M.1
hex 24 integrated

Pressure switches hex 24 with integrated connector

NC or NO, maximum operating voltage up to 42 V



- Large selection of electrical plug-in types for quick attachment and reliable connection
- High protection class (to IP67 or IP6K9K)
- Compact and rugged design in industrial environments like construction and agricultural machinery or commercial vehicles
- Switching point can be set on site with adjusting screw in the connector[1)]
- High overpressure resistance, compact, small switches, available as normally open or normally closed
- Vacuum switches with integrated connector available on request

[1)] Pressure switches can also be supplied preset at factory.
The switching point is embossed onto pressure switches preset at factory.

The all-rounder with the broad selection of options

NC or NO, maximum operating voltage up to 42 V



Deutsch DT04-2P



AMP Superseal 1.5®



Packard MetriPack 280®



Deutsch DT04-3P



AMP Junior Timer®



Bayonet DIN 72585



M12x1 DIN EN 61076-2-101-A

with 10 plug-in types

M12x1 with 3 codings

Coding: PIN 1+3



Coding: PIN 1+4



Coding: PIN 1+2



Bayonet with 4 codings

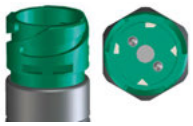
Coding A1-2.1



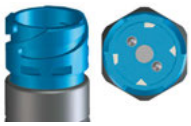
Coding A2-2.1



Coding A3-2.1



Coding A4-2.1



for 7 setting ranges

- 0.1 – 1 bar
- 0.5 – 3 bar
- 1 – 10 bar
- 10 – 20 bar
- 20 – 50 bar
- 50 – 150 bar
- 100 – 200 bar

with many thread types

- G 1/4
- G 1/8
- M 10x1 cyl.
- M 10x1 con.
- M 12x1.5 cyl.
- NPT 1/8
- NPT 1/4
- 9/16-18 UNF
- 7/16-20 UNF

Suitable for a broad diversity of applications

- **NBR** Hydraulic/machine oil, air, nitrogen, etc.
- **EPDM** Brake fluid, hydrogen, oxygen, acetylene, etc.
- **FKM** Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.
- **FFKM** Hot water, chemical acids, diluted alkalis, ketones, esters, alcohols
- **HNBR** Hydraulic/machine oil, esterbased bio-oils
- **Silicone** Water, food products (FDA approval)

Pressure switches hex 24 with integrated connector



0110 / 0111
Deutsch DT04-2P
IP67, IP6K9K



0112 / 0113
AMP Superseal 1.5®
IP67



0114 / 0115
Packard MetriPack 280®
IP67



0116 / 0117
Deutsch DT04-3P
IP67, IP6K9K



0118 / 0119
AMP Junior Timer®
IP65, IPx4K



0120 / 0121
Bayonet DIN 72585
IP67, IP6K9K



0122 / 0123
M12x1 DIN EN 61076-2-101-A
IP67

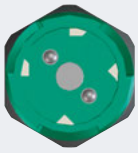
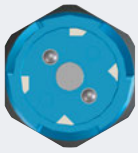
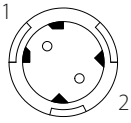
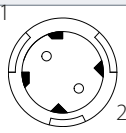
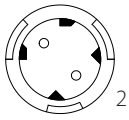
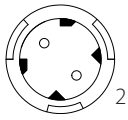


