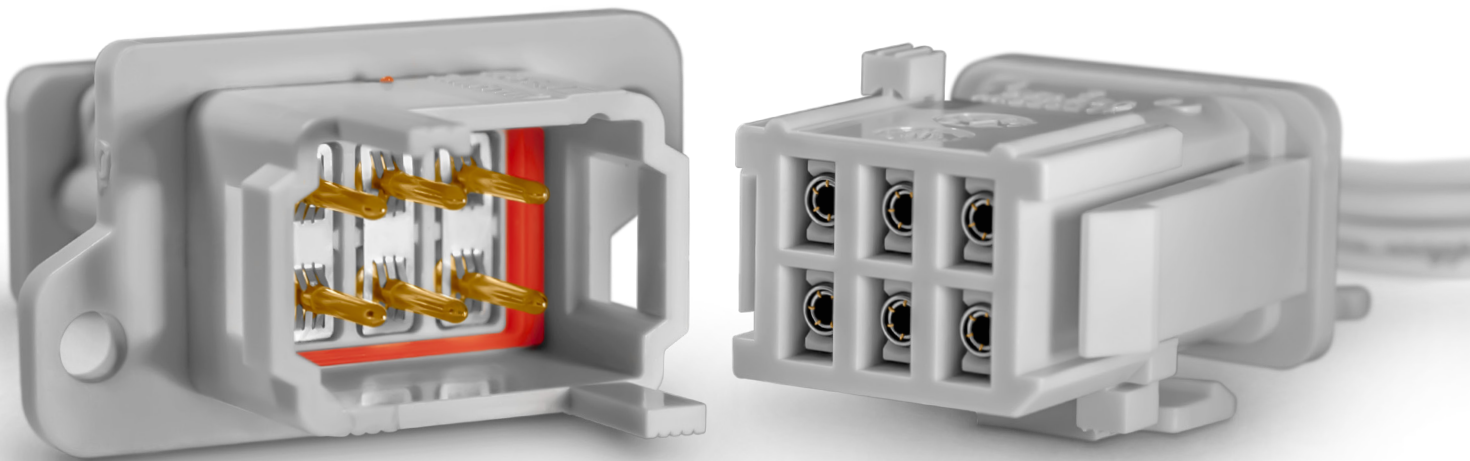


REP Series

Environmentally-Sealed Rectangular Plastic Connectors



Disclaimer 2022

All of the information included in this catalogue is believed to be accurate at the time of printing. It is recommended, however, that users should independently evaluate the suitability of each product for their intended application and be sure that each product is properly installed, used and maintained to achieve desired results.

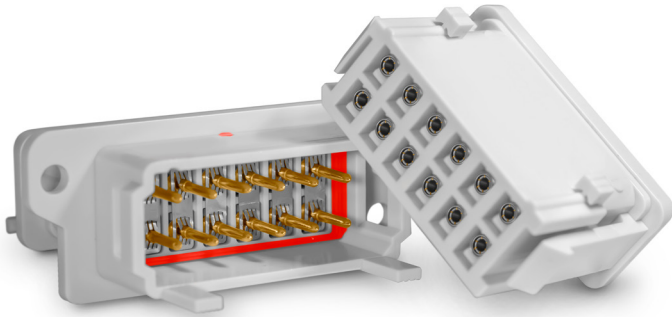
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REP Series

Environmentally - Sealed Rectangular Plastic Connectors



Optimised for
use in rail and
embedded
applications

Smiths Interconnectors' REP Series of multi-pole, sealed, and plastic connectors, provides a quick and secure connection of embedded equipment across a wide range of applications, such as sensors, brakes, lighting, air conditioning and communications found within industrial, rail, test and measurement, automotive, public works and defence.

The REP Series is available with the proven Hypertac® hyperboloid contact technology which ensures excellent reliability under shock and vibration, and allows up to 20,000 mating cycles and high current rating up to 18 A. REP connectors are also available in the EasyREP version, using MR screw machined contacts and allowing up to 500 mating cycles.

REP and EasyREP connectors are available in three layouts, with 2, 6, and 12 ways. Both versions are available with crimp termination contacts, for cable harness applications, and with straight or bent termination contacts for PCB mount applications. A shunt accessory is available for both versions, enabling derivation inside the connector for transmission of information to different locations.

Only one contact can be used for cross section cables 0.5 mm² to 2.5 mm² (20-13 AWG) according to NFF 63-808 and EN 50306 standards. No specific tool is required, with consequent reduction of supply chain, maintenance and cabling costs. Furthermore, for easy mounting, the connector includes polarized guides and provides several configurations: cable to cable, clips, front and back panel mount.

REP and EasyREP connectors are available for delivery as a complete, tested pre-cabled solution according to customers' specifications.

