

3/2 ways/positions flow diverters

RE 18302-03/12.09

1/8

L706... (VS91-VS92-VS95)

Size 12
 Series 00
 Maximum operating pressure 310 bar [4500 psi]
 Maximum flow 140 l/min [36.98 gpm]
 Ports G 1/2 - G 3/4 - SAE12



DVI0084

Summary

Description

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- 3 way 2 position valve.
- 1 - Directional spool valve with direct solenoid control.
- 2 - Upon request, hydraulic / pneumatic pilot , or manual push and twist control.
- 2
- 3 - Control spool operated by screwed-in solenoid, with easily extractable coil fastened by a ring nut.
- 3
- 5 - Wet pin tube for DC coil, with push rod for mechanical override in case of voltage shortage.
- 6 - Unrestricted 360° orientation of DC coil.
- 8 - Control spool held in normal position by return spring.
- Optional manual override (push-button or screw type).
- Connectors available: DIN 43650 – ISO 4400, AMP Junior, DT04-2P (Deutsch), Free leads.

General specifications

Ordering details

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Family
Compact directional valve

Type
Flow Diverters

Ports
G1/2 DIN 3852 = 4
G3/4 DIN 3852 = 5
1 1/16"-12 UN-2B (SAE12) = E

Control type
Solenoid (coil C 65) without emergency = 14
Solenoid (coil C 65) with push-button type emergency = 4P
Solenoid (coil C 65) with screw type emergency = 4F
Hydraulic / pneumatic control = P1
Manual push and twist control = H1

Spool variants
3 Ways / 2 position = 3_

Drain type
Internal drain = I
External drain = E

Electric connections

00 = Without coil
01 = With coil, without connector
02 = With coil and with non-assembled connector, type DIN 43650 – ISO 4400
03 = With coil having AMP Junior connector
07 = With coil having DEUTSCH DT 04-2P connect.
31 = With coil and bipolar sheathed lead 350mm [13.8"] long

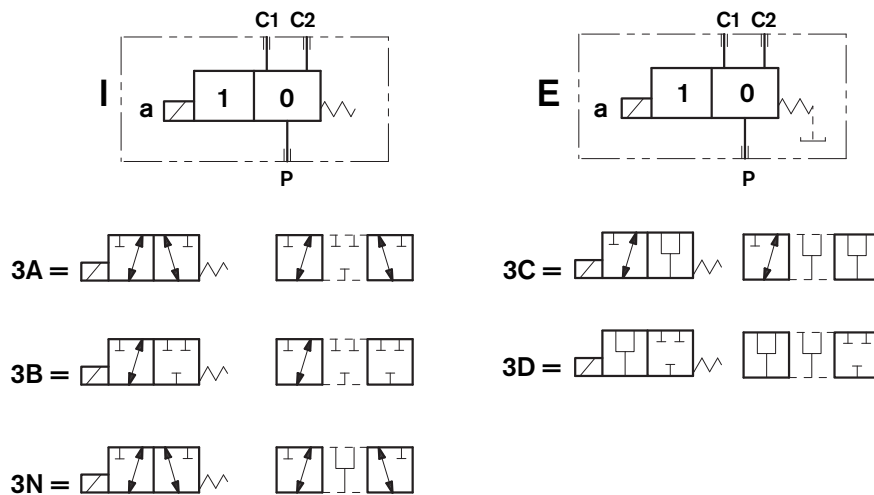
Voltage supply

SG = Manual push and twist control

00 =	Without coil
OB =	12V DC
AD =	13V DC
OC =	24V DC
AC =	27V DC
OD =	48V DC

Available connections

Spool variants



Principles of operation, cross section

A valve basically consists of a housing (1), a control spool (2), a return spring (3) and a solenoid (5). It is designed to select which one of two circuits (C1 or C2) is to be supplied with the oil delivered from one single hose (P): with spool in position "0", when the solenoid is de-energized, the flow goes from P to C1, with spool in position "1", when the solenoid is energized the flow goes from P to C2.

