

K

CHAPTER

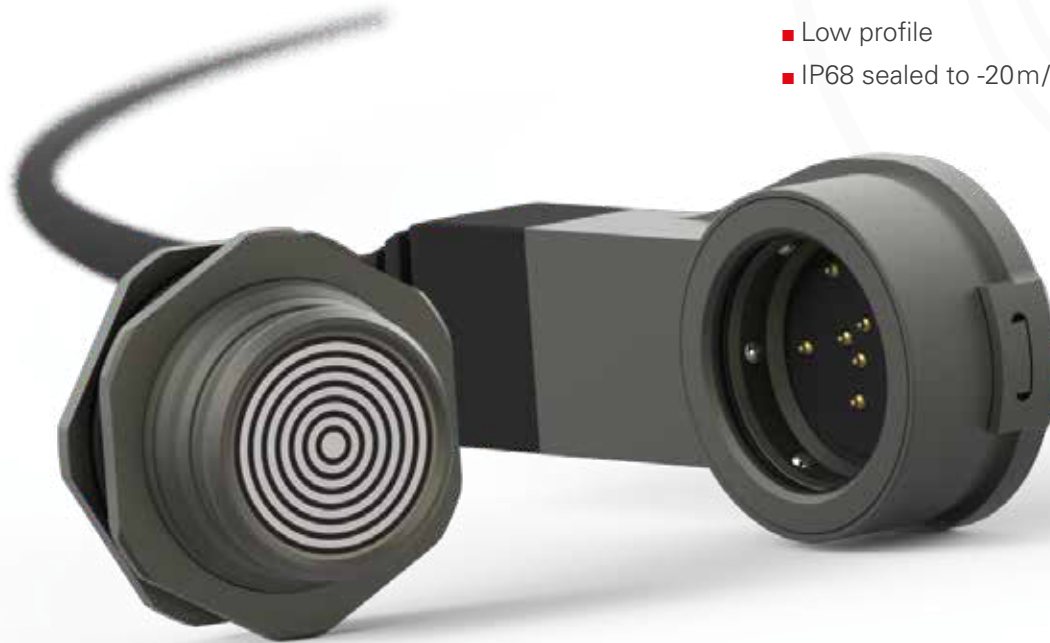


FISCHER **FREEDOM™** SERIES

EASY MATING | EASY CLEANING | EASY INTEGRATION

KEY FEATURES

- No key code: 360° mating freedom & optimized cable management
- Membrane-sealed contacts (patent pending)
- Low profile
- IP68 sealed to -20m/24h



FREEDOM

K-2 / K-12

FREEDOM



PLUGS



CABLE MOUNTED

- Body style (FLP01)..... K-4
- Technical dimensions K-5

RECEPTACLES



PANEL MOUNTED

- Body style (FLR01) K-6
- Technical dimensions K-7
- Accessory..... K-7

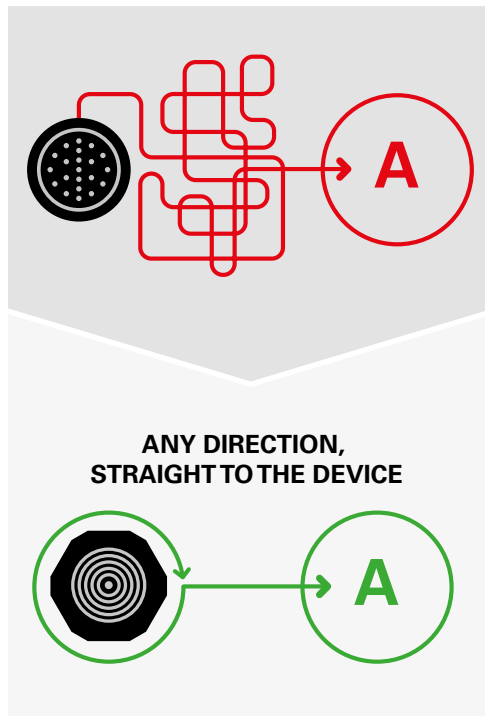
FOR ALL FREEDOM

- Key features..... K-3
- Electrical & contact configurations..... K-8
- PCB hole layout K-8
- Part numbering K-9
- Pre-cabled plug configuration..... K-10
- Technical information..... K-11

This catalog covers our standard connector solutions. For specific requests, including custom connectors, please contact your local sales representative.