Features

Compact, flexible design

- Standard insulators available in 2, 6 and 12-way configurations
- Crimp, straight and bent termination options

Easy mounting and maintenance

- No specific tooling required for mounting
- One contact required for cross-section cables 0.50-2.50 mm² (20-13 AWG) to NFF 63-808 and EN 50-306 standards

High quality, integrated features

- Overmoulded silicone grommet and interfacial seal delivers IP66 and IP67 protection
- Vibration resistance to EN 61-373, Category 2 standards
- Compliance to fire and smoke standards
- Improved polarised guides
- Three coding devices: cable-to-cable, clip locking, and front and back panel mount

Contact technologies

- Low insertion/extraction forces
- Minimal contact resistance
- Stable signal integrity

Benefits

Optimised for rail and embedded applications

- Space and weight savings
- Qualified to ensure high degree of safety
- Able to accept a large panel of cables with standard offering

Fast and reliable connection

- Ensure failure-free performance in extremely demanding environments
- Immunity to fretting caused by mating/unmating and shock and vibration

Reduced cost of ownership

- Minimised supply chain, inventory and maintenance costs
- Lowered cabling costs

Superior performance

- Hypertac® and MR contacts ensure higher current carrying capacity than contacts of the same size

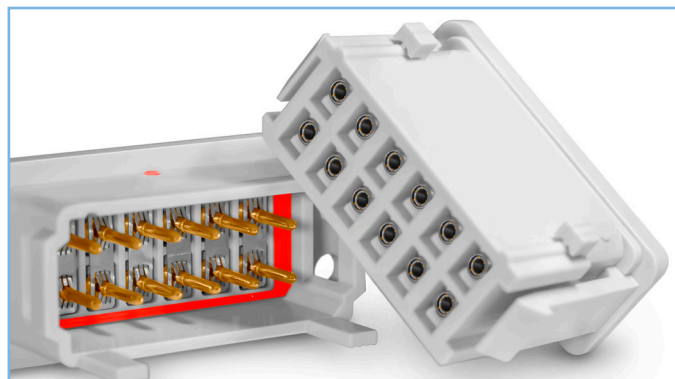
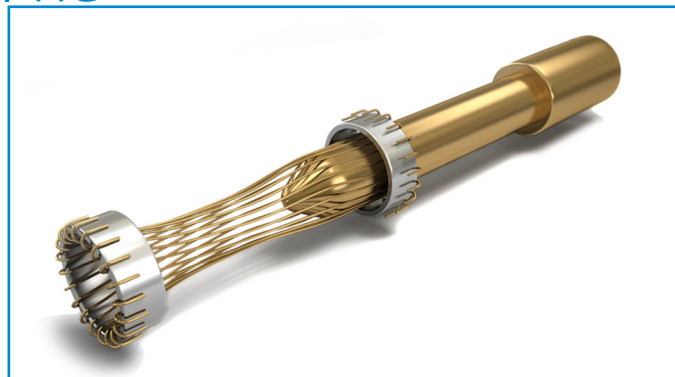
Complete, tested pre-cabled solutions available to customer's exact specifications

Available Contact Technologies

Features and Benefits

Hypertac® Hyperboloid - Original HC

- **Long contact life**
Industry-leading mating cycles (up to 20,000) provide low cost of ownership
- **Superior signal integrity**
No discontinuity when measured down to 2ns
- **Low insertion/extraction forces**
Ergonomic mating without cost and size of mate assist hardware
- **Lower contact resistance**
Low power consumption / lower voltage drop across connector
- **Higher current ratings**
Smaller contacts needed to carry power for reduced size and weight
- **Immunity to shock and vibration**
Reliability under harsh environmental conditions
- **360° contact wipe**
Self-cleaning contacts assure uninterrupted connection
- **Cable section**
From 0.5 to 2.5 mm² cross section (20-13 AWG)
- **RoHS compliance**



Screw-machined contact - MR

- **Rail standard contact life**
Mechanical life >500 cycles
- **Tested signal integrity**
No contact interruption >50 ns
- **Flexible design**
The inner clip and the socket body are manufactured and plated separately
- **Reliable and cost effective**
The production of machined specific contact bodies allows for high volume
- **Low insertion/extraction forces**
Ergonomic mating without cost and size of mate assist hardware
- **Low contact resistance**
Low power consumption / lower voltage drop across connector
- **Higher current ratings**
Small contacts needed to carry power for reduced size and weight
- **Cable section**
From 0.75 to 2.5 mm² cross section (18-13 AWG)
- **RoHS compliance**



Technical Characteristics

STANDARDS

Contact Arrangements Contact Diameter Weight (contacts included)	2, 6, 12 Size 16: Ø 1.50 mm (0.059 in) REP102 with contacts: 7.74g REP202 with contacts: 8.18g REP402 with bent contacts: 9g REP402 with straight contacts: 8g REP506 with contacts: 17.9g REP606 with contacts: 19.3g REP406 with bent contacts: 15.5g REP406 with straight contacts: 13.5g REP512 with contacts: 32.8g REP612 with contacts: 33.9g REP412 with bent contacts: 25g REP412 with straight contacts: 22g	
Coding Configurations Polarisation	Cable-to-cable, clip locking, panel mount 180°	