With the coil de-energized, the return spring (3) pushes back

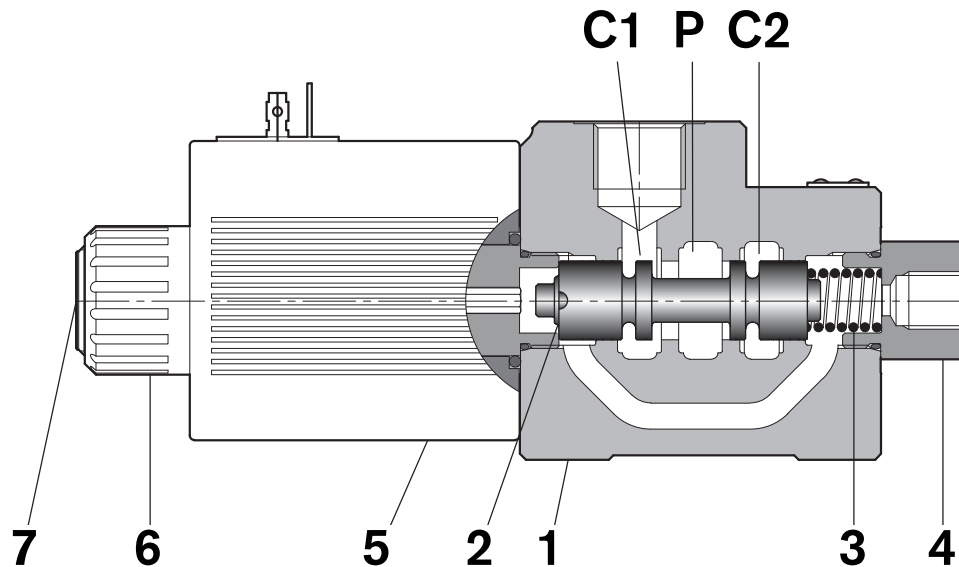
the spool (2) and holds it in position "0".

The coil (5) is fastened to the tube by the ring nut (6).

The manual override (7) allows to shift the spool (2) also in case of voltage shortage.

An external drain, to be connected to tank, ensures shifting operations also at higher working pressure.

Hydraulic / pneumatic pilot control, or manual push and twist control for spool shifting are available upon request.



Technical Data (for applications with different specifications consult us)

General

Valve weight	kg [lbs]	3.8 [8.4]
Ambient Temperature	°C [°F]	-20....+50 [-4....+122] (NBR seals)

Hydraulic

Maximum pressure with external drain	bar [psi]	310 [4500]
Maximum pressure with internal drain	bar [psi]	250 [3625]
Maximum inlet flow	l/min [gpm]	140 [36.98]
Hydraulic fluid		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.15 [0.9] max. 40 [2.4]

Electrical

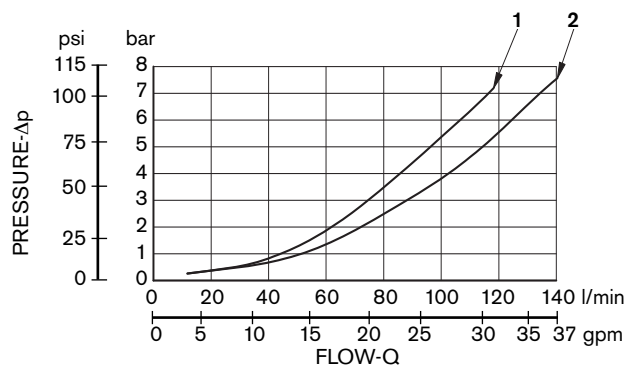
Voltage type	DC										
Voltage tolerance (nominal voltage)	%	-10 ... +10									
Duty	%	Continuous, with ambient temperature $\leq 50^{\circ}\text{C}$ [122°F]									
Maximum coil temperature	$^{\circ}\text{C}$ [°F]	150 [302]									
Insulation class	H										
Compliance with	Low Voltage Directive LVD 73/23/EC (2006/95/EC), 2004/108/EC										
Coil weight with DIN 43650 – ISO 4400 connector	kg [lbs]	1.05 [2.3]									
Voltage	V	12	13	24	27	48					
Voltage type		DC	DC	DC	DC	DC					
Power consumption	W	44	44	44	44	44					
Current ⁽¹⁾	A	3.6	3.4	1.8	1.60	0.90					
Resistance ⁽²⁾	Ω	3.2	3.6	12.8	16.9	50.5					