EASY MATING

- No Key code = 360° mating freedom
- Optimized cable management – no more tangles and turns, cables always go in a straight line



EASY CLEANING

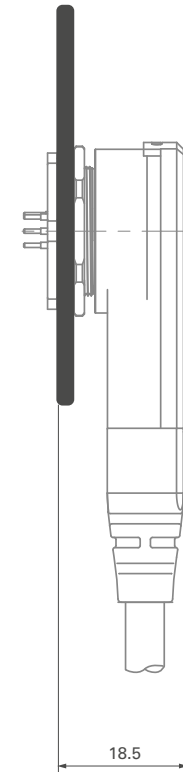
- Surface contacts = fixed tracks & membrane-sealed contacts
- No female contacts that can accumulate dirt, no long male contacts that can get broken
- A true cleanable solution on both receptacle and plug sides



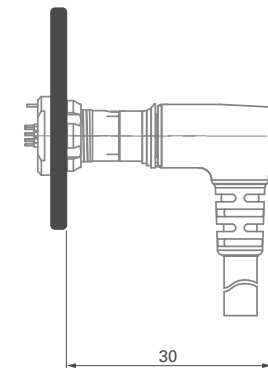
EASY INTEGRATION

- 2x less protruding compared to a normal pin-socket type of connector
- A true low-profile solution
- Ideal for integration in wearable applications or on panels where space is limited and access constraint

LP360™ SE-



STANDARD PIN
SOCKET CONNECTOR



PLUG

CABLE MOUNTED



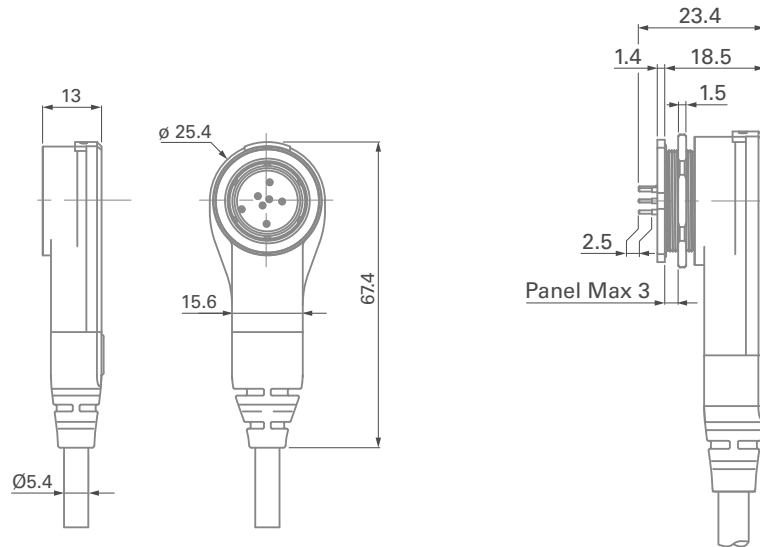
Body style		P01	References to detailed information
Protection	Unsealed (IP65)		Sealing categories, page A-8
	Sealed up to IP68	●	
Locking system	Friction		Locking systems, page A- 7
	Push-pull		
	Quick-release	●	
	Lanyard		
	Tamperproof		
Contacts	Crimp		Electrical & configurations, page K-8
	Solder	●	
Housing color	Anthracite	●	Options, page K-9
	Black		
Design	Shortened body		Body styles, chapter K
	Straight		
	Right-angle	●	
Cabling	Cable clamp sets		Accessories, page K-11
	Overmoldable	●	
	Heat shrinkable	●	
Accessories	Cable bend reliefs	●	
	Protective sleeves		
	Sealing caps	●	
Size	08		Technical dimensions, page K-5
	14	●	For more information visit our website www.fischerconnectors.com/technical

