

6/2 ways/positions piloted flow diverters - Size 16

RE 18302-11/12.09

1/8

L7556... (VS400)

Size 16
 Series 00
 Maximum operating pressure 310 bar [4500 psi]
 Maximum flow 220 l/min [58.1 gpm]
 Ports G 1



DVI0080

Summary

Description

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 Ordering details
 Spool variants
 Principles of operation, cross section
 Technical data
 Δp - Q_v characteristic curves
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 Electric connection

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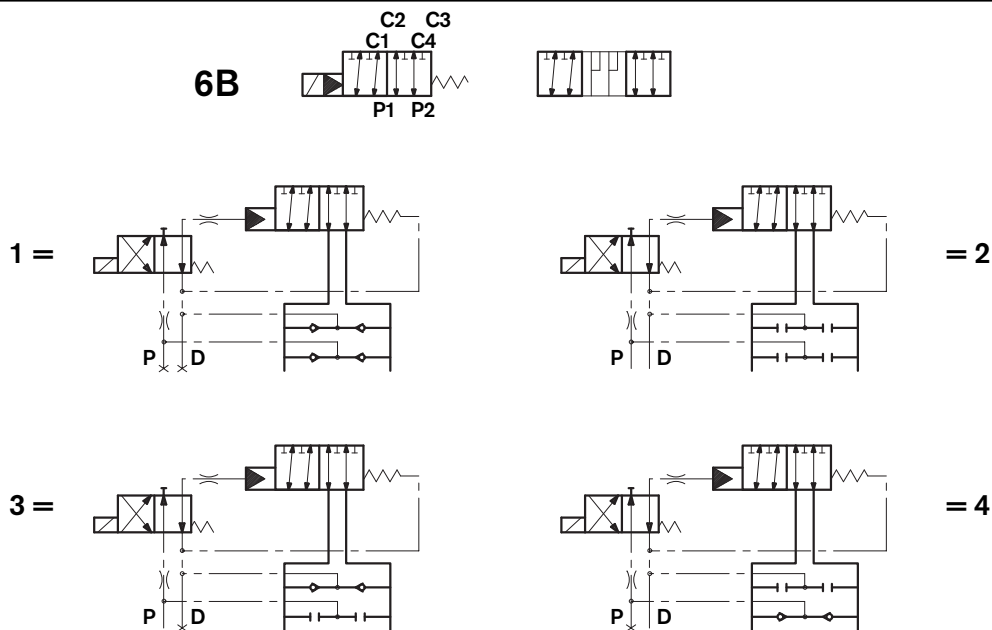
- 6 way 2 position valve.
- 1 - Directional spool valve hydraulically piloted through solenoid control.
- 2 - Solenoid with easily extractable coil fastened by a ring nut.
- 2 - Wet pin tube for DC coil, with push rod for mechanical override in case of voltage shortage.
- 3 - Unrestricted 360° orientation of DC coil.
- 5 - Control spool held in normal position by return spring.
- 6 - Connectors available: DIN 43650 – ISO 4400, AMP Junior, DT04-2P (Deutsch), Free leads.
- 8

General specifications

Ordering details

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<p>Family Compact directional valve</p> <p>Type Flow Diverters</p> <p>Ports G 1 DIN3852</p> <p>Control type</p> <p>Without pilot solenoid valve = 00</p> <p>With pilot solenoid valve and without mechanical detent = 10</p> <p>With pilot solenoid valve and with mechanical detent = 1D</p> <p>Configuration, pilot and drain type</p> <p>Internal pilot and drain = 1</p> <p>External pilot and drain = 2</p> <p>External pilot and internal drain = 3</p> <p>External drain and internal pilot = 4</p>	<div style="float: right; width: 40%;"> <p>Electric connections</p> <p>00 = Without coil</p> <p>01 = With coil, without connector</p> <p>02 = With coil and with non-assembled connector, type DIN 43650 – ISO 4400</p> <p>03 = With coil having AMP Junior connector</p> <p>04 = With coil having AMP Junior horizontal connector</p> <p>07 = With coil having DEUTSCH DT 04-2P connector</p> <p>31 = With coil and bipolar sheathed lead 350mm [13.8"] long</p> </div> <div style="float: right; width: 40%;"> <p>Voltage supply</p> <p>00 = Without coil</p> <p>0B = 12V DC</p> <p>AD = 13V DC</p> <p>OC = 24V DC</p> <p>AC = 27V DC</p> <p>OD = 48V DC</p> <p>OE = 110V DC</p> </div> <div style="clear: both;"></div> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 10%;">00 =</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>0B =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td>AD =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td>OC =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td>AC =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td>OD =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td>OE =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td></td> <td>31</td> <td>07</td> <td>04</td> <td>03</td> <td>02</td> <td>01</td> <td>00</td> <td colspan="4"></td> </tr> </table> <p style="text-align: center;">Available connections</p>										00 =											0B =											AD =											OC =											AC =											OD =											OE =												31	07	04	03	02	01	00				
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Configuration