Materials & Plating

Contacts Insulator Seal & Grommet	Gold over nickel plating Polycarbonate Overmoulded silicone	
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Mechanical & Environmental

Contact Retention Force Contact Retention Force PCB version Clip Locking Retention Force Mating Cycles Temperature Range	> 70 N > 20 N >110 N > 500 cycles -75 °C to +100 °C (for crimp versions) -40 °C to +250 °C (for receptacles REP4xx)	– – – – –
Vibration Flammability	Category 2 (bogie installation)	EN 61373
Salt Spray Fluid Resistance IP Level	I2 F1 Condition 4 HL3 for R22 30s Category 2 V-0 > 96 hours Cleaning substances, gasoline/oil, acids, IP66, IP67	NF F 16-101 NF F 16-102 EN 45545-2 EN ISO 11925-2 UNI CEI 11170-3 UL94 ASTM-B-117 EN 60529

Electrical

Current Rating Voltage Rating Dielectric Withstanding Voltage Contact Resistance Insulation Resistance	18 A 230 V (400 V with plastic dummy contacts) 2725 V ≤ 2.5 mΩ ≥ 5x10 ³ MΩ	– EN 50124-1, pollution degree 3 EN 50124-1 – –
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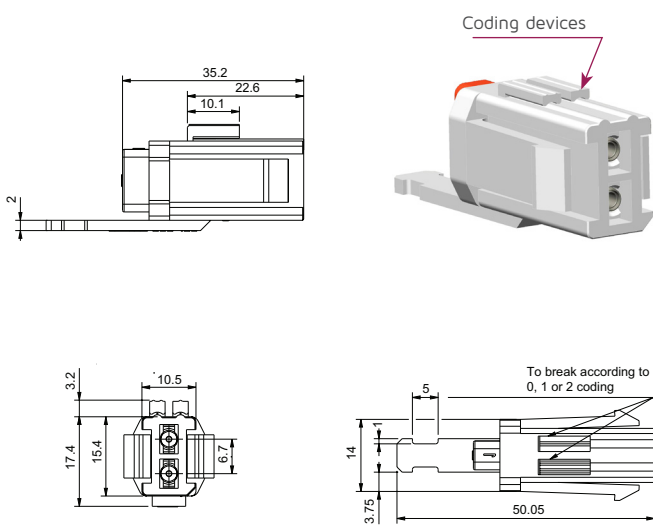
Dimensions 2,6,12-Way Connectors

