MiniBridge®

1.27 mm Connectors

Original Size MiniBridge 12 Pins

ED.08 I 09.2020
Catalog E 074560

MiniBridge - 1.27 mm Connector

SINGLE ROW CONNECTOR

GENERAL

MiniBridge
Female and
Male Connector

The compact design of the single-row cable connector systems in a 1.27 mm pitch is ideal for space-saving connections between PCBs and decentralised function units such as operator panel displays, switches, motors, fans or fuses. The cable connector system is used in various fields for example, automobile industry, mechanical engineering, medical technology and also consumer electronics. Various connection options can be realised thanks to the right angle or vertical male connectors and female connectors with 90° and 180° cable outlets. Both female and male connectors in SMT and IDC* variants are available. The plastic housing is temperature-resistant whereby the connector is suitable for lead-free reflow soldering. The male connectors are available as tape and reel packaging for automatic assembly.
The cable guide of the female connector simplifies cable connection or individual wires. Prefabricated cables are available in stock. Specified assemblies are realised within a short time period.

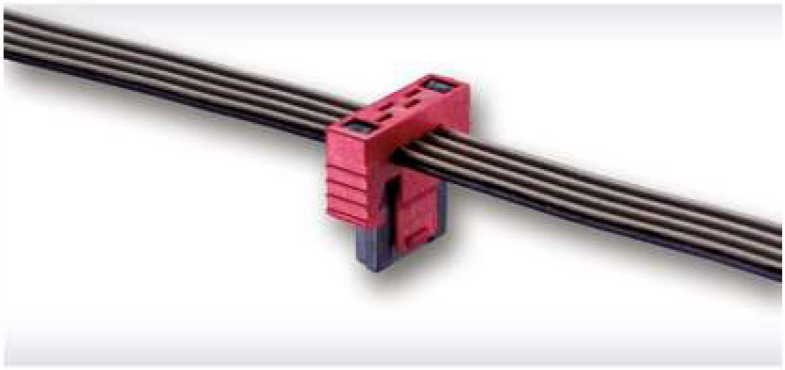
* IDC = Insulation Displacement Connection

MiniBridge - 1.27 mm Connector

SINGLE ROW CONNECTOR

TECHNICAL DETAILS

Pitch	1.27 mm
Current rating per contact	up to 8 A (depends on cable)
Termination	Male connector SMT, female connector IDC
Cable	Ribbon cable AWG 26/7 Discrete wire AWG 22/7, AWG 24/7 and AWG 26/7
Variants	Vertical male connector type P, Right angle male connector type A, Right angle female connector type P, Female connector type A with 180° cable outlet, Female connector type P with 90° cable outlet, Male connector type P with 180° cable outlet
Interlocking	Female connector red (high vibration/shock load) - unlockable only with a tool, e.g. tip of pen Female connector black / white (normal vibration/shock load) - unlockable without any tool

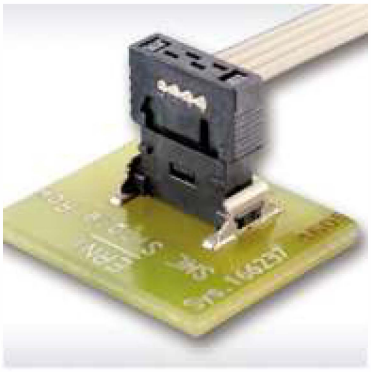


MiniBridge connectors are designed taking into account IEC 60838-2-2 but are not fully compliant.

