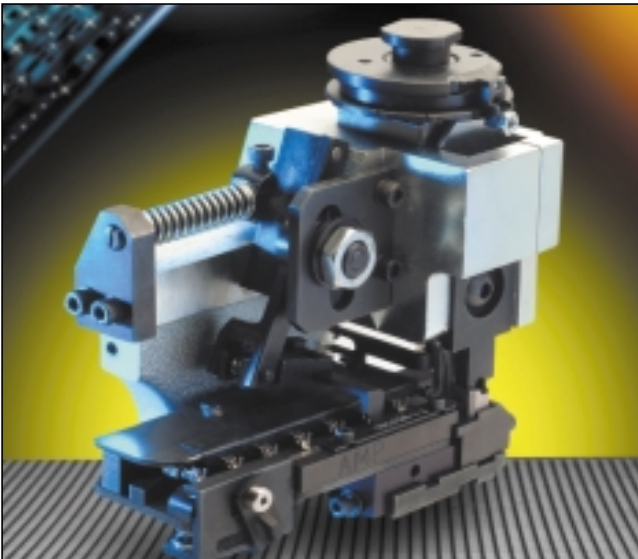
Find the latest Tooling and Equipment options for your application at: www.tooling.tycoelectronics.com/europe

Crimp Equipment and Accessories



HD-I

- Value for money
- Applies end and side feed terminals
- Heavy duty rugged design
- Compatible with all commercial applicator presses (30 mm and 40 mm stroke)
- Up to 4 wire crimp heights pre-set. More by means of interchangeable precision ground pins
- For use on bench presses and lead makers
- Metric design



HD-I

With Crimp Height Fine Adjust

- Value for money
- Applies end and side feed terminals
- Heavy-duty rugged design
- Compatible with all commercial applicator press (30 mm and 40 mm stroke)
- Crimp height fine adjust
- For use on bench presses and lead makers
- Metric design



HDM

Applicator MQC HD

- Applicators for both end and side feed terminals
- Suitable for closed and open barrel terminals
- Feed and fine positioning of the terminals via adjustment screw
- For use on bench presses and automatic lead makers
- For wire sizes from 0.03 mm² up to 6.0 mm²
- Up to 4 pre-set wire crimp heights

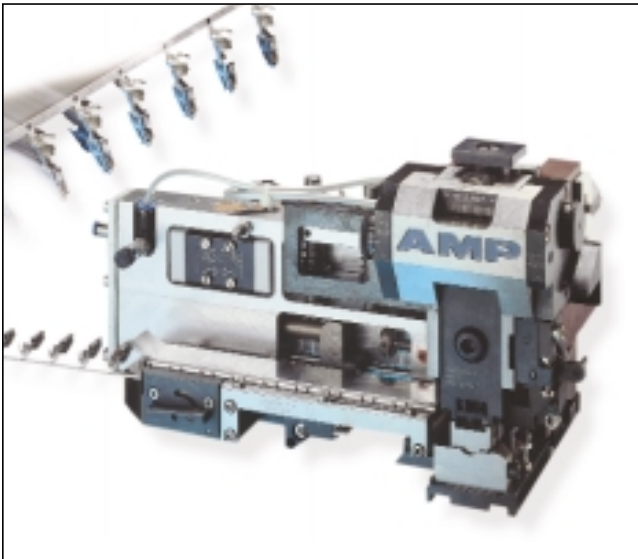
Crimp Equipment and Accessories



HDF

Applicator MQC HD with Crimp Height Fine Adjustment

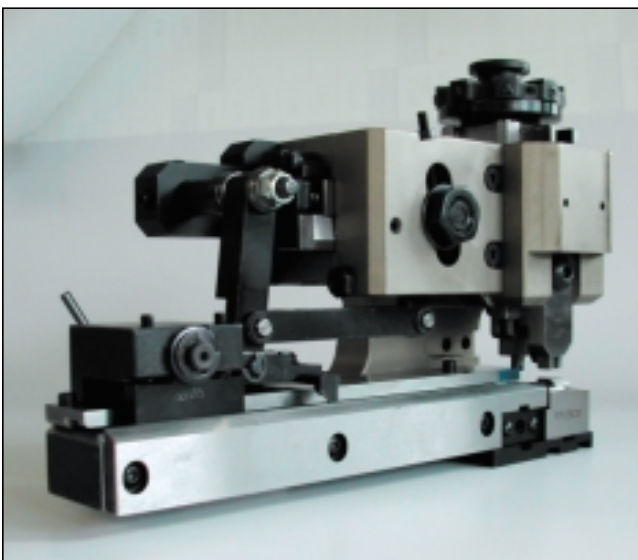
- Applicators for both end and side feed terminals
- Suitable for closed and open barrel terminals
- Feed and fine positioning of the terminals via adjustment screw
- For use on bench presses and automatic lead makers
- For wire sizes from 0.03 mm² up to 6.0 mm²
- Crimp height fine adjustment