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)	C6501 12DC	12 DC	R933000100
=OB 03	12 DC	AMP JUNIOR	C6503 12DC	12 DC	R933000119
=OB 07	12 DC	DEUTSCH DT 04-2P	C6507 12DC	12 DC	R933000107
=OB 31	12 DC	Cable 350 mm long	C6531 12DC	12 DC	R933000104
=AD 01 =AD 02	13 DC	EN 175301-803 (Ex. DIN 43650)	C6501 13DC	13 DC	R933000101
=AD 07	13 DC	DEUTSCH DT 04-2P	C6507 13DC	13 DC	R933000112
=OC 01 =OC 02	24 DC	EN 175301-803 (Ex. DIN 43650)	C6501 24DC	24 DC	R933000102
=OC 03	24 DC	AMP JUNIOR	C6503 24DC	24 DC	R933000120
=OC 07	24 DC	DEUTSCH DT 04-2P	C6507 24DC	24 DC	R933000111
=OC 31	24 DC	Cable 350 mm long	C6531 24DC	24 DC	R933000110
=AC 01 =AC 02	27 DC	EN 175301-803 (Ex. DIN 43650)	C6501 27DC	27 DC	R933000103
=AC 03	27 DC	AMP JUNIOR	C6503 27DC	27 DC	R93307055
=AC 07	27 DC	DEUTSCH DT 04-2P	C6507 27DC	27 DC	R933000113
=OD 01 =OD 02	48 DC	EN 175301-803 (Ex. DIN 43650)	C6501 48DC	48 DC	R933000114

Characteristic curves

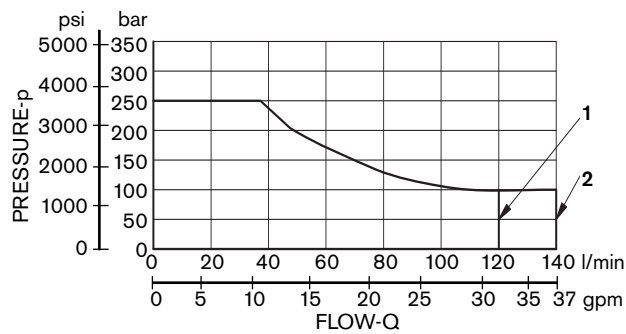
Measured with hydraulic fluid ISO-VG32 at $45^{\circ} \pm 5^{\circ} \text{ C}$ [$113^{\circ} \pm 9^{\circ} \text{ F}$]; ambient temperature 20° C [68° F].



Flow Diverters	Curve n.
V91	1
VS92/95	2

D.I. performance limits

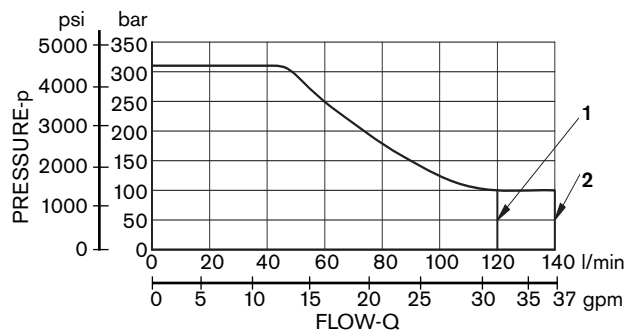
The performance limits refer to the following conditions: coils at operating temperature, voltage supply 10% below nominal, no back pressure in the tank line