PLUG

CABLE MOUNTED

P01 / CIRCULAR RIGHT ANGLE

BODY STYLE



All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLE

PANEL MOUNTED



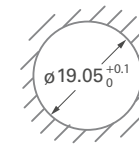
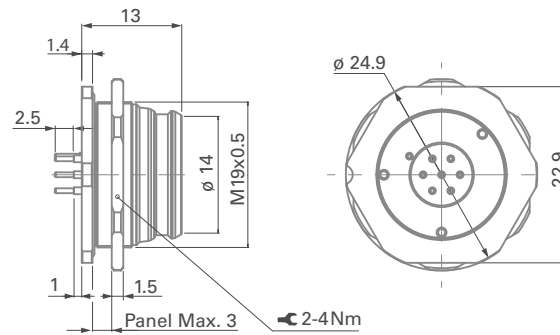
Body style		R01	References to detailed information
Protection	Unsealed (IP65)		Sealing categories, page A 8
	Sealed up to IP68	●	
	Hermetic		
Contacts	Solder		Electrical & contact configurations, page K-8
	PCB	●	
Housing color	Anthracite	●	Options, page K-9
	Black		
Design	Front-projecting	●	Body styles, chapter K
Assembly	Front-mounting		
	Rear-mounting	●	
Accessories	Sealing caps	●	Accessories, section K-11
	Cable bend relief		
	Protective sleeve		
Size	08		Technical dimensions, page K-7 For more information visit our website www.fischerconnectors.com/technical
	14	●	

RECEPTACLE

PANEL MOUNTED

R01 / CIRCULAR REAR MOUNTED

BODY STYLE




PANEL CUT-OUT

NUT ACCESSORY

Nut available in different sizes. To be ordered separately.



Part number	Inner thread size	Outer diameter	 Flat open spanner
222825	M19x0.5	$\phi 25$	23
222826	M19x0.5	$\phi 30$	28

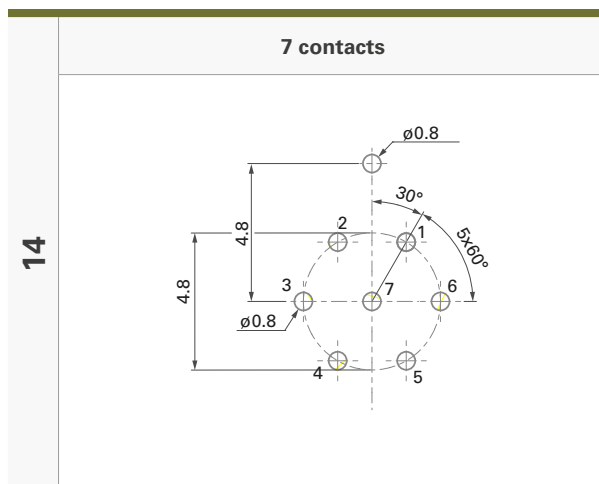
SIZE 14

Size	Pin layout	Number of contacts	Plug	Receptacle	Current [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position				
			Wire size ¹⁾	PCB contacts			IEC 60512-4-1 test 4a				
			Solder contacts	Pin diameter [mm]	IEC 60512-5-2-5b ²⁾	IEC 60664-1 ³⁾	AC r.m.s.		DC		
								Contact to body	Contact to contact	Contact to body	Contact to contact
14		4	∅0.8/AWG24	0.63	1	≤ 160	0.8	0.8	1.3	1.3	
		3	∅0.8/AWG24	0.63	5						

¹⁾ Stranding values in brackets. Wire size information is based on Fischer Connectors' standard cabling recommendation for configuration with 2 or 3 power contacts.

²⁾ Current per contact at 40°C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For the max. operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A11 for details.

View from the front of the receptacle (Grounding pin at 12 o'clock)



Pin 3, 4, 5 = 5A max

Pin 1, 2, 6, 7 = 1A max

	Connector design				Contact block			Housing		Standard options			
Example:	FLP01	Z	QM	14	P	007	S	AN	360	V	2	Z	B
	FLR01	W	ZZ	14	T	007	P	AN	360	V	3	A	C

Body style

- **F** = Freedom
- **L** = Low profile
- **P** = Plug / **P01** = Circular right angled
- **R** = Receptacle / **R01** = Circular rear mounted

Sealing level

- Plug**
- **Z** = Not applicable
- Receptacle**
- **W** = Water sealing

Locking system

- Plug**
- **QM** = Quick-release medium force
- Receptacle**
- **ZZ** = No locking

Connector size

- **14** = Size 14 (diameter interface)

Polarity of contacts

- **P** = Piston
- **T** = Track

Number of contacts

- **Size 14** = 007

Contact type

- **S** = Solder
- **P** = PCB

Housing material

- **B** = Brass (plug)
- **C** = Stainless steel (receptacle)

Grounding

- **A** = Grounding pin (receptacle)
- **Z** = Not applicable (plug)

Insulating material

- **2** = PEEK (plug)
- **3** = Epoxy (receptacle)