2 Way Plugs & Receptacles

Cable Harness, Crimp Termination

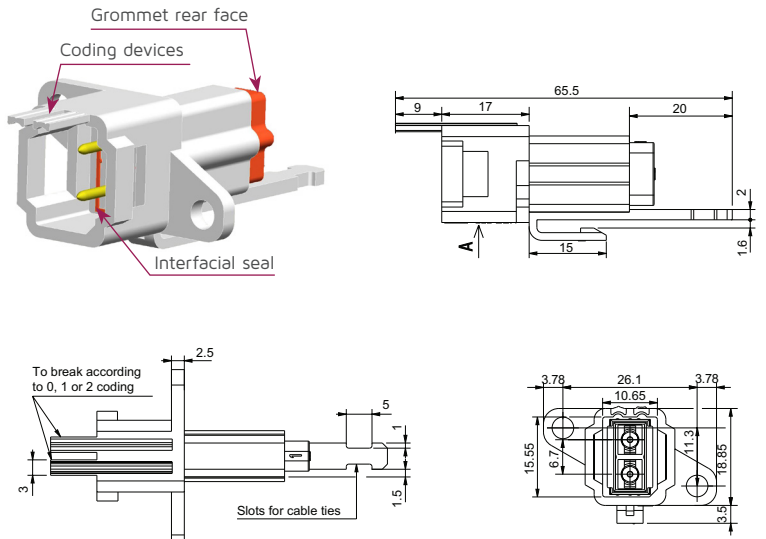
Female plug

P/N: REP-102-XX-2X-XX



Male receptacle

P/N: REP-202-XX-20-XX

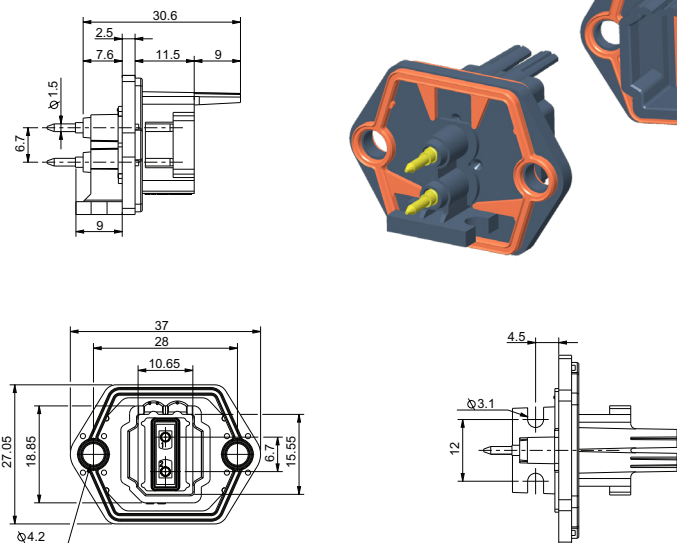


2 Way Receptacles

PCB/Panel Mount, Straight & Bent Termination

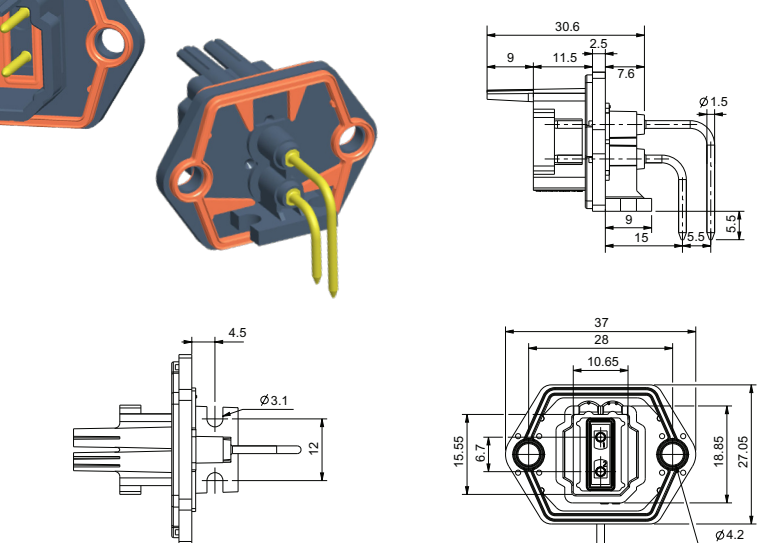
Straight male receptacle

P/N: REP-402-XX-30-XX



Bent male receptacle

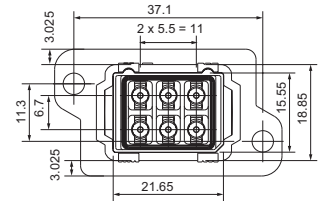
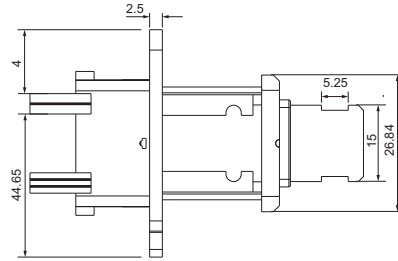
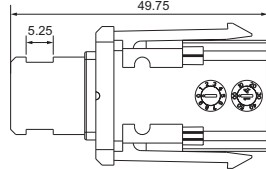
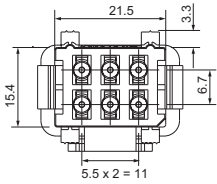
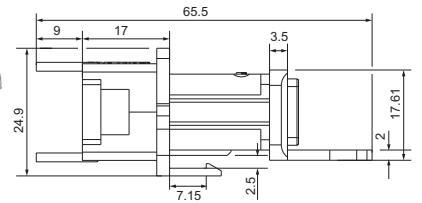
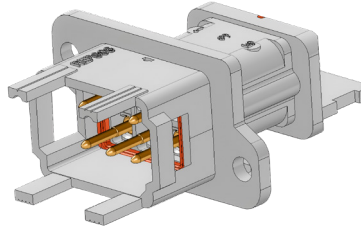
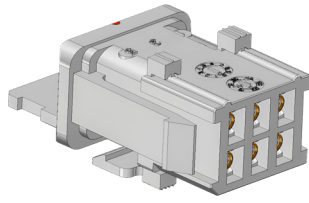
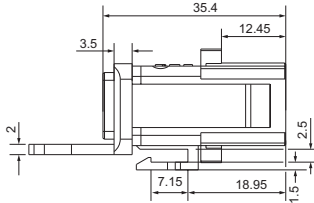
P/N: REP-402-XX-10-XX