NSF

Applicator NSF

- Clearance free ram locator in the crimping press (pressure spring integrated in ram head)
- Crimp height adjustment with fixed spindle support and adjustable pairs of wedges
- Adjustable front and back feed stops
- Optional spring-loaded hold down clamp with ejector function
- Wear part replacement in ram without disassembly of fitted tool
- For side feed terminals only
- Pneumatic terminal feed only
- Specifically developed to meet critical automotive applications in conjunction with high-speed, fully-automatic leadmakers



FFC Applicator

Applicator for FFC and FPC Terminations

- Can be delivered together with Tyco Electronics FFC Press
- Compatibility with standard presses if wire feed is supplied by customer
- Compatibility to lead maker
- Press stroke 40 mm
- With crimp fine adjustment
- Easy change of wear parts
- Curve profile controlled feed of FFC / FPC product
- Applicable to following Tyco Electronics contacts
 - FFC-MQS
 - FFC-JT
 - FFC.MODU .100
 - FFC-MODU .050

Crimp Equipment and Accessories



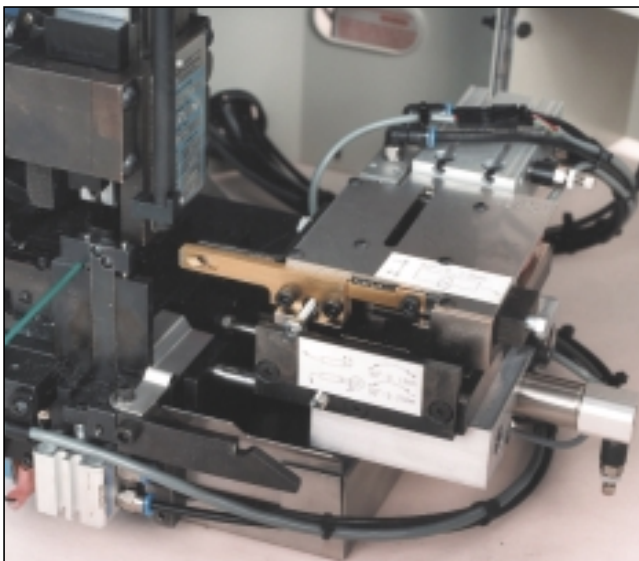
AMP-3K/40 and AMP-5K/40 Terminators for Side- and End-Feed Terminals

- AMP-3K/40 Terminator provides 13 kN (3,000 lb) crimp force and is capable of crimping approx. 2.5 mm² (14 AWG) wire size
- AMP-5K/40 Terminator provides 22 kN (5,000 lb) crimp force and is capable of crimping approx. 6.0 mm² (10 AWG) wire size
- Small-footprint design
- Tool-less removal of applicators and guards for quick and simple maintenance and product change over
- Tool-less precision crimp height adjust
- Quiet and fast operation
- Jog capability
- Accepts all Mini style applicators
- Wide range of optional equipment

Based on the field proven Model "G" Terminator, the AMP-3K/40 and AMP-5K/40 Terminators are the latest in the series of machines for wire termination using reeled terminals.

As value oriented Terminators, the AMP-3K/40 and AMP-5K/40 are designed for customers that require the increased output and quality of a semi-automatic machine at a competitive price.

The AMP-3K/40 and AMP-5K/40 Terminators can be tailored to the specific application requirements without inflating the price for unwanted features.