Principles of operation, cross section

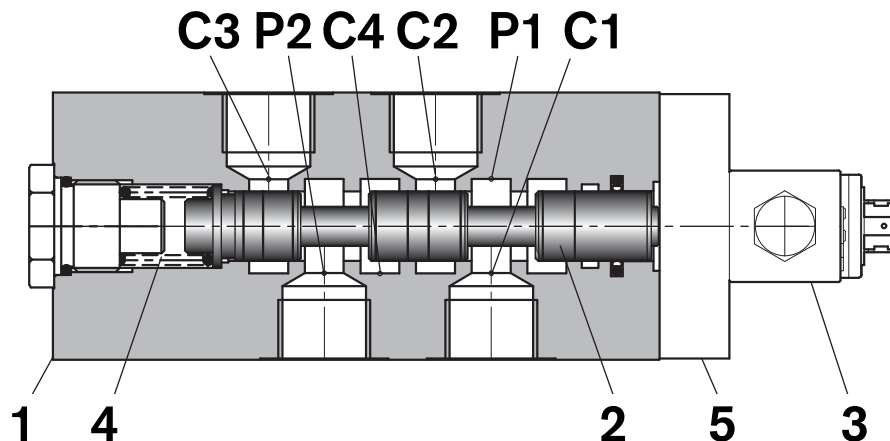
A valve basically consists of a housing (1), a control spool (2), a return spring (4), a 4/2 solenoid valve (3), a face mounted plate for optional drain and/or external hydraulic pilot.

The valve is designed to connect two inlet lines P1 – P2 (normally a set of hoses) and divert them to either the outlet ports (C1 – C4) with spool in position “0”, when the solenoid is de-energized, or to the outlet ports (C2 – C3) with spool in position “1”, when the solenoid is energized. In fact, energizing

the solenoid valve (3), the pilot pressure, after exceeding the 18 bar (261 psi) threshold, pushes the control spool (2) from position “0” into position “1”.

With the solenoid de-energized, the return spring (4) pushes back the spool (2) and holds it in position “0”

The coil of the solenoid valve is fastened to the tube by a ring nut.



Technical Data (for applications with different specifications consult us)

General

Valve weight	kg [lbs]	15.2 [33.5]
Mounting position		unrestricted
Ambient Temperature	°C [°F]	-20....+50 [-4....+122] (NBR seals)

Hydraulic

Maximum operating pressure with external drain	bar [psi]	310 [4500]
Maximum operating pressure with internal drain	bar [psi]	210 [3046]
Maximum inlet flow	l/min [gpm]	220 [58.1]
Minimum pilot pressure	bar [psi]	18 [261]
Internal pilot switching pressure between P1 and P2	bar [psi]	18 [261]
Hydraulic fluid General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:		Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.
Fluid Temperature	°C [°F]	-20....+80 [-4....+176] (NBR seals)
Permissible degree of fluid contamination		ISO 4572: $\beta_x \geq 75$ X=12...15 ISO 4406: class 20/18/15 NAS 1638: class 9
Viscosity range	mm ² /s	5....420
Internal leakage with 100 bar [1450 psi] secondary pressure at C	cc/min [in ³ /min]	min.20 [1.2] max. 60 [3.6]

Electrical

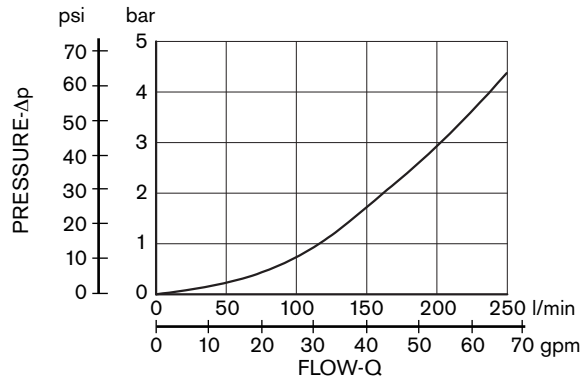
Voltage type	DC										
Voltage tolerance (nominal voltage)	%	-10 ... +10									
Duty	Continuous 100%, with ambient temperature $\leq 50^{\circ}\text{C}$ [122°F]										
Maximum coil temperature	$^{\circ}\text{C}$ [°F]	150 [302]									
Insulation class	H										
Compliance with	Low Voltage Directive LVD 73/23/EC (2006/95/EC), 2004/108/EC										
Coil weight with connection EN 175301-803	kg [lbs]	0.215 [0.44]									
Voltage	V	12	13	24	27	48	110				
Voltage type		DC	DC	DC	DC	DC	DC				
Power consumption	W	26	26	26	26	26	26				
Current ⁽¹⁾	A	2.15	2.00	1.10	1.00	0.54	0.27				
Resistance ⁽²⁾	Ω	5.5	6.5	22	28	89	413				