0124 / 0125
M12x1 DIN EN 60947-5-2
IP67

Technical details

Rated working voltage:	10 … 42 VAC/DC	
Rated current range (resistive load, DC12 / AC12):	10 mA … 4 A	
Switching power DC12 / AC12:	100 W / 100 VA	
Temperature resistance of sealing materials:	NBR (diaphragm pressure switch)	-40 °C … +100 °C
	NBR (piston pressure switch)	-30 °C … +100 °C
	EPDM	-30 °C … +120 °C
	FKM (diaphragm pressure switch)	-5 °C … +120 °C
	FKM (piston pressure switch)	-15 °C … +120 °C
	FFKM	-20 °C … +120 °C
	Silicone	-40 °C … +120 °C
	HNBR	-30 °C … +120 °C
Burst pressure (diaphragm pressure switch):	400 bar	
Burst pressure (piston pressure switch)	700 bar (for threads M10, G 1/8, R 1/8 and NPT 1/8 up to max. 600 bar)	
Switching frequency:	200 / min	
Mechanical life expectancy:	1,000,000 cycles (for diaphragm pressure switches, life expectancy value only applies for switching pressures to max. 50 bar)	
Pressure rise rate:	≤ 1,000 bar/s	
Hysteresis:	Average value 5…30 % depending on type, not adjustable	
Vibration resistance:	10 g; 5…200 Hz sine wave, DIN EN 60068-2-6	
Shock resistance:	294 m/s²; 14 ms half sine wave; DIN EN 60068-2-27	
Protection class:	Up to IP67 / IP6K9K according to manufacturer's specifications for the respective plug-in system only when plugged in, otherwise IP00	
Weight:	approx. 90 g	

Contact assignment for bayonet connectors

Coding A1-2.1	Coding A2-2.1	Coding A3-2.1	Coding A4-2.1
			
			

0110/0112/0114/0116/0118/0122/0124

Diaphragm pressure switches with integrated connector

- Setting ranges to up to 50 bar (higher settings refer to page 26)
- NC or NO, maximum voltage 42 V
- Zinc-plated steel (Cr VI-free)
- Overpressure safety up to 300 bar[1)]

Plug-in types for diaphragm pressure switches

Deutsch DT04-2P	0110 - XXX XX - X - XXX	0110 - XXX XX - X - XXX
AMP Superseal 1.5®	0112 - XXX XX - X - XXX	0112 - XXX XX - X - XXX
Packard MetriPack 280®	0114 - XXX XX - X - XXX	0114 - XXX XX - X - XXX
Deutsch DT04-3P	0116 - XXX XX - X - XXX	0116 - XXX XX - X - XXX
AMP Junior Timer®	0118 - XXX XX - X - XXX	0118 - XXX XX - X - XXX
M12x1 DIN EN 61076-2-101-A (PIN 1+3)	0122 - XXX XX - X - XXX	0122 - XXX XX - X - XXX
M12x1 DIN EN 60947-5-2 (PIN 1+2 / PIN 1+4)	0124 - XXX XX - X - XXX	0124 - XXX XX - X - XXX

Adjustment range (Tolerance at room temperature)	Male thread	Article number NO —› |:	Article number NC —› :|