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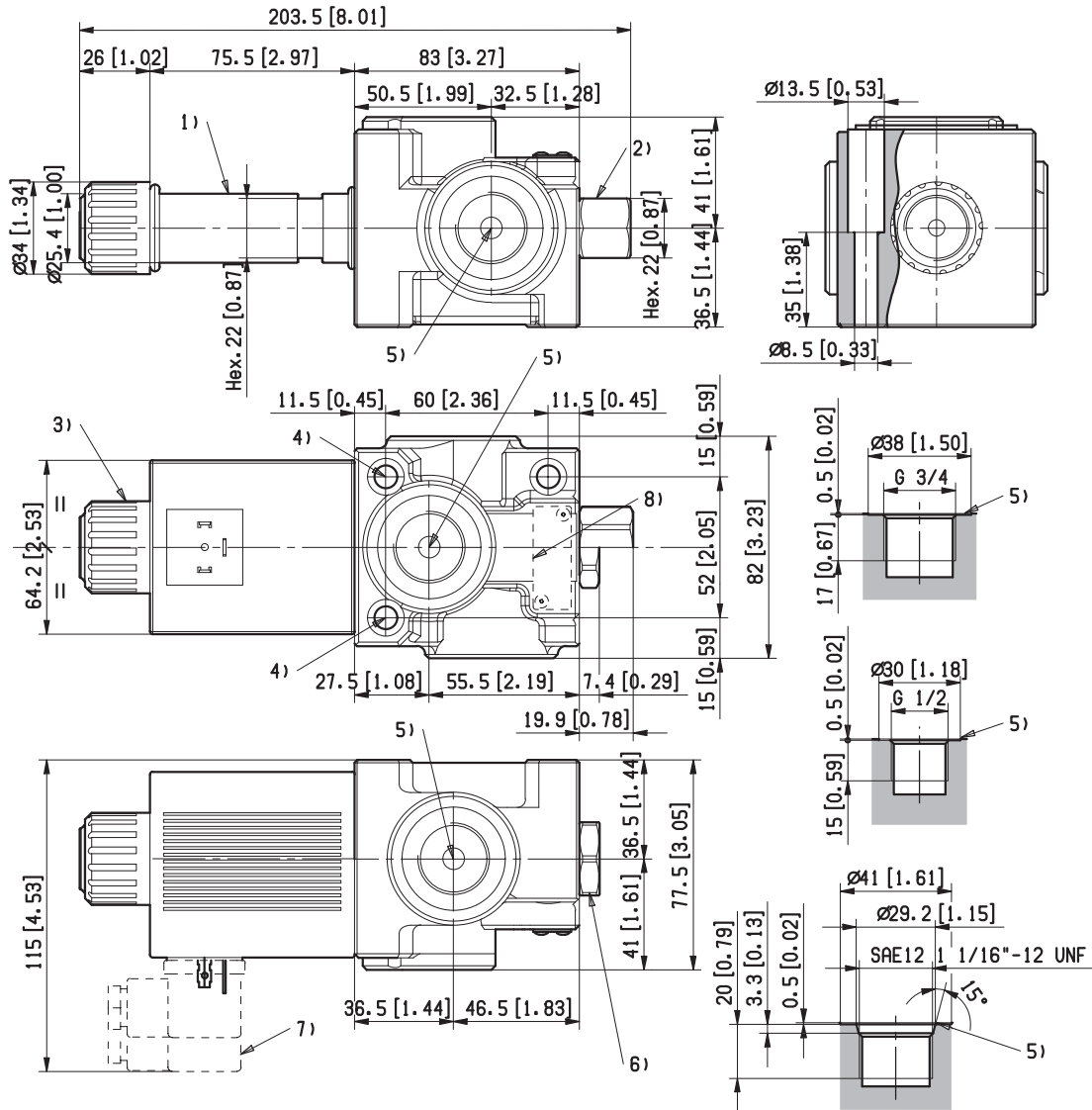
D.E. performance limits

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Flow Diverters	Curve n.
V91	1
VS92/95	2

External Dimensions and Fittings



1 Solenoid tube hex 22 mm.

Torque 25-27 Nm [18.4-19.9 ft-lb].