MiniBridge - 1.27 mm Connector

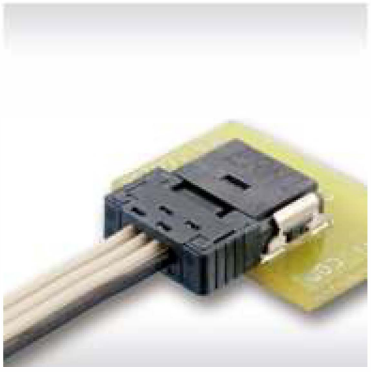
FEATURES

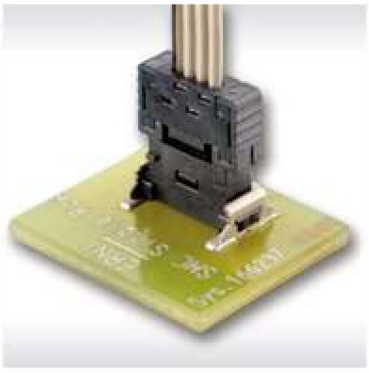
AVAILABLE TERMINATIONS



Vertical male -
Female with 90°cable outlet

Right angle male -
Female with 90°cable outlet



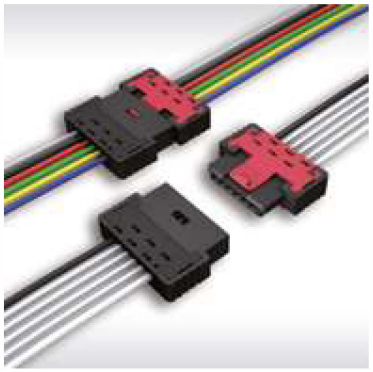


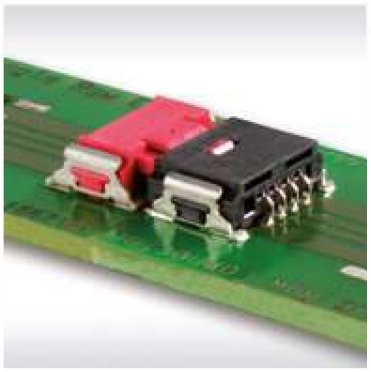
Right angle male -
Female with 180°cable outlet

Vertical male -
Female with 180°cable outlet

Female and male with180°
cable outlet

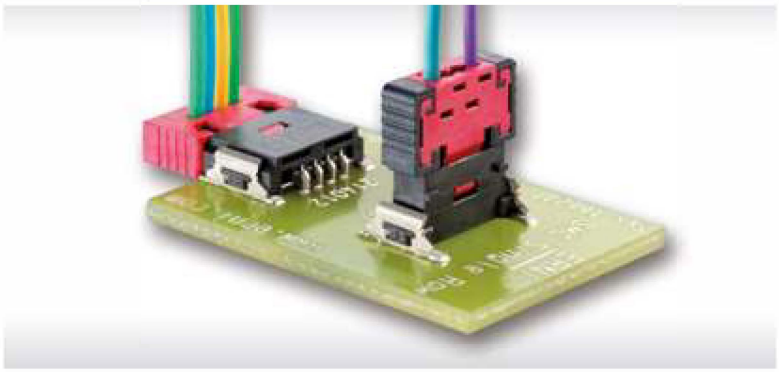
Right angle male -
Right angle female





FEATURES

CABLE TYPES



Ribbon cable, grid patterned cable, discrete wire and round cable

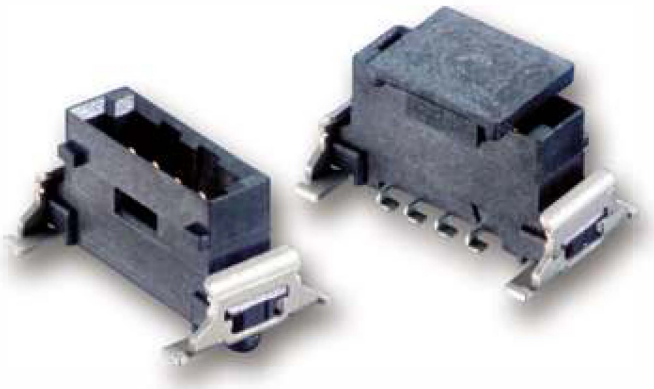
MiniBridge - 1.27 mm Connector

FEATURES

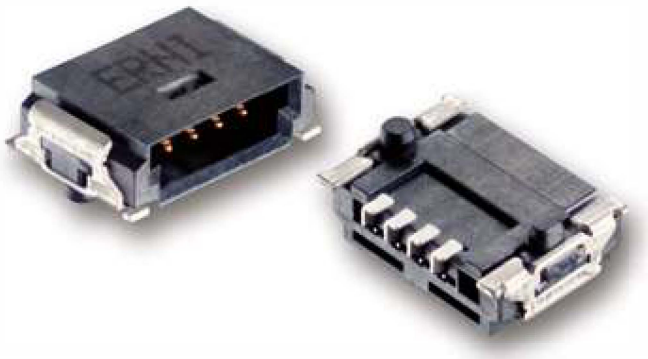
EASY ASSEMBLY

Pick-and-place cover for automatic assembly with a vacuum pipette.