Diaphragm pressure switches with integrated connector

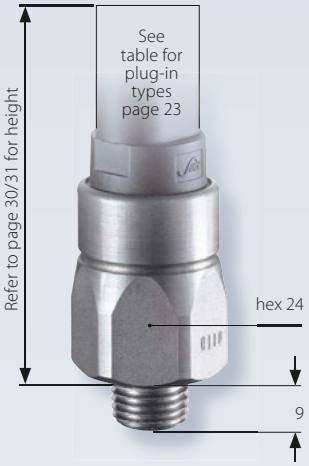
0.1 - 1 (± 0.2) bar	G 1/4	XXXX - 403 03 - X - 011	XXXX - 404 03 - X - 015
	G 1/8	XXXX - 403 28 - X - 603	XXXX - 404 28 - X - 604
	M 10x1 cyl.	XXXX - 403 13 - X - 003	XXXX - 404 13 - X - 004
	M 10x1 con.	XXXX - 403 01 - X - 009	XXXX - 404 01 - X - 013
	M 12x1.5 cyl.	XXXX - 403 02 - X - 010	XXXX - 404 02 - X - 014
	NPT 1/8	XXXX - 403 04 - X - 012	XXXX - 404 04 - X - 016
0.5 - 3 (± 0.3) bar	G 1/4	XXXX - 423 03 - X - 070	XXXX - 424 03 - X - 070
	G 1/8	XXXX - 423 28 - X - 070	XXXX - 424 28 - X - 070
	M 10x1 cyl.	XXXX - 423 13 - X - 070	XXXX - 424 13 - X - 070
	M 10x1 con.	XXXX - 423 01 - X - 070	XXXX - 424 01 - X - 070
	M 12x1.5 cyl.	XXXX - 423 02 - X - 070	XXXX - 424 02 - X - 070
	NPT 1/8	XXXX - 423 04 - X - 070	XXXX - 424 04 - X - 070
1 - 10 (± 0.5) bar	G 1/4	XXXX - 407 03 - X - 027	XXXX - 408 03 - X - 031
	G 1/8	XXXX - 407 28 - X - 607	XXXX - 408 28 - X - 608
	M 10x1 cyl.	XXXX - 407 13 - X - 007	XXXX - 408 13 - X - 008
	M 10x1 con.	XXXX - 407 01 - X - 025	XXXX - 408 01 - X - 029
	M 12x1.5 cyl.	XXXX - 407 02 - X - 026	XXXX - 408 02 - X - 030
	NPT 1/8	XXXX - 407 04 - X - 028	XXXX - 408 04 - X - 032

Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
FFKM	Hot water, chemical acids, diluted alkalis, ketones, esters, alcohols	6
HNBR	Hydraulic/machine oil, ester-based bio-oils	9

Refer to page 24 for the temperature range and application thresholds of sealing materials.

Article number:	01XX – XXX XX – X – XXX

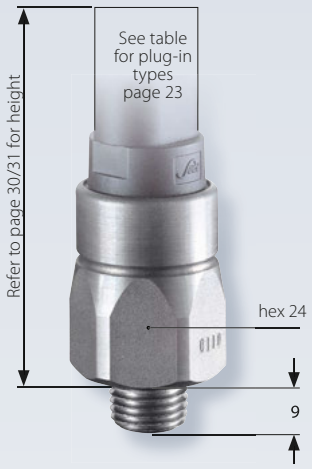


[1)] Static value. Dynamic value is 30-50 % lower. Values pertain to the hydraulic/pneumatic part of the pressure switch.

M.1
hex 24 integrated

0110/0112/0114/0116/0118/0122/0124
Diaphragm pressure switches with integrated connector

- Setting ranges up to 50 bar (lower settings refer to page 25)
- NC or NO, maximum operating voltage up to 42 V
- Zinc-plated steel (Cr VI-free)
- Overpressure safety up to 300 bar[1)]



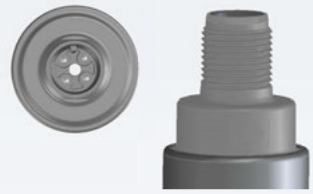
0122 Coding: PIN 1+3



0124 Coding: PIN 1+4 (NO)



0124 Coding: PIN 1+2 (NC)



Plug-in types for diaphragm pressure switches

Deutsch DT04-2P	0110 - XXX XX - X - XXX	0110 - XXX XX - X - XXX
AMP Superseal 1.5®	0112 - XXX XX - X - XXX	0112 - XXX XX - X - XXX
Packard MetriPack 280®	0114 - XXX XX - X - XXX	0114 - XXX XX - X - XXX
Deutsch DT04-3P	0116 - XXX XX - X - XXX	0116 - XXX XX - X - XXX
AMP Junior Timer®	0118 - XXX XX - X - XXX	0118 - XXX XX - X - XXX
M12x1 DIN EN 61076-2-101-A (PIN 1+3)	0122 - XXX XX - X - XXX	0122 - XXX XX - X - XXX
M12x1 DIN EN 60947-5-2 (PIN 1+2 / PIN 1+4)	0124 - XXX XX - X - XXX	0124 - XXX XX - X - XXX