2 Plug for version with external drain hex 22 mm.

Torque 25-27 Nm [18.4-19.9 ft-lb].

3 Ring nut for coil locking OD 34 mm [1.35 in].

Torque 7-8 Nm [5.2-5.9 ft-lb].

4 Two through holes for installation. Recommended screws

M8 with strength class DIN 8.8.

Torque 15-16 Nm [11-11.8 ft-lb].

5 Ports P, C1, C2: G 1/2, G 3/4, SAE 12.

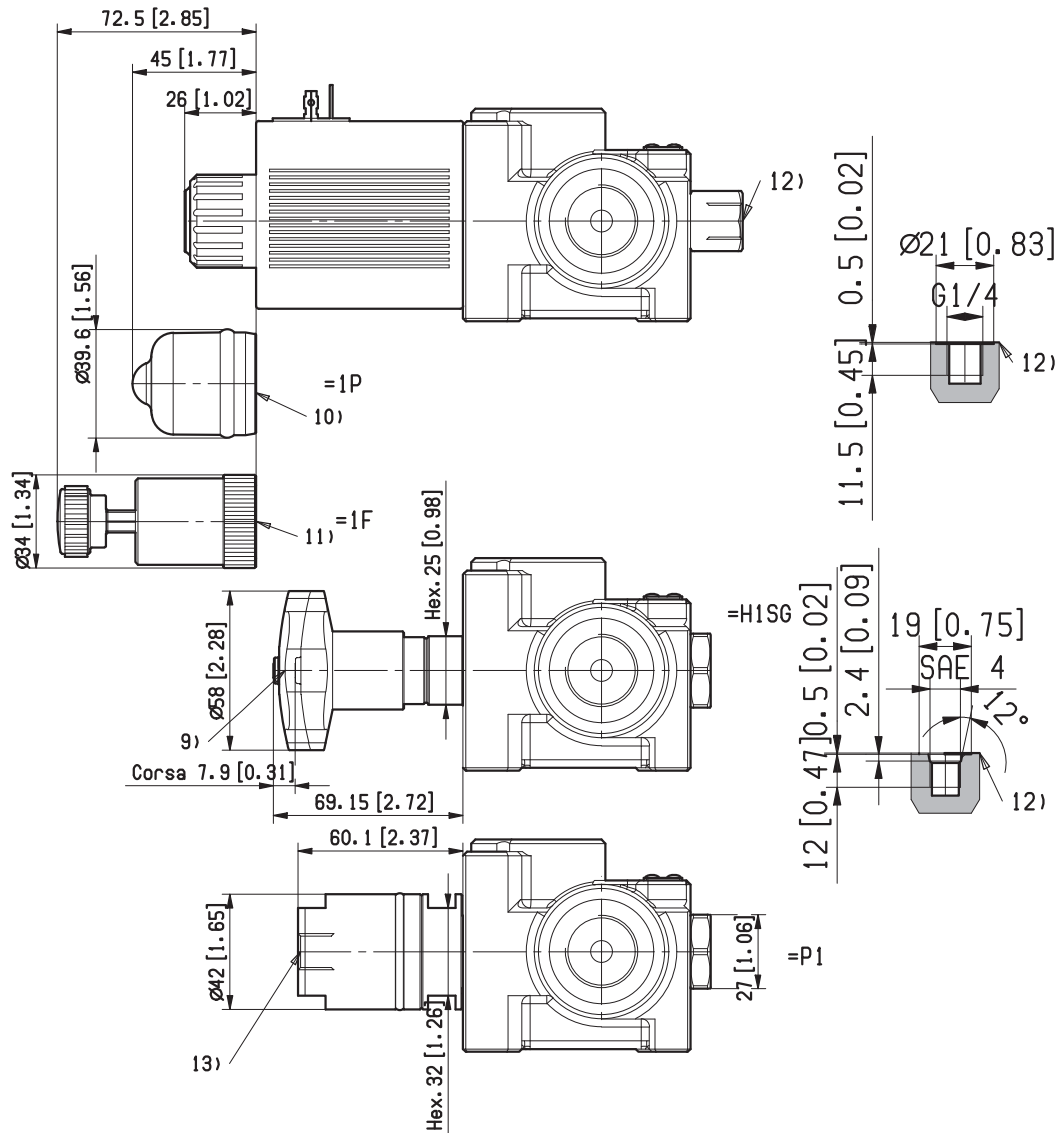
6 External drain plug hex 27 mm.