Reliable retention force due to ruggedized **metal clips** on both sides of each male.



GUIDING ELEMENTS



The rugged **insulation body** of the male connector ensures an optimal cable connector guide.

Two **pegs** (round and oval) for exact positioning on the pcb.

FEATURES

INTERLOCKING

Positive lock (red): (high vibration/Shock load) unlockable only with a tool, e.g. tip of pen
Friction lock (black): (normal vibration/shock load) unlockable without any tool

SSL-LIGHTING TECHNOLOGY

Connectors with colourless insulation bodies prevent shadow formation in lighting applications, e.g. LED strips with transparent diffusion disks. Thus ensuring uniform light distribution.

MATING CONDITIONS

ALLOWED ANGULAR INCLINATION TOLERANCES, LONGITUDINAL 4.3°

ALLOWED ANGULAR INCLINATION TOLERANCES, TRANSVERSE 3.1°

ELECTRICAL AND MECHANICAL CHARACTERISTICS SMT

TECHNICAL DATA

Description	Standard	Male Connector SMT Type A and P	Female Connector SMT Type P
Climate category	DIN EN 60068-1 test b	55 / 150 / 56	55 / 125 / 56
Temperature range		-55 / 150 °C	-55 / 125 °C
Current rating per contact	IEC60512 test 5b	see IDC or SMT female connector	20 C° max. 4.8 A 70 C° max. 3.2 A 100 C° max. 2.0 A
Air- and creepage distance		contact - contact 0.4 mm	
Operating voltage	IEC 60664	The permissible operating voltages depend on the customer application and on the applicable or specified safety requirements. Insulation coordination according to IEC 60664-1 has to be regarded for the complete electrical device. Therefore, the maximum creepage and clearance distances of the mated connectors are specified for consideration as a part of the whole current path. In practice, reductions in creepage or clearance distances may occur due to the conductive pattern of the printed board or the wiring used, and have to be taken into account separately. As a result the creepage and clearance distances for the application may be reduced compared to those of the connector.	
Dielectric strength	IEC 60512 test 4a	contact – contact 500 V_{rms}	
Contact resistance	IEC 60512 test 2a	< 25 mΩ	
Insulation resistance	IEC 60512 test 3a	> 10^4 MΩ	
Vibration, sine	IEC 60512 test 6d	10 – 2000 Hz 20 g	
Contact disturbance (while vibration test)	IEC 60512 test 2e	< 1 µs	
Shock halfsine	IEC 60512 test 6c	50 g 11 ms	
Contact disturbance (while shock test)	IEC 60512 test 2e	< 1 µs	

ELECTRICAL AND MECHANICAL CHARACTERISTICS SMT

Description	Standard	Male Connector SMT Type A and P	Female Connector SMT Type P
Mechanical operation	IEC 60512 test 9a	500 mating cycles	
Insertion and withdrawal force	IEC 60512 test 13b	1 N per contact	
Gauge retention force	IEC 60512 test 16e	> 0.1 N	
Polarization	IEC 60512-13-5	60 N	
Process-conditions			
Solder temperature max.	IEC 60068-2-20		
Hand soldering temperature max.		3.5 s at 350 °C	
Reflow soldering temperature max.	JEDEC J-STD-020	20 - 40 s at 260 °C	
Coplanarity		< 0.1 mm	
Housing Material			
Plastic material		LCP	
CTI value	IEC 112	175	
UL flame rating		UL 94 V-0*	
UL file		E83005	
Contact Material			
Base material		Cu alloy	
Mating area		gold plating	
Termination area		Sn	
Environment compatibility			
Recycling		no flame-retardent additives, no toxic additives allow easy recycling	
Product-approval			
UL		E84703	

* not valid for SMT female connectors in red color (positive lock)