Stripper Attachment for AMP-3K/40 and AMP-5K/40 Terminators

- Field installed or available as system from the factory
- Accepts end and side feed heavy duty style quick change applicators
- Wire range from 0.032 mm² to 2.0 mm²
- Max. insulation diameter 5.08 mm
- Strip length from 2.5 mm to 10.16 mm
- Footswitch or sensor activated
- Step mode for fast set up
- Compatible with Crimp Quality Monitors

Crimp Equipment and Accessories



CRIMPATIC 970 and 971
for Reeled Crimp Terminals or in Loose-Piece Form

- Compact, space-saving design
- Accepts POWER CRIMP and standard crimp tools
- Inching mode for set up

Both machine versions permit the cost effective manufacture of crimp connections with a high production efficiency.

The CRIMPATIC 970 machines are capable of processing wires of up to approximately 16 mm² (AWG 5-1/2), depending on the terminal stock thickness.

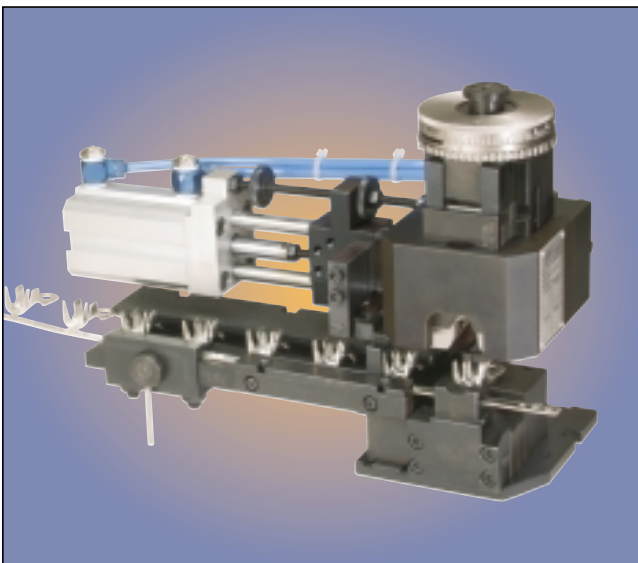
The CRIMPATIC 971 machine is capable of processing wires of up to approximately 50 mm² (AWG 20), depending on the terminal stock thickness.

The machines can be equipped with a quick change device for power crimp tools. Quick change crimp tools with a lower dead center of 135.78 mm can be mounted by means of an adapter plate. These machines can be utilized as manual work stations and can be integrated into fully automatic processing lines.

The terminator as shown is a manual work station CRIMPATIC 971. The unit can be supplied with or without crimp process monitoring, or it maybe retrofitted later.

Options are available upon request

- Crimp force monitoring
- Fine adjustment of lower dead center
- Paper spooler
- CRIMPATIC 970-35 with 35 kN
- CRIMPATIC 970-50 with 50 kN
- CRIMPATIC 971 with 150 kN



Power Crimp Applicator

- Especially designed for larger wire sizes
- Pneumatic feed
- Can be used with both crimp presses CRIMPATIC 970 and CRIMPATIC 971

Crimp Equipment and Accessories



AMPLIVAR Terminator
for Mini Crimp Connections

- Ergonomic crimp position permits excellent handling
- Motor winding and coils can be supplied directly to the splices
- Trimming of excess wires for end splices
- Crimping instead of soldering
- High stripping resistance
- No brushing of the enamelled wire
- Uniform connection quality

The machine was especially developed for processing magnet wire unions, by means of our AMPLIVAR spliced product.

Up to 3 magnet wires can be terminated simultaneously in one splice. In addition, copper or aluminium magnet wire, or a combination of both, can be terminated. It is possible to produce parallel and end connections in this machine. In case of end connections the projecting magnet wires are cut off.

The design takes into account that the motor windings and coils can be supplied directly to the connectors. The exposed crimp position permits precise handling.

When required copper or aluminium magnet wire, can be combined with stranded, pre-stripped solid or stranded lead wires.



bt 700
Stripping, Sealing and Crimping Machine

- Cross-sections between 0.2–6.0 mm²
- Bench-top semi-automatic machine 220 V, 50/60 Hz
- Utilises many makes of applicator
- With integral CFA, programmable press stroke 10–40 mm, stripping unit 1–10 mm, seal applicator, work light and quick clamp system for applicators
- Seal application set complete
- With the combination of three processes in a single device, stripping, seal application and crimping, the bt 700 is an economical alternative to fully-automatic machines
- Crimp processing up to 6 mm² and stripping up to 4 mm² is possible
- Seals to be applied max. diameter 10 mm and max. length 8 mm