¹⁾ Nominal - ²⁾ $\pm 7\%$ at temperature 20°C [68°F]

	Voltage (V)	Connector type	Coil description	Marking	Coil Mat no.
=OB 01 =OB 02	12 DC	EN 175301-803 (Ex. DIN 43650)	C3601 12DC	12 DC	R933000044
=OB 03	12 DC	AMP JUNIOR	C3603 12DC	12 DC	R933000047
=OB 04	12 DC	AMP JUNIOR Horizontal	C3604 12DC	12 DC	R933002913
=OB 07	12 DC	DEUTSCH DT 04-2P	C3607 12DC	12 DC	R933000048
=OB 31	12 DC	Cable 350 mm long	C3631 12DC	12 DC	R933000045
=AD 01 =AD 02	13 DC	EN 175301-803 (Ex. DIN 43650)	C3601 13DC	13 DC	R933000051
=AD 07	13 DC	DEUTSCH DT 04-2P	C3607 13DC	13 DC	R933000049
=OC 01 =OC 02	24 DC	EN 175301-803 (Ex. DIN 43650)	C3601 24DC	24 DC	R933000053
=OC 03	24 DC	AMP JUNIOR	C3603 24DC	24 DC	R933000057
=OC 04	24 DC	AMP JUNIOR Horizontal	C3604 24DC	24 DC	R933002914
=OC 07	24 DC	DEUTSCH DT 04-2P	C3607 24DC	24 DC	R933000058
=OC 31	24 DC	Cable 350 mm long	C3637 24DC	24 DC	R933000055
=AC 01 =AC 02	27 DC	EN 175301-803 (Ex. DIN 43650)	C3601 27DC	27 DC	R933000056
=AC 07	27 DC	DEUTSCH DT 04-2P	C3607 27DC	27 DC	R933000050
=OD 01 =OD 02	48 DC	EN 175301-803 (Ex. DIN 43650)	C3601 48DC	48 DC	R933000059
=OD 04	48 DC	AMP JUNIOR Horizontal	C3604 48DC	48 DC	R933002915
=OE 01 =OE 02	110 DC	EN 175301-803 (Ex. DIN 43650)	C3601 110DC	110 DC	R933000061

Characteristic curves

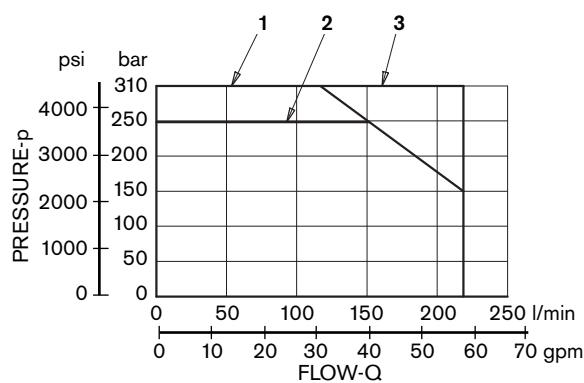
Measured with hydraulic fluid ISO-VG32 at $45^{\circ} \pm 5^{\circ} \text{ C}$ [$113^{\circ} \pm 9^{\circ} \text{ F}$]; ambient temperature 20° C [68° F].