ELECTRICAL AND MECHANICAL CHARACTERISTICS IDC

TECHNICAL DATA

Description	Standard	Male Connector IDC Type P	Female Connector IDC Type A and P
Climate category	DIN EN 60068-1 test b	55 / 150 / 56	
Temperature range		-55 / 150 °C	
Current rating per contact	IEC60512 test 5b	see IDC or SMT female connector	20 C° max. 8.7 A 70 C° max. 6.8 A 100 C° max. 5.4 A depends on cable
Air- and creepage distance		contact - contact 0.4 mm	
Operating voltage	IEC 60664	The permissible operating voltages depend on the customer application and on the applicable or specified safety requirements. Insulation coordination according to IEC 60664-1 has to be regarded for the complete electrical device. Therefore, the maximum creepage and clearance distances of the mated connectors are specified for consideration as a part of the whole current path. In practice, reductions in creepage or clearance distances may occur due to the conductive pattern of the printed board or the wiring used, and have to be taken into account separately. As a result the creepage and clearance distances for the application may be reduced compared to those of the connector.	
Dielectric strength	IEC 60512 test 4a	contact – contact 500 V_{rms}	
Contact resistance	IEC 60512 test 2a	< 25 mΩ	
Insulation resistance	IEC 60512 test 3a	> 10^4 MΩ	
Vibration, sine	IEC 60512 test 6d	10 – 2000 Hz 20 g	
Contact disturbance (while vibration test)	IEC 60512 test 2e	< 1 µs	
Shock halfsine	IEC 60512 test 6c	50 g 11 ms	
Contact disturbance (while shock test)	IEC 60512 test 2e	< 1 µs	

ELECTRICAL AND MECHANICAL CHARACTERISTICS IDC

Description	Standard	Male Connector IDC Type P	Female Connector IDC Type A and P
Mechanical operation	IEC 60512 test 9a	500 mating cycles	
Insertion and withdrawal force	IEC 60512 test 13b	1 N per contact	
Gauge retention force	IEC 60512 test 16e	> 0.1 N	
Polarization	IEC 60512-13-5	60 N	
Interlocking noise		40 dB (A)	
Housing Material			
Plastic material		LCP	
CTI value	IEC 112	175	
UL flame rating		UL 94 V-0	
UL file		E83005	
Contact Material			
Base material		Cu alloy	
Mating area		gold plating	
Termination area		Sn	
Environment compatibility			
Recycling		no flame-retardent additives, no toxic additives allow easy recycling	
Product-approval			
UL		E84703	

ELECTRICAL AND MECHANICAL CHARACTERISTICS CABLE

CABLE DATA

Description	Standard Cable(PVC)	High Temperature Cable (TPE-ET)	Halogen-free Cable (TPE-0)
Cross Section	AWG-26/ 7/ 0.14 mm²		
Conductor	Cu wire tin-plated		
Marking	available		
Insulation	PVC wall thickness min. 0.178 mm	TPE-ET wall thickness min. 0,2 mm	Polyolefin wall thickness min. 0,178 mm
Shore hardness	94 ±3 (Shore A)	96 ±3 (Shore A)	90 ±3 (Shore A)
Technical data			
Temperature range	-30/105 °C (unmoved) -20/105 °C (moved)	-60/125 °C (unmoved) -40/125 °C (moved))	-40/105 °C (unmoved) -20/105 °C (moved))
Voltage rating	max. 300 V		
Dielectric strength	2000 V_{rms}	1500 V_{rms}	1500 V_{rms}
Conductor resistance	≤ 135 Ω/km	≤ 138 Ω/km at 20 °C	max. 135 Ω/km at 20 °C
Insulation resistance	≥ 100 MΩ x km at 20 °C	≥ 20 MΩ x km at 20 °C	min. 20 MΩ x km at 20 °C
Capacitance at 1 kHz	GSG ≤ 60 pF/m	GSG 40 pF/m	GSG 40 pF/m
Inductance	GSG 0,9 µH/m at 10 KHz	GSG 0,79 µH/m at 10 KHz	GSG 0,95 µH/m at 1 KHz
Impedance	GSG 100 Ω	GSG 110 Ω	GSG 95 Ω
Crosstalk in %	Cable length 3 m: NE 5,4 / FE 6,8	–	–
Propagation delay	4,6 ns/m	6,2 ns/m	–
Flamability	UL VW-1; CSA FT-1	UL 1581 Sec. 1080, VW-1	UL 1581
Product-approval			
UL	AWM 2651	– *	AWM 21151
CSA	Yes	No	Yes