Adjustment range (tolerance at room temperature)	Male thread	**Article number** NO ⟶ |:	**Article number** NC ⟶ :|

Diaphragm pressure switches with integrated connector

10 - 20 (± 1) bar	G 1/4	XXXX - 411 03 - X - 043	XXXX - 412 03 - X - 047
	G 1/8	XXXX - 411 28 - X - 611	XXXX - 412 28 - X - 612
	M 10x1 cyl.	XXXX - 411 13 - X - 011	XXXX - 412 13 - X - 012
	M 10x1 con.	XXXX - 411 01 - X - 041	XXXX - 412 01 - X - 045
	M 12x1.5 cyl.	XXXX - 411 02 - X - 042	XXXX - 412 02 - X - 046
	NPT 1/8	XXXX - 411 04 - X - 044	XXXX - 412 04 - X - 048
20 - 50 (± 2) bar	G 1/4	XXXX - 415 03 - X - 059	XXXX - 416 03 - X - 063
	G 1/8	XXXX - 415 28 - X - 615	XXXX - 416 28 - X - 616
	M 10x1 cyl.	XXXX - 415 13 - X - 015	XXXX - 416 13 - X - 016
	M 10x1 con.	XXXX - 415 01 - X - 057	XXXX - 416 01 - X - 061
	M 12x1.5 cyl.	XXXX - 415 02 - X - 058	XXXX - 416 02 - X - 062
	NPT 1/8	XXXX - 415 04 - X - 060	XXXX - 416 04 - X - 064

Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
FFKM	Hot water, chemical acids, diluted alkalis, ketones, esters, alcohols	6
HNBR	Hydraulic/machine oil, ester-based bio-oils	9

Refer to page 24 for the temperature range and application thresholds of sealing materials.

Article number:	**01XX – XXX XX – X – XXX**

[1)] Static value. Dynamic value is 30-50 % lower. Values pertain to the hydraulic/pneumatic part of the pressure switch.

0111 / 0113 / 0115 / 0117 / 0119 / 0123 / 0125

Piston pressure switches with integrated connector

- Setting range up to 150 bar
- NC or NO, maximum operating voltage up to 42 V
- Zinc-plated steel (Cr VI-free)
- Overpressure safety up to 600 bar[1)]

Plug-in types for piston pressure switches

Deutsch DT04-2P	0111 - XXX XX - X - XXX	0111 - XXX XX - X - XXX
AMP Superseal 1.5®	0113 - XXX XX - X - XXX	0113 - XXX XX - X - XXX
Packard MetriPack 280®	0115 - XXX XX - X - XXX	0115 - XXX XX - X - XXX
Deutsch DT04-3P	0117 - XXX XX - X - XXX	0117 - XXX XX - X - XXX
AMP Junior Timer®	0119 - XXX XX - X - XXX	0119 - XXX XX - X - XXX
M12x1 DIN EN 61076-2-101-A (PIN 1+3)	0123 - XXX XX - X - XXX	0123 - XXX XX - X - XXX
M12x1 DIN EN 60947-5-2 (PIN 1+2 / PIN 1+4)	0125 - XXX XX - X - XXX	0125 - XXX XX - X - XXX

Adjustment range (tolerance at room temperature)	Male thread	Article number NO —› |:	Article number NC —› :|

Piston pressure switches with integrated connector

50 - 150 (± 5) bar	G 1/4	XXXX - 419 03 - X - 011	XXXX - 420 03 - X - 015
	G 1/8	XXXX - 419 28 - X - 603	XXXX - 420 28 - X - 604
	M 10x1 cyl.	XXXX - 419 13 - X - 003	XXXX - 420 13 - X - 004
	M 10x1 con.	XXXX - 419 01 - X - 009	XXXX - 420 01 - X - 013
	M 12x1.5 cyl.	XXXX - 419 02 - X - 010	XXXX - 420 02 - X - 014
	NPT 1/8	XXXX - 419 04 - X - 012	XXXX - 420 04 - X - 016
100 - 200 (± 5) bar	G 1/4 DIN 3852-2-A	XXXX - 493 60 - X - 011	XXXX - 494 60 - X - 015
	M 12x1.5 DIN 3852-1-A	XXXX - 493 68 - X - 010	XXXX - 494 68 - X - 014

Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
HNBR	Hydraulic/machine oil, ester-based bio-oils	9

Refer to page 24 for the temperature range and application thresholds of sealing materials.