6 Way Plugs & Receptacles

Female plug

P/N: REP-506-XX-2X-XX



6 Way Receptacles

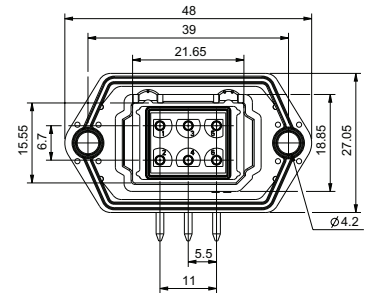
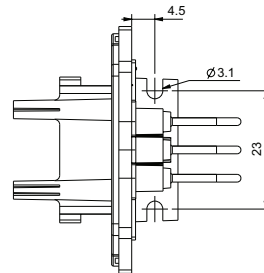
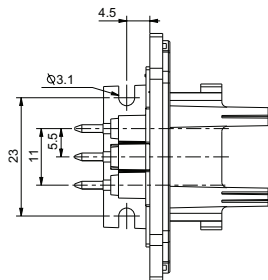
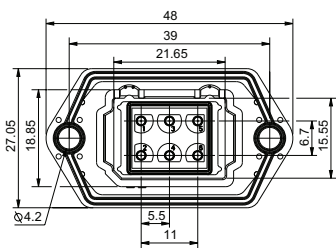
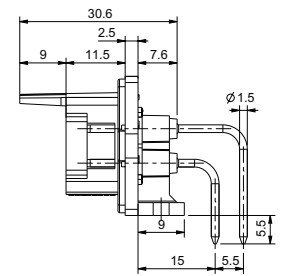
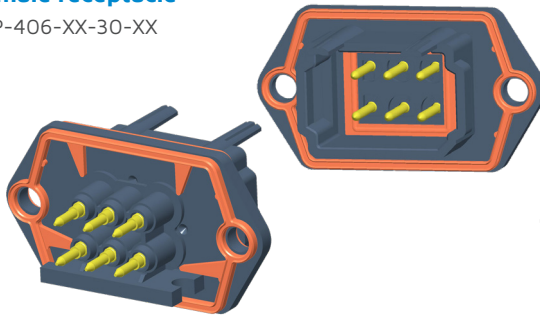
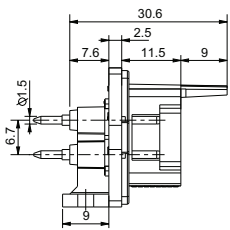
PCB/Panel Mount, Straight & Bent Termination