* UL Style 21739 on request

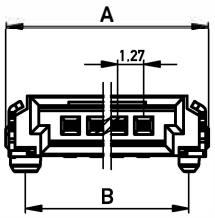
MiniBridge - 1.27 mm Connector

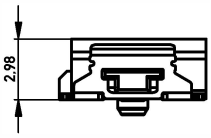
RIGHT ANGLE MALE SMT TYPE A

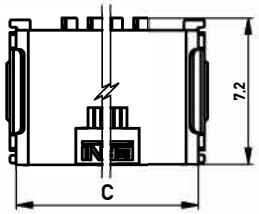
PRODUCT SPECIFICATION

- SMT termination
- Tape and Reel packaging for automatic assembly
- suitable for lead-free reflow soldering process
- white versions for lighting applications

DIMENSIONAL DRAWINGS

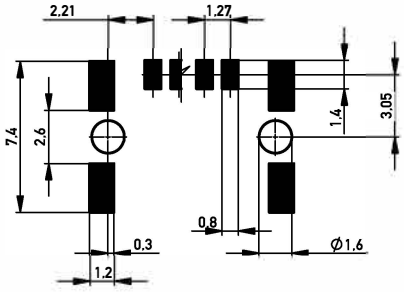






2	7.62	5.69	6.72
3	8.89	6.96	7.99
4	10.16	8.23	9.26
6	12.70	10.77	11.80
8	15.24	13.31	14.34
10	17.78	15.85	16.88
12	20.32	18.39	19.42
No. of contacts	A	B	C

Recommended Layout



RIGHT ANGLE MALE SMT TYPE A

ORDERING INFORMATION

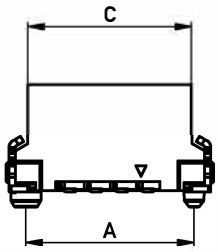
No. of Pins	Color	Part Number
2	black	214011
2	white	384978
3	black	234450
4	black	214012
4	white	384979
6	black	214013
6	white	394574
8	black	214014
10	black	234464
12	black	234478

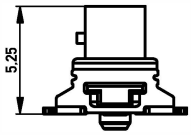
VERTICAL MALE SMT TYPE P

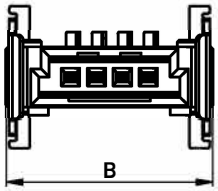
PRODUCT SPECIFICATION

- SMT termination
- Tape and Reel packaging for automatic assembly
- suitable for lead-free reflow soldering process
- with pick-and-place cover

DIMENSIONAL DRAWINGS

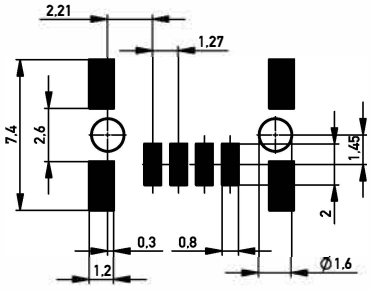






No. of contacts	A	B	C
2	5.69	7.62	5.60
3	6.96	8.89	6.79
4	8.23	10.16	8.06
6	10.77	12.70	10.60
8	13.31	15.24	13.14
10	15.85	17.78	15.68
12	18.39	20.32	18.22

Recommended Layout



VERTICAL MALE SMT TYPE P

ORDERING INFORMATION

No. of Pins	Color	Part Number
2	black	284695
2	white	464124
3	black	284696
4	black	284697
6	black	284698
6	white	284337
8	black	284699
10	black	294919
12	black	294920