Article number:	01XX – XXX XX – X – XXX



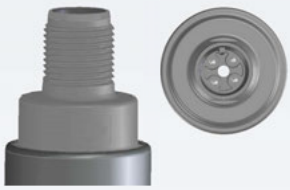
0123 Coding: PIN 1+3



0125 Coding: PIN 1+4 (NO)



0125 Coding: PIN 1+2 (NC)



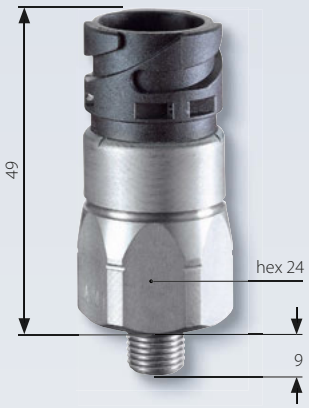
[1)] Static value. Dynamic value is 30-50 % lower. Values pertain to the hydraulic/pneumatic part of the pressure switch.

M.1
hex 24 integrated

0120
Diaphragm pressure switches with integrated bayonet connector

- NC or NO, maximum operating voltage up to 42 V
- Zinc-plated steel (Cr VI-free)
- Overpressure safety up to 300 bar[1)]

Bayonet ISO 15170 (DIN 72585)



Adjustment range (tolerance at room temperature)	male thread	**Article number** NO —› |:	**Article number** NC —› :|
0120 Diaphragm pressure switches with integrated connector			
0.1 - 1 (± 0.2) bar	G 1/4	0120 - X03 03 - X - 011	0120 - X04 03 - X - 015
	G 1/8	0120 - X03 28 - X - 603	0120 - X04 28 - X - 604
	M 10x1 cyl.	0120 - X03 13 - X - 003	0120 - X04 13 - X - 004
	M 10x1 con.	0120 - X03 01 - X - 009	0120 - X04 01 - X - 013
	M 12x1.5 cyl.	0120 - X03 02 - X - 010	0120 - X04 02 - X - 014
	NPT 1/8	0120 - X03 04 - X - 012	0120 - X04 04 - X - 016
0.5 - 3 (± 0.3) bar	G 1/4	0120 - X23 03 - X - 070	0120 - X24 03 - X - 070
	G 1/8	0120 - X23 28 - X - 070	0120 - X24 28 - X - 070
	M 10x1 cyl.	0120 - X23 13 - X - 070	0120 - X24 13 - X - 070
	M 10x1 con.	0120 - X23 01 - X - 070	0120 - X24 01 - X - 070
	M 12x1.5 cyl.	0120 - X23 02 - X - 070	0120 - X24 02 - X - 070
	NPT 1/8	0120 - X23 04 - X - 070	0120 - X24 04 - X - 070
1 - 10 (± 0.5) bar	G 1/4	0120 - X07 03 - X - 027	0120 - X08 03 - X - 031
	G 1/8	0120 - X07 28 - X - 607	0120 - X08 28 - X - 608
	M 10x1 cyl.	0120 - X07 13 - X - 007	0120 - X08 13 - X - 008
	M 10x1 con.	0120 - X07 01 - X - 025	0120 - X08 01 - X - 029
	M 12x1.5 cyl.	0120 - X07 02 - X - 026	0120 - X08 02 - X - 030
	NPT 1/8	0120 - X07 04 - X - 028	0120 - X08 04 - X - 032

Coding

A1-2.1	4XX	4XX
A2-2.1	3XX	3XX
A3-2.1	2XX	2XX
A4-2.1	1XX	1XX

Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
FFKM	Hot water, chemical acids, diluted alkalis, ketones, esters, alcohols	6
HNBR	Hydraulic/machine oil, ester-based bio-oils	9

Refer to page 24 for the temperature range and application thresholds of sealing materials.