Straight male receptacle

P/N: REP-406-XX-30-XX

Bent male receptacle

P/N: REP-406-XX-10-XX

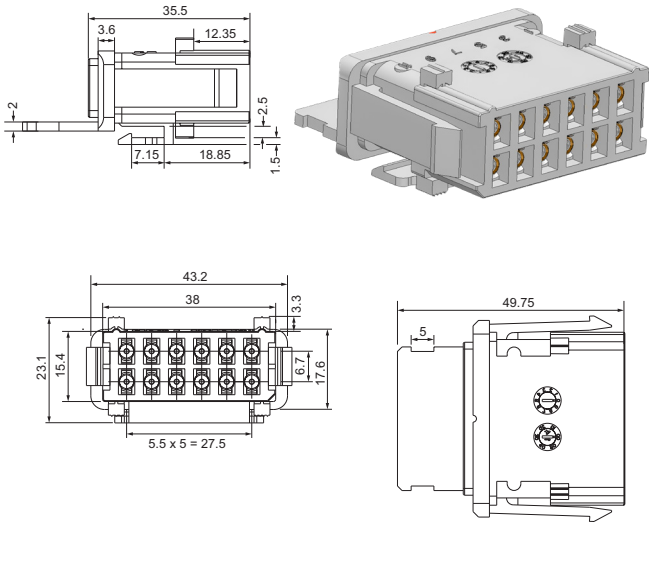


12 Way Plugs & Receptacles

Cable Harness, Crimp Termination

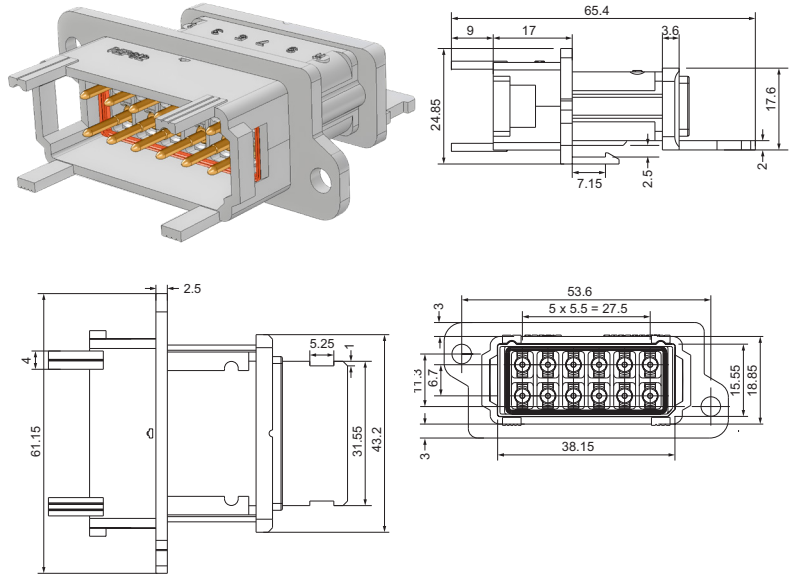
Female plug

P/N: REP-512-XX-2X-XX



Male receptacle

P/N: REP-612-XX-20-XX

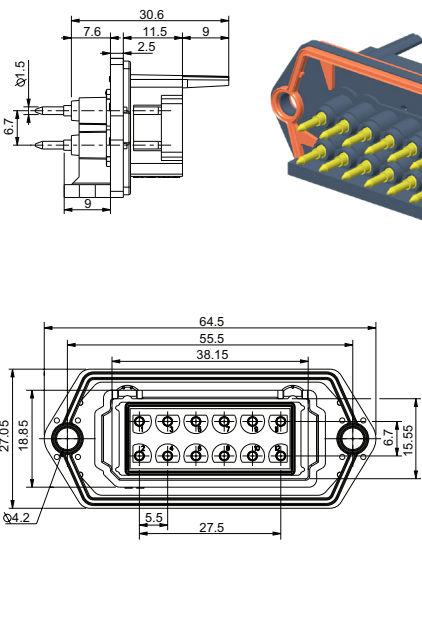


12 Way Receptacles

PCB/Panel Mount, Straight & Bent Termination

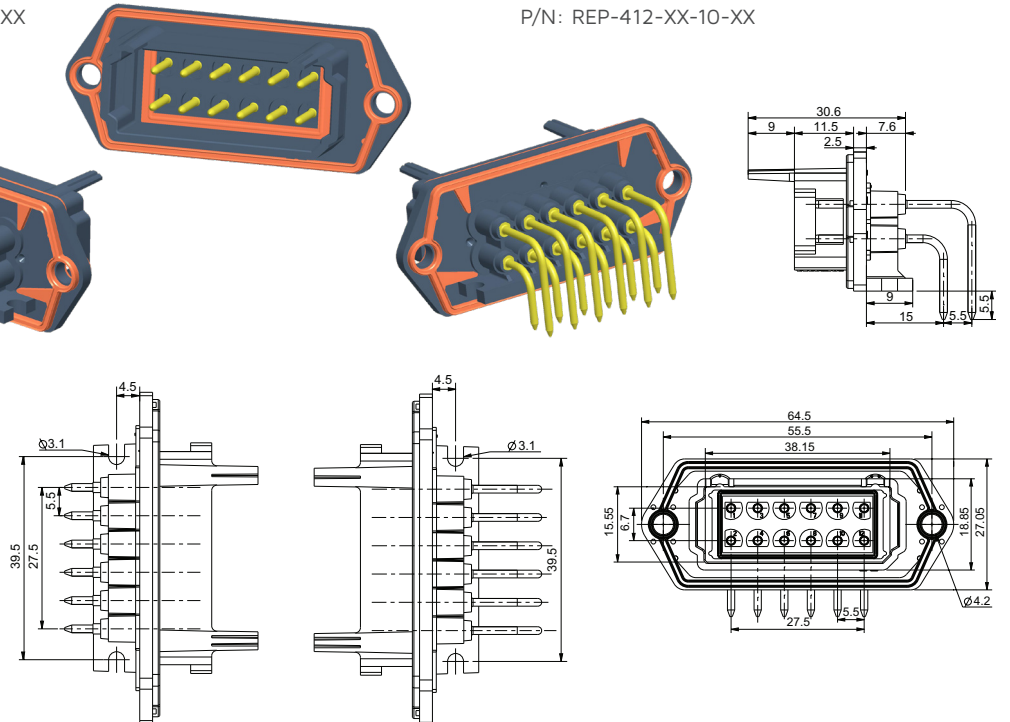
Straight male receptacle

P/N: REP-412-XX-30-XX



Bent male receptacle

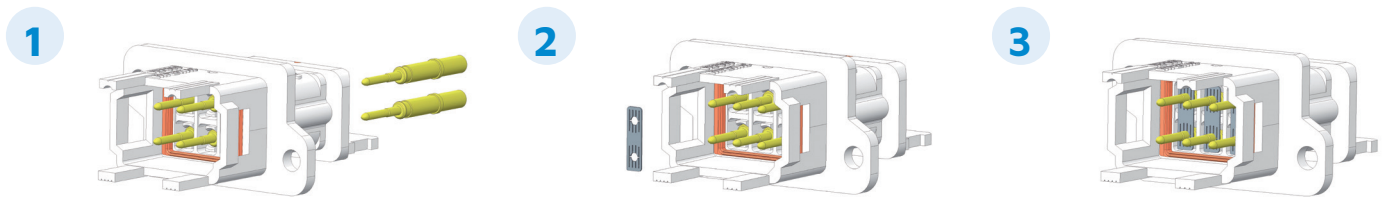
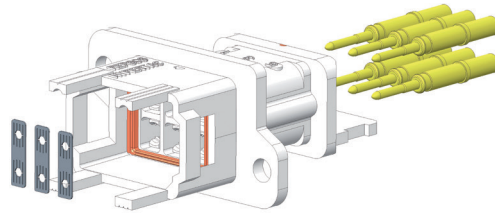
P/N: REP-412-XX-10-XX