Crimp Equipment and Accessories



PP3 Stripping and Crimping Machine

- Pneumatically controlled semi-automatic bench machine
- Stripping and crimping in one process
- Continuously adjustable crimp height
- Interchangeable applicators are available for different terminals
- Changeover to another terminal approx. 5 minutes
- Applies side and end fed products
- Wire sizes from 0.05–1.5 mm²



SC15 Stripper Crimper

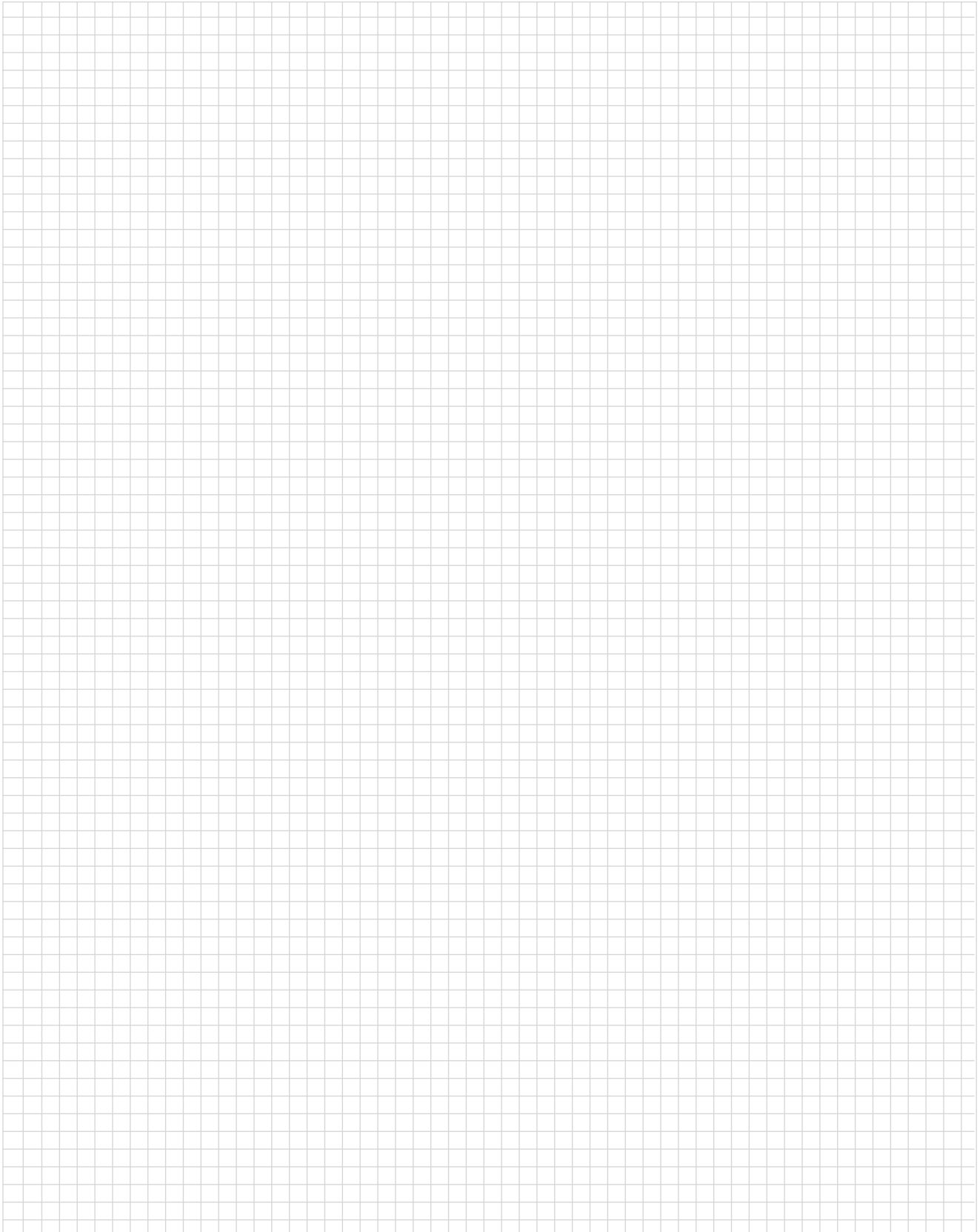
- Automatic sensing of bare conductors during crimping operation, which will de-activate the stripping – and debris suction and reconfigure the CQM parameters accordingly
- Crimp force monitoring with statistical data recording
- Individual input of various parameters via soft ware
- Testing and adjustment of every function during the set-up motion
- Wire range 0.09 mm² up to 4.0 mm²
- Insulation range 0.5 mm up to 3.6 mm
- Strip length 2 mm to 6 mm
- Brake out length min. 13 mm, dependent on number of conductors
- Conductor insertion depth 10 mm
- Flexible work light
- Good visibility in work area
- Very quiet operation