Article number:	**0120 – XXX XX – X – XXX**

[1)] Static value. Dynamic value is 30-50 % lower. Values pertain to the hydraulic/pneumatic part of the pressure switch.

0120 / 0121

Diaphragm/piston pressure switches with integrated bayonet

- NC or NO, maximum operating voltage up to 42 V
- Zinc-plated steel (Cr VI-free)
- Diaphragm variant: Overpressure safety up to 300 bar[1)]
- Piston variant: Overpressure safety up to 600 bar[1)]

Adjustment range (tolerance at room temperature)	male thread	**Article number** NO ⟶ |:	**Article number** NC ⟶ :|

0120 Diaphragm pressure switches with integrated connector

10 - 20 (± 1) bar	G 1/4	0120 - X11 03 - X - 043	0120 - X12 03 - X - 047
	G 1/8	0120 - X11 28 - X - 611	0120 - X12 28 - X - 612
	M 10x1 cyl.	0120 - X11 13 - X - 011	0120 - X12 13 - X - 012
	M 10x1 con.	0120 - X11 01 - X - 041	0120 - X12 01 - X - 045
	M 12x1.5 cyl.	0120 - X11 02 - X - 042	0120 - X12 02 - X - 046
	NPT 1/8	0120 - X11 04 - X - 044	0120 - X12 04 - X - 048
20 - 50 (± 2) bar	G 1/4	0120 - X15 03 - X - 059	0120 - X16 03 - X - 063
	G 1/8	0120 - X15 28 - X - 615	0120 - X16 28 - X - 616
	M 10x1 cyl.	0120 - X15 13 - X - 015	0120 - X16 13 - X - 016
	M 10x1 con.	0120 - X15 01 - X - 057	0120 - X16 01 - X - 061
	M 12x1.5 cyl.	0120 - X15 02 - X - 058	0120 - X16 02 - X - 062
	NPT 1/8	0120 - X15 04 - X - 060	0120 - X16 04 - X - 064

0121 Piston pressure switches with integrated connector

50 - 150 (± 5) bar	G 1/4	0121 - X19 03 - X - 011	0121 - X20 03 - X - 015
	G 1/8	0121 - X19 28 - X - 603	0121 - X20 28 - X - 604
	M 10x1 cyl.	0121 - X19 13 - X - 003	0121 - X20 13 - X - 004
	M 10x1 con.	0121 - X19 01 - X - 009	0121 - X20 01 - X - 013
	M 12x1.5 cyl.	0121 - X19 02 - X - 010	0121 - X20 02 - X - 014
	NPT 1/8	0121 - X19 04 - X - 012	0121 - X20 04 - X - 016
100 - 200 (± 5) bar	G 1/4 DIN 3852-2-A	0121 - X93 60 - X - 011	0121 - X94 60 - X - 015
	M 12x1.5 DIN 3852-1-A	0121 - X93 68 - X - 010	0121 - X94 68 - X - 014

Coding

A1-2.1	4XX	4XX
A2-2.1	3XX	3XX
A3-2.1	2XX	2XX
A4-2.1	1XX	1XX

Seal material – Application areas

NBR	Hydraulic/machine oil, air, nitrogen, etc.	1
EPDM	Brake fluid, hydrogen, oxygen, acetylene, etc.	2
FKM	Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.	3
FFKM	Hot water, chemical acids, diluted alkalis, ketones, esters, alcohols	6
HNBR	Hydraulic/machine oil, ester-based bio-oils	9

Refer to page 24 for the temperature range and application thresholds of sealing materials.