Dimensions are in mm | All specifications are subject to change without notice

Assembly Contacts & Accessories

Contact & Shunt Assembly

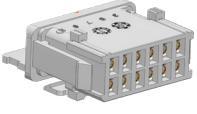
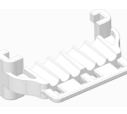

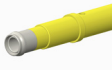
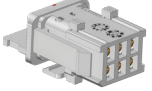


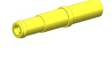
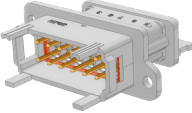






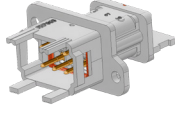


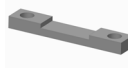



Contact insertion

Shunt installation

Installation complete

Accessories

CONNECTOR	Cable Retainer	Panel Seal	Panel Mount Bracket	Dummy Contacts ⁽¹⁾	Filler Plug	CONTACTS	Crimping Tool	Locator	Selector Positions Wire Cross Sections
 Female plug, 12-way REP 512	 REP 007-12		 REP 003-12			 0151832-20-N1	Astro-tool TGV 101	TGV 202 rouge	Position 5: AWG 20-17 Only for 0151832-20-N1 Position 5: AWG 18-17 Only for 850-1018772-000
 Female plug, 6-way REP 506	 REP 007-06		 REP 003-06			 850-1018772-000	Daniels FT8	SH 463 rouge	Position 6: AWG 16-15 Position 7: AWG 14-13 Extraction Tool SD-0150000012
 Male receptacle, 12-way REP 612	 REP 007-12	 REP 006-12	 REP 003-12	 REP 002	 REP 001	 0151081-20-1G	Astro-tool TGV 101	TGV 202 rouge	Position 5: AWG 20-18 Position 6: AWG 16-14 Position 7: AWG 13
 Male receptacle, 6-way REP 606	 REP 007-06	 REP 006-06	 REP 003-06			 REP 901	Daniels FT8	SH 463 rouge	Extraction Tool SD-0150000012 (contacts) Insert Tool S_147 (Shunt REP 901)