Electronic Shut Height Gauge

- Compatible with all Tyco Electronics and commercially available crimping presses, using quick change style applicators
- Dynamic measuring of press shut height and direct display
- Enormous time savings
- Fault-free results
- Gauge is supplied in a handy transport case, complete with power supply and manual
- Software to generate measuring result reports is available upon request

Engineering Notes



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Americas

Argentina – Buenos Aires
Phone: +54-1-733-2000
Fax: +54-1-717-0988

Brasil – São Paulo
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Canada – Toronto
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United States
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Troy, MI
Phone: +1-248-273-3359
Fax: +1-248-273-3322

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Venezuela – Caracas
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For Latin/South American Countries not shown
Phone: +54-11-4733-2015
Fax: +54-11-4733-2083

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Fax: +60-3-7805-3066

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Hong Kong
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Shanghai
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Taiwan – Taipei
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France – Cergy-Pontoise Cedex
Phone: +33-1-3420-8888
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France Export Divisions –
Cergy-Pontoise Cedex
Phone: +33-1-3420-8888
Fax: +33-1-3420-8600

Germany – Bensheim
Phone: +49-6251-133-0
Fax: +49-6251-133-1600
Product Information Center:
Phone: +49-6251-133-1999
Fax: +49-6251-133-1988

Great Britain –
Stammore Middlesex
Phone: +44-8706-080-208
Fax: +44-208-954-6234
Product Information Center:
Freephone GB: 0800-267-666
Phone: +44-208-420-8341
+44-208-420-8343
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Greece – Athens
Phone: +30-210-9370-396/397
Fax: +30-210-9370-655

Hungary – Budapest
Phone: +36-1-289-1000
Fax: +36-1-289-1010
Product Information Center:
Phone: +36-1-289-1016
Fax: +36-1-289-1017

Ireland – Dublin
Phone: +353-1-820-3000
Fax: +353-1-820-9790

Israel – Yokneam
Phone: +972-4-959-0508
Fax: +972-4-959-0506

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Phone: +39-011-4012-111
Fax: +39-011-4031116
Product Information Center:
Phone: +39-011-4012-360
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Phone: +370-5-2131-402
Fax: +370-5-2131-403

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Phone: +31-73-6246-246
Fax: +31-73-6212-365
Product Information Center:
Phone: +31-73-6246-999
Fax: +31-73-6246-998

Norway – Nesbru
Phone: +47-66-77-88-86
Fax: +47-66-77-88-55

Poland – Warsaw
Phone: +48-22-4576-700
Fax: +48-22-4576-720
Product Information Center:
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Fax: +48-22-4576-720

Romania – Bucharest
Phone: +40-21-311-3479 + 3596
Fax: +40-21-312-0574

Russia – Moscow
Phone: +7-095-926-55-06...09
Fax: +7-095-926-55-05

Russia – St. Petersburg
Phone: +7-812-118-8192
Fax: +7-812-118-8193

Slovenia – Ljubljana
Phone: +386-1561-3270
Fax: +386-1561-3240

South Africa – Port Elizabeth
Phone: +2741-503-4500
Fax: +2741-581-0440

Spain – Barcelona
Phone: +34-93-291-0330
Fax: +34-93-201-7879

Sweden – Upplands Väsby
Phone: +46-8-50-72-50-00
Fax: +46-8-50-72-50-01

Switzerland – Steinach
Phone: +41-71-447-0447
Fax: +41-71-447-0444

Turkey – Istanbul
Phone: +90-212-281-8181...3
+90-212-282-5130/5430
Fax: +90-212-281-8184

Ukraine – Kiev
Phone: +380-44-206-2265
Fax: +380-44-206-2264



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