Article number:	**012X – XXX XX – X – XXX**

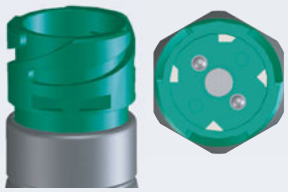
Coding A1-2.1



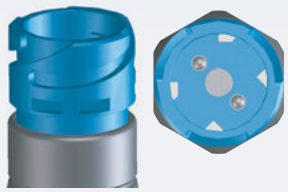
Coding A2-2.1



Coding A3-2.1



Coding A4-2.1



[1)] Static value. Dynamic value is 30-50 % lower. Values pertain to the hydraulic/pneumatic part of the pressure switch.

Technical details, contact assignment & accessories

for hex 24 pressure switches with integrated connector

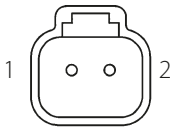
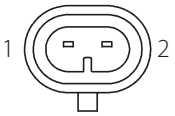
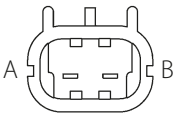
Please note:
Mating plugs are not included in the delivery and can be ordered separately.

Mating plug accessories [1)]

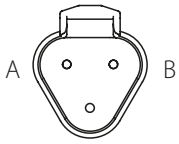
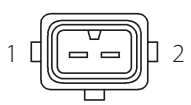
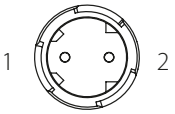
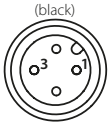
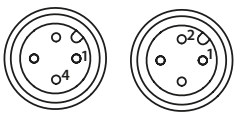
Mating plug type	Deutsch DT04-2P (for DT06-2S)	AMP Superseal 1.5®	Packard MetriPack 280®
Including 2 m cable			
Cable cross-section	2 x 0,5 mm² Radox cables	2 x 0,5 mm² Radox cables	2 x 0,5 mm² Radox cables
Protection class	IP65	IP65	IP65
Article number	**1-1-10-653-118**	**1-1-12-653-113**	**1-1-14-653-114**

[1)] For the pin assignment of the wires please refer to chapter M.10 Accessories (page 91)

Plug-in types for hex 24 diaphragm and piston pressure switches

Model / Type	0110 / 0111	0112 / 0113	0114 / 0115
			
Connector	**Deutsch DT04-2P**	**AMP Superseal 1.5®**	**Packard MetriPack 280®**
Protection class	IP67, IP6K9K	IP67	IP67
Overall height	H ≈ 61 mm	H ≈ 61 mm	H ≈ 62 mm
Contact assignment			

Deutsch DT04-3P (for DT04-3P)	AMP Junior Timer®	Bayonet DIN 72585/ISO 15170 A1 - 2.1	M12x1 DIN EN 61076-2-101-LF (A)
			
2 x 0,5 mm² PUR cables	2 x 0,5 mm² Radox cables	2 x 0,5 mm² Radox cables	4 x 0.34 mm² PUR cables
IP67	IP65	IP65	IP67
1-1-36-653-160	**1-1-18-653-116**	**1-1-20-653-112**	**1-1-00-653-162**

0116 / 0117	0118 / 0119	0120 / 0121	0122 / 0123	0124 / 0125
				
Deutsch DT04-3P	**AMP Junior Timer®**	**Bayonet DIN 72585/ISO 15170**	**M12x1 DIN EN 61076-2-101-A**	**M12x1 DIN EN 60947-5-2**
IP67, IP6K9K	IP65, IPx4K	IP67, IP6K9K	IP67	IP67
H ≈ 63 mm	H ≈ 54 mm	H ≈ 49 mm	H ≈ 51 mm	H ≈ 51 mm
		 Coding: A1-2.1	 1: brown 3: blue	 1: brown 2: black 4: white