Torque 25-27 Nm [18,4-19,9 ft-lb].

7 Minimum clearance needed for connector removal.

8 Identification label.

External Dimensions and Fittings



9 Optional manual version, push and twist type. (Hex 25 mm) torque 25-27 Nm [18.4-19.9 ft-lb].

10 Optional push-button type emergency for spool opening: it is pressure stuck to the ring nut for coil locking. Mat no. R933003424

11 Optional screw type emergency, F tupe, for spool opening:

it is screwed (torque 8-9 Nm [5.9-6.6 ft-lb]) to the tube as replacement of the coil ring nut. Mat no. R933003713

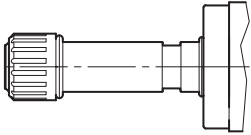
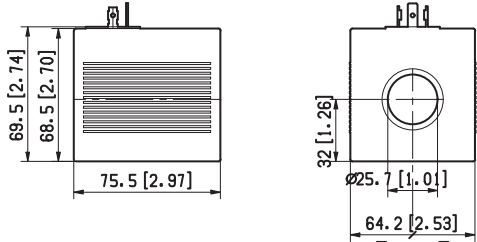
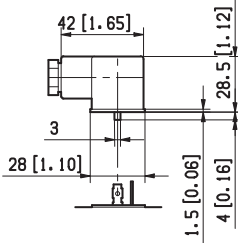
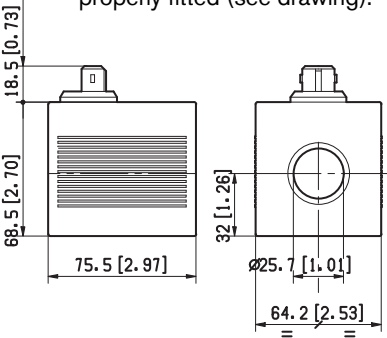
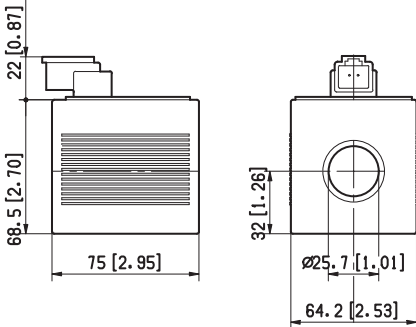
12 External drain port G 1/4, SAE 4.

13 Optional hydraulic / pneumatic piloted version.

Pilot port plug available with G 1/4 or SAE4.

Hex 32 mm, torque 25 – 27 Nm [18.4 – 19.9 ft-lb].

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>=02</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. 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> <table border="1" data-bbox="161 864 699 1093"> <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>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	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>=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> 																
<p>=31</p>	<p>With coils having bi-directional diode and bipolar sheathed free lead, 350 mm long, without pins.</p> 