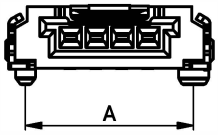
MiniBridge - 1.27 mm Connector

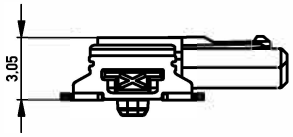
RIGHT ANGLE FEMALE SMT TYPE P

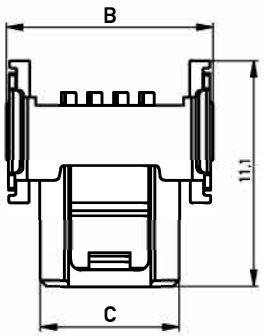
PRODUCT SPECIFICATION

- SMT termination
- Tape and Reel packaging for automatic assembly
- suitable for lead-free reflow soldering process
- white versions for lighting applications
- two types of interlocking are available

DIMENSIONAL DRAWINGS

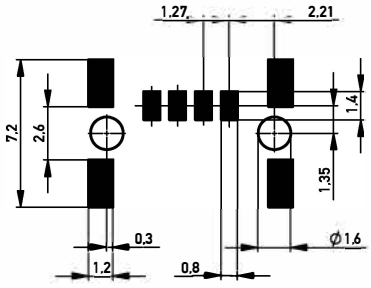






No. of contacts	A	B	C
2	5.69	7.62	4.29
3	6.96	8.89	5.56
4	8.23	10.16	6.83
6	10.77	12.7	9.37

Recommended Layout



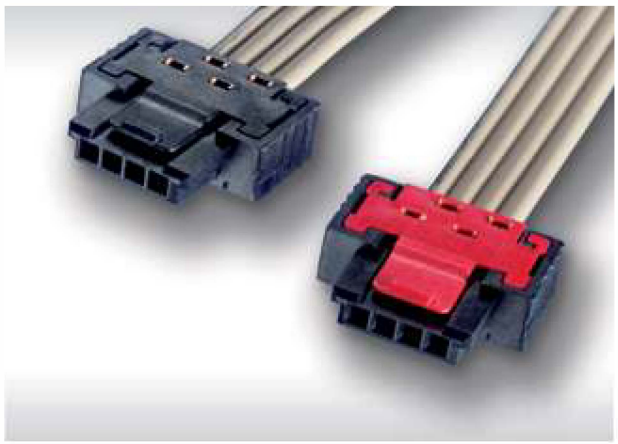
RIGHT ANGLE FEMALE SMT TYPE P

ORDERING INFORMATION

No. of Pins	Color	Interlocking	Part Number
2	black	friction lock	384845
2	red	positive lock	384840
2	white	friction lock	384974
3	black	friction lock	384846
3	red	positive lock	384841
4	black	friction lock	364485
4	red	positive lock	364484
4	white	friction lock	384975
6	black	friction lock	384804
6	red	positive lock	384803
6	white	friction lock	444750

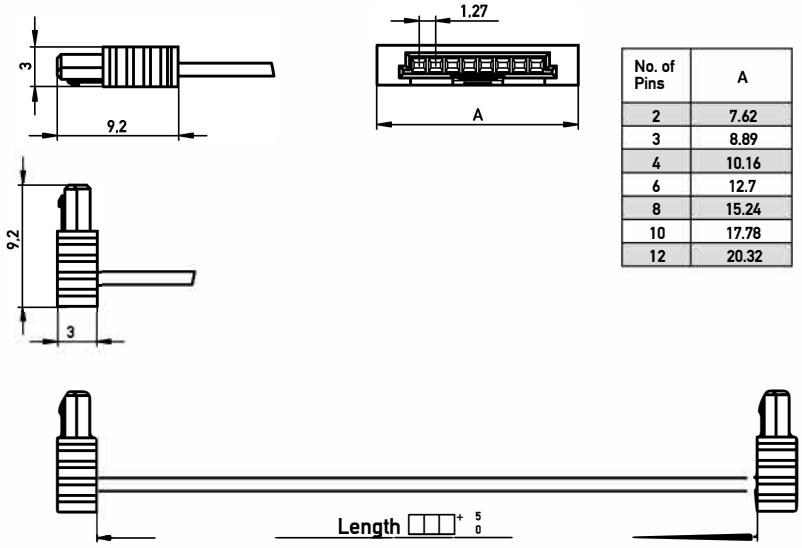
CABLE ASSEMBLIES

PRODUCT SPECIFICATION



- IDC termination
- Ribbon cable AWG 26/7
- Discrete wire AWG 22/7, AWG 24/7 and AWG 26/7
- two types of interlocking are available