Flow path	Curve No.
P1>C1	1
P1>C2	1
P2>C3	1
P2>C4	1

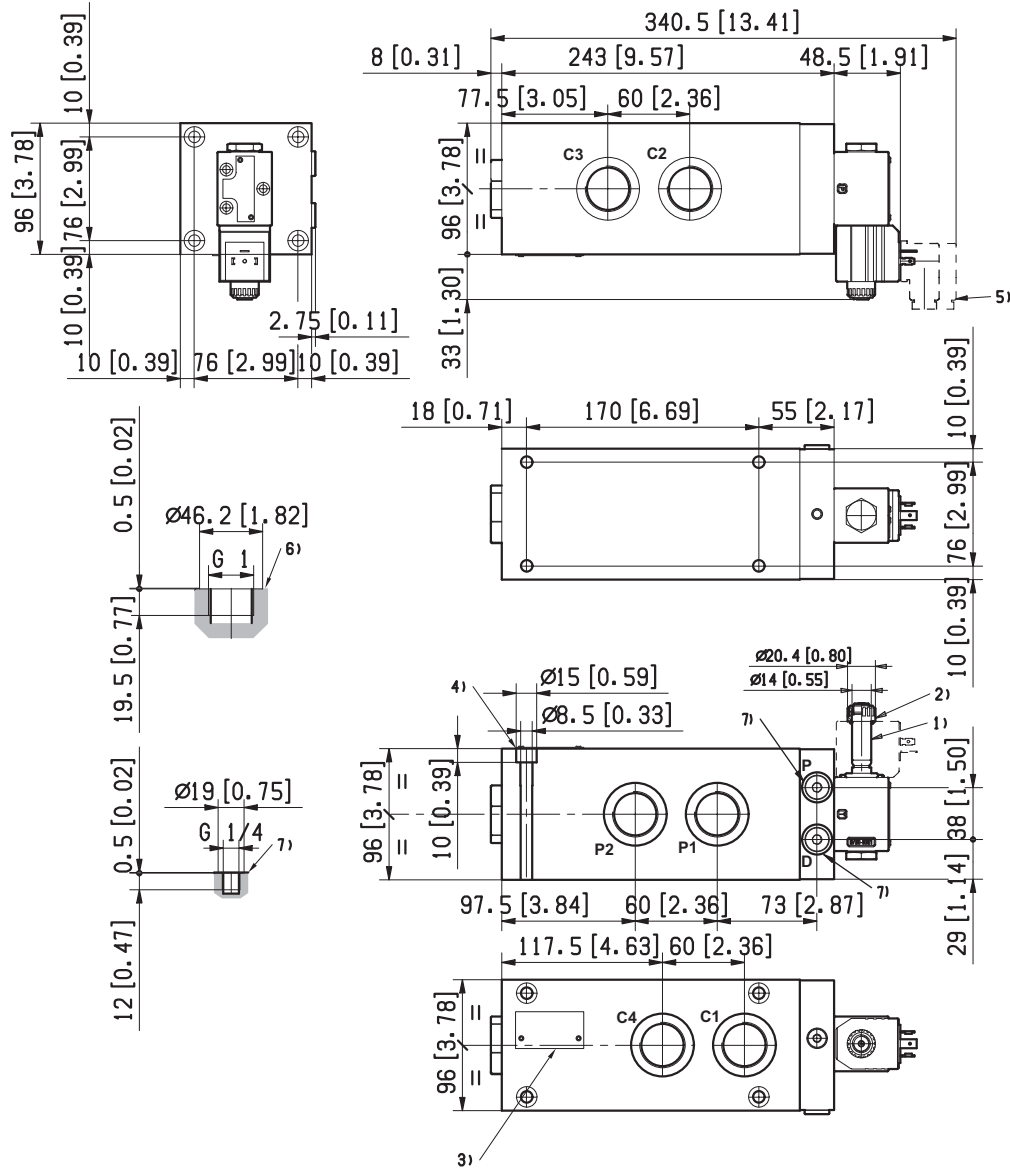
Performances limits

The performance limits refer to the following conditions: coils at operating temperature, voltage supply 10% below nominal, no back pressure in the tank line



- 1) External drain; pilot pressure 18 bar [261 psi]
- 2) Internal drain; pilot pressure 18 bar [261 psi]
- 3) External drain; pilot pressure 30 bar [435 psi]

External Dimensions and Fittings



1 Solenoid tube hex 22 mm. Torque 20-22 Nm [14.6-16.2 ft-lb]

Torque 20 – 22 Nm [14.6 – 16.2 ft-lb].

2 Ring nut for coil locking OD 20.5 mm [0.80 in].

5 Minimum clearance needed for connector removal.

Torque 3-4 Nm [2.2-3.0 ft-lb].