(1) Use up to 400 V

Dimensions are in mm | All specifications are subject to change without notice

How To Order



REP

■ ■ ■

■ ■

■ ■

■ ■

1

2

3

4

5

1 Series	REP Series [fixed]												
2 Layout	<table border="0"> <tr> <td>102 Plug - 2 socket contacts</td> <td>202 Receptacle - 2 pin contacts</td> </tr> <tr> <td>402 Receptacle for pcb or panel mount - 2 pin contacts</td> <td></td> </tr> <tr> <td>406 Receptacle for pcb or panel mount - 6 pin contacts</td> <td></td> </tr> <tr> <td>412 Receptacle for pcb or panel mount - 12 pin contacts</td> <td></td> </tr> <tr> <td>506 Plug - 6 socket contacts</td> <td>512 Plug - 12 socket contacts</td> </tr> <tr> <td>606 Receptacle - 6 pin contacts</td> <td>612 Receptacle - 12 pin contacts</td> </tr> </table>	102 Plug - 2 socket contacts	202 Receptacle - 2 pin contacts	402 Receptacle for pcb or panel mount - 2 pin contacts		406 Receptacle for pcb or panel mount - 6 pin contacts		412 Receptacle for pcb or panel mount - 12 pin contacts		506 Plug - 6 socket contacts	512 Plug - 12 socket contacts	606 Receptacle - 6 pin contacts	612 Receptacle - 12 pin contacts
102 Plug - 2 socket contacts	202 Receptacle - 2 pin contacts												
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406 Receptacle for pcb or panel mount - 6 pin contacts													
412 Receptacle for pcb or panel mount - 12 pin contacts													
506 Plug - 6 socket contacts	512 Plug - 12 socket contacts												
606 Receptacle - 6 pin contacts	612 Receptacle - 12 pin contacts												
3 Part - Polarity	<table border="0"> <tr> <td>03 Plug without contact</td> <td>04 Receptacle without contact</td> </tr> <tr> <td>12 Female plug with Hyperboloid contacts*</td> <td>23 Male receptacle with contacts</td> </tr> <tr> <td>1M Female plug with MR contacts**</td> <td>27 Male receptacle with tinned contacts</td> </tr> <tr> <td></td> <td>2B Male receptacle with RoHS tinned contacts</td> </tr> </table>	03 Plug without contact	04 Receptacle without contact	12 Female plug with Hyperboloid contacts*	23 Male receptacle with contacts	1M Female plug with MR contacts**	27 Male receptacle with tinned contacts		2B Male receptacle with RoHS tinned contacts				
03 Plug without contact	04 Receptacle without contact												
12 Female plug with Hyperboloid contacts*	23 Male receptacle with contacts												
1M Female plug with MR contacts**	27 Male receptacle with tinned contacts												
	2B Male receptacle with RoHS tinned contacts												
4 Termination Style	<table border="0"> <tr> <td>00 Without contact</td> </tr> <tr> <td>10 Bent termination contact for REP 402, 406 and 412</td> </tr> <tr> <td>20 Crimp contact 20-13 AWG for REP 102, 506, 512, 202, 606 and 612 (Hyperboloid Contact only)</td> </tr> <tr> <td>21 Crimp contact 18-13 AWG for REP 102, 506, 512, 202, 606 and 612 (MR Contact only)</td> </tr> <tr> <td>30 Straight termination contact for REP 402, 406 and 412</td> </tr> </table>	00 Without contact	10 Bent termination contact for REP 402, 406 and 412	20 Crimp contact 20-13 AWG for REP 102, 506, 512, 202, 606 and 612 (Hyperboloid Contact only)	21 Crimp contact 18-13 AWG for REP 102, 506, 512, 202, 606 and 612 (MR Contact only)	30 Straight termination contact for REP 402, 406 and 412							
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21 Crimp contact 18-13 AWG for REP 102, 506, 512, 202, 606 and 612 (MR Contact only)													
30 Straight termination contact for REP 402, 406 and 412													
5 Accessories	<table border="0"> <tr> <td>00 Without accessory</td> </tr> <tr> <td>01 Filler plug for REP 102, 506, 512, 202, 606 and 612</td> </tr> <tr> <td>02 Plastic dummy contact for REP 102, 506, 512, 202, 606 and 612</td> </tr> <tr> <td>03 Bracket for panel mounting for REP 202, 606 and 612</td> </tr> <tr> <td>04 Spacer for straight termination contact for REP 402, 406 and 412</td> </tr> <tr> <td>07 With accessory for cable retainer for REP 606 and 612</td> </tr> <tr> <td>09 With shunts for REP 606 and 612</td> </tr> <tr> <td>10 With panel seal for REP 606 and 612</td> </tr> </table>	00 Without accessory	01 Filler plug for REP 102, 506, 512, 202, 606 and 612	02 Plastic dummy contact for REP 102, 506, 512, 202, 606 and 612	03 Bracket for panel mounting for REP 202, 606 and 612	04 Spacer for straight termination contact for REP 402, 406 and 412	07 With accessory for cable retainer for REP 606 and 612	09 With shunts for REP 606 and 612	10 With panel seal for REP 606 and 612				
00 Without accessory													
01 Filler plug for REP 102, 506, 512, 202, 606 and 612													
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04 Spacer for straight termination contact for REP 402, 406 and 412													
07 With accessory for cable retainer for REP 606 and 612													
09 With shunts for REP 606 and 612													
10 With panel seal for REP 606 and 612													

*Contact Ref. 0151832-20-N1

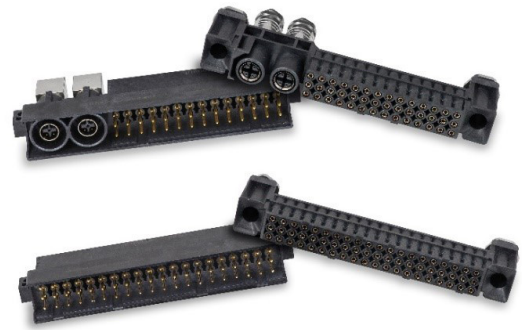
**Contact Ref. 850-1018772-000

You may also be interested in



Compact Signal and Ethernet PCB Connectors

- Compact, high-speed, and reliable solution for PCB to PCB and floating mounting rack and panel applications
- Hyperboloid contact technology for signal and high speed quadrate 100 Ohm contacts
- Compliance with the main European Railway standards (EN45545-2, NF F61030, EN50155:2017, STM-S-001ind.D & more), with MIL-C-28748 and MIL-STD-202-301 standards and EIA/IEC standards for contact resistance and environmental testing



Modular and Mini-Modular Connectors

- Mixed signal, power, coaxial, fiber optic and pneumatic modules
- Provides up to 200 amp power
- Cable to chassis and rack & panel; Plastic backshell with strain relief and half turn quick disconnect jackscrew
- Float mountable for blind mating
- Configurations compliant to EN45545 standards
- Hyperboloid contact technology



Rugged M12 Connectors

- Compact IP67 metal shell
- 360° EMI shielding
- Hyperboloid contact technology
- Compliant with rail fire and smoke standards
- Straight and right angle 90° rotatable backshell
- Compatible with most commonly used rail cables



Worldwide Support

Connectors

Americas

Sales

connectors.uscsr@smithsinterconnect.com

Technical Support

connectors.ustechsupport@smithsinterconnect.com

Europe

Sales

connectors.emeacsr@smithsinterconnect.com

Technical Support

connectors.emeatechsupport@smithsinterconnect.com

Asia

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Technical Support

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Technical Support

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Technical Support

semi.techsupport@smithsinterconnect.com

RF/MW Subsystems

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