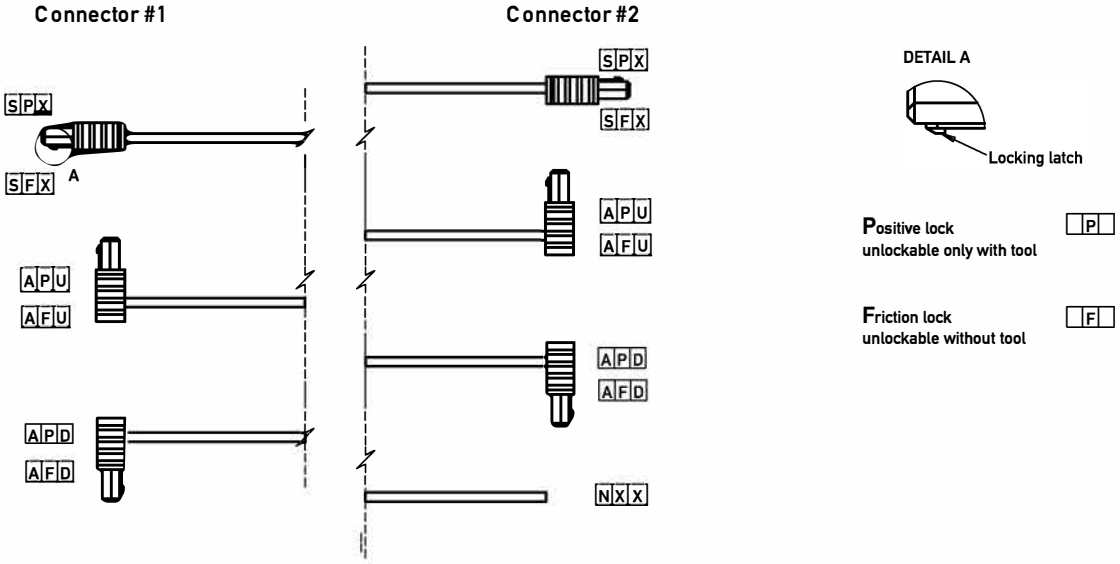
DIMENSIONAL DRAWINGS



No. of Pins	A
2	7.62
3	8.89
4	10.16
6	12.7
8	15.24
10	17.78
12	20.32

CABLE ASSEMBLIES

CODING AND INTERLOCKING



ORDER CODE STANDARD ASSEMBLIES

IDCCS_SRC_1.27_□□_□□□_□□□_□□□_□□

Cable Type
High **T**emperature AWG 26/7
PVC AWG 26/7
Halogen-**F**ree AWG 26/7

Length (25 to 995 mm in 5 mm increments)

Connector #2

Connector #1

No. of Pins (2-digit: 02, 03, 04, 06, 08, 10, 12)

Discrete wire cable assemblies on request.

PART NUMBER INDEX

ABOUT ERNI

With global headquarters in Switzerland and locations in over 40 countries, privately held ERNI Electronics Inc. is a leading global manufacturer of high-quality electronic connectors and cable assemblies for a variety of industries including automotive, industrial, medical, communications, and more. ERNI is a trusted partner to organizations large and small and our connectors are well known for having miniaturized and rugged design, the ability to stack multiple connectors without signal loss, plus built in ease of alignment and latching.

Regionally, ERNI Americas' headquarters are in Midlothian, VA, a suburb of Richmond, from which the group provides customer support, administration and fulfillment services for local and global customers. ERNI has sales offices throughout the country and sells products directly and through a network of approved distributors. Should an application need a customized solution, ERNI has an in-house staff of design engineers both locally and across the globe.

What sets us apart – ERNI Electronics has been making high quality, robust, electronic solutions for more than 70 years. We introduced the first high density back plane connector at Electronica in 1968 that received DIN 41612 certification in 1971 and we haven't stopped engineering and refining miniaturized, robust, electronic connector solutions since. By taking the time to understand our customers and their needs, we are able to identify the right solution for each application.

At ERNI, we know that when we work together, we do achieve more.

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