O-ring material

- Plug** = Interface O-ring
Receptacle = Panel O-ring

- **V** = Viton®
- **Z** = Not applicable

Keying code

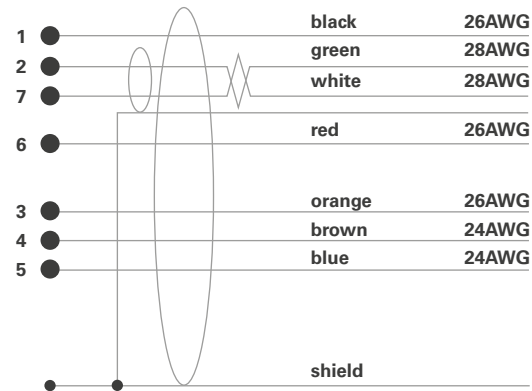
- **360** = No code

Housing color

- **AN** = Anthracite

CABLE SPECIFICATION

- PUR halogen free, flame retardant outer sheath, nominal thickness 0,55 mm, black (RAL9005 matt)
- Working voltage: 100 V
- Weight: 45 kg/km
- Breaking strength: 400 N (Vectran central strength member)
- Recommended bending radius: 40 mm static / 60 mm dynamic
- Working temperature: -40°C to +90°C
- Overall diameter: nominal 5.35 mm / maximal 5.50 mm



AWG28 (white/green twisted)

Tinned copper conductor 7x0.13 mm / polypropylene insulation / nominal thickness 0.28 mm / nominal diameter 0.95 mm / characteristic impedance 90 ± 10 Ω Tinned copper drain wire 7x0.13 mm, aluminum / polyester tape

AWG26 (black/red)

Tinned copper conductor 7x0.16mm / polypropylene insulation / nominal thickness 0.21 mm / nominal diameter 0.90 mm

AWG24 (blue/brown)

Bare copper conductor 7x0.20mm / polypropylene insulation / nominal thickness 0.20 mm / nominal diameter 1.0 mm

AWG26 (orange)

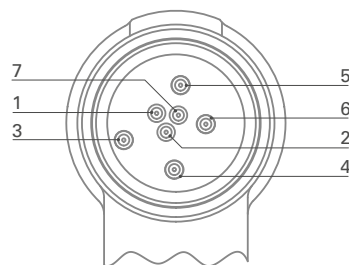
Bare copper conductor 7x0.16mm / polypropylene insulation / nominal thickness 0.16 mm / nominal diameter 0.80 mm

Shield

Tinned copper braid / coverage 95% / wire diameter 0.13 mm

WIRING DIAGRAM FOR STANDARD PRE-CABLED PLUG

View from front of plug



WIRE	PRECABLED SOLUTION
	1m, open end Pin number
AWG26 black	1
AWG28 green	2
AWG26 orange	3
AWG24 brown	4
AWG24 blue	5
AWG26 red	6
AWG28 white	7
Part number	133714 (Boot bend relief)
	133736 (Overmold bend relief)

ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Performance	Standard
Sealing performance	Receptacle = IP68; 20m submersion for 24 hours Mated plug = IP68; 20m submersion for 24 hours Unmated plug with cap = IP68; 20m submersion for 24 hours Unmated plug without cap = IP67	MIL-STD-810 Method 512.6
Operating temperature range (connectors only)	-55°C to +135°C	MIL-STD-810 Method 501.6 and 502.6
Corrosion resistance mated	Salt mist 1,000 hours ; 5% salt solution, 35°C Plug and receptacle in mated condition. Cosmetic changes may appear over time without impacting mechanical or electrical functions.	MIL-STD-883 Method 1009.8 MIL-STD-883 Method 509.6
Endurance	10,000 mating cycles / 5,000 full rotations ¹⁾ Preserved mechanical and electrical functionality. Normal wear will appear.	IEC 60512-9-1
Vibration	9.26G rms	MIL-STD-202 Method 214 Condition I
Unlocking force	Typical 40N	IEC-60512-7-13a
Shock	30g	MIL-STD-202 Method 213 Condition J and K

¹⁾ 180° rotation considered per mating within the mating cycle test.

ELECTRICAL DATA

Characteristic	Performance	Standard
Contact resistance	<50mOhm (typical value)	MIL-STD-202 Method 307
Shell resistance	<50mOhm (cabled)	MIL-STD-202 Method 307
Insulation resistance	>10 ¹⁰ Ohm	MIL-STD-883 Method 1003
Shielding effectiveness	360° shielded	-
Data protocols	USB 2.0 and 100Mb/s Ethernet	

MATERIAL & SURFACE TREATMENT



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