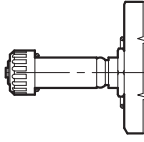
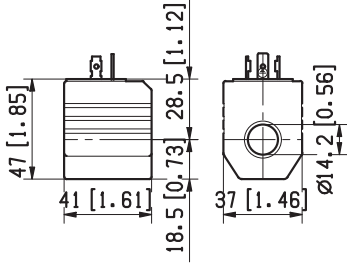
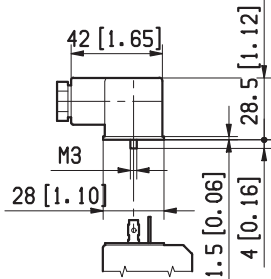
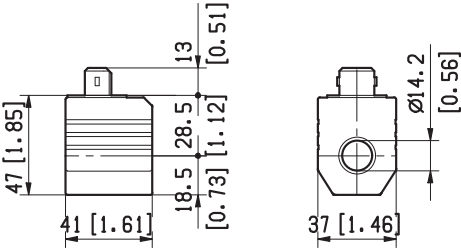
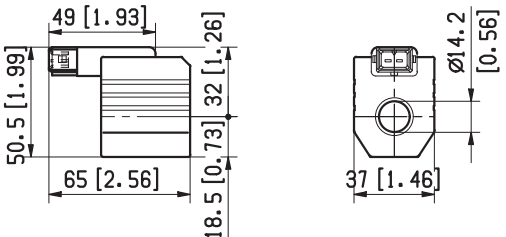
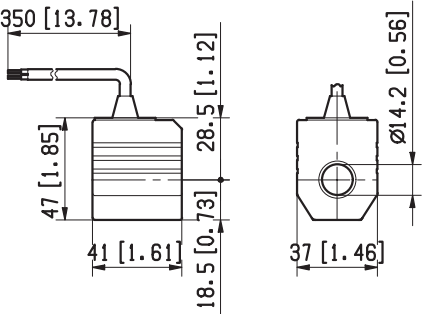
6 Ports P1, P2, C1, C2, C3, C4.

3 Identification label.

7 Pilot and drain ports P, D

4 Four fixation screws M8 with strength class DIN 8.8.

Electric connection

<p>=00</p>	<p>Without coils, but with ring nut and O-Rings for coil fitting (solution recommended for flexible stock handling)</p> 	<p>=01</p>	<p>With coils having plug-in pins EN 175301-803, without connectors</p> 																		
<p>With coils and with connectors non-assembled, type EN 175301-803. Protection class: IP 65 when connector with seal is properly screwed down, and cable clamp is correctly tightened.</p> <p>182-09: Standard. 182-LED-T-A1: with LED monitoring presence of voltage. 182-09-G-DO-2-1: with VDR (Voltage Dependent Resistor), to prevent input voltage over-shootings.</p> <p>=02</p> <table border="1" data-bbox="272 913 815 1167"> <thead> <tr> <th>Mat. No.</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>R933002885</td> <td>182-09 GRAY</td> </tr> <tr> <td>R933002889</td> <td>182-09 BLACK</td> </tr> <tr> <td>R933002893</td> <td>182-LED-T-A1 12 DC</td> </tr> <tr> <td>R933002894</td> <td>182-LED-T-A1 24 DC</td> </tr> <tr> <td>R933002896</td> <td>182-LED-T-A1 48 DC</td> </tr> <tr> <td>R933002897</td> <td>182-LED-T-A1 110 DC</td> </tr> <tr> <td>R933002886</td> <td>182-09-G-DO-2-1 12DC with VDR</td> </tr> <tr> <td>R933002887</td> <td>182-09-G-DO-2-1 24DC with VDR</td> </tr> </tbody> </table> 				Mat. No.	Description	R933002885	182-09 GRAY	R933002889	182-09 BLACK	R933002893	182-LED-T-A1 12 DC	R933002894	182-LED-T-A1 24 DC	R933002896	182-LED-T-A1 48 DC	R933002897	182-LED-T-A1 110 DC	R933002886	182-09-G-DO-2-1 12DC with VDR	R933002887	182-09-G-DO-2-1 24DC with VDR
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<p>=03</p>	<p>With coils having AMP Junior connector, and with bi-directional diode. Protection class: IP 65 with female connector properly fitted (see drawing).</p> 	<p>=04</p>	<p>With coils having Horizontal AMP Junior connector, and with bi-directional diode. Protection class: IP 65 with female connector properly fitted (see drawing).</p> 																		
<p>=31</p>	<p>With coils having bi-directional diode and bipolar sheathed free lead, 350 mm long, without pins.</p> 	<p>=07</p>	<p>With coils having DEUTSCH DT 04-2P connector, and with bi-directional diode. Protection class: IP 69 K with female connector properly fitted (see drawing).</p> 