


# 14 Electrical connector technology



- + Universal connecting cables
- + Connecting cables for controllers, motors, valves and valve terminals
- + Universal plug connectors
- + Push-in connectors for controllers, motors, valves and valve terminals
- + Accessories for electrical connection technology

## Highlights

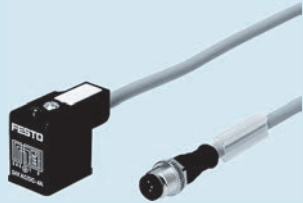


**NEBU**

Connecting cables

- + Designs for static, standard, energy chain and robot applications
- + Versions with switching status indication

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**NEBV**

Plug sockets with cable


- + Connecting cables for valves with ZC solenoid coils (CPE10, CPE14) and for valves VUVG
- + Connecting cables for multi-pin plug connection

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Software tool

<b>Configurator</b>		<p>Design a product with numerous features reliably and quickly with the help of the configurator. Select all the required product features step-by-step. The use of logic checks ensures that only correct configurations are available for selection.</p>	<p>The configurator is part of the electronic catalogue and is not available as a separate software program.</p>
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Universal connecting cables





				
<b>Type</b>	<b>Connecting cable NEBU</b>	<b>Plug socket with cable SIM</b>	<b>Flat cable KASI</b>	<b>Connecting cable KEA</b>
<b>Electrical connection</b>	Socket: straight, angled, rotatable, plug: straight, angled, M5x0.5, M8x1, M12x1, 7/8", 2-pin, 3-pin, 4-pin, 5-pin, 8-pin, rotatable thread, open end	3-pin, 4-pin, 5-pin, 8-pin, straight socket, M12x1, socket M8, clip	2-pin, open cable end	25-pin, socket, Sub-D
<b>Cable length</b>	0.1 ... 30 m	2 ... 10 m	100 m	5 ... 10 m
<b>Description</b>	<ul style="list-style-type: none"> <li>• Designs for static, standard, energy chain and robot applications</li> <li>• Versions with switching status display</li> <li>• Designs for connecting sensors and actuators</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-assembled at both ends</li> </ul>	<ul style="list-style-type: none"> <li>• For AS-Interface</li> <li>• 2-wire</li> <li>• Reverse polarity protected</li> <li>• Contact using insulation displacement technology</li> <li>• No need to strip cable and wire insulation</li> <li>• Two different colours: yellow (preferred for the AS-Interface network) and black (for auxiliary power supply)</li> </ul>	<ul style="list-style-type: none"> <li>• For multi-pin plug connection</li> <li>• Type of mounting: 2 screws M3x16</li> <li>• Operating voltage range 250 V AC/DC</li> </ul>
<b>→ Page/online</b>	<b>1160</b>	<b>sim</b>	<b>kasi</b>	<b>kea</b>

Universal connecting cables





	
<b>Type</b>	<b>Connecting cable KM8, KM12</b>
<b>Electrical connection</b>	3-pin, 4-pin, 8-pin, 4-wire, M8x1, M12x1, plug: straight, socket: straight, angled
<b>Cable length</b>	0.5 ... 5 m
<b>Description</b>	<ul style="list-style-type: none"> <li>• For connecting inputs and outputs or for connecting individual valves or sensors</li> <li>• Pre-assembled at both ends: straight plug with straight or angled socket</li> <li>• Type of mounting: union nut, threaded connector</li> </ul>
<b>→ Page/online</b>	<b>km8</b>

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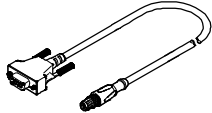
## Connecting cables for control systems

Type	 Connecting cable NEBC	 Cable SBOA	 Connecting cable FEC-KBG	 Addressing cable KASI-ADR
Electrical connection	5-pin, 9-pin, 15-pin, 3-wire, socket: straight, plug: straight, angled, open end, cable, M9, M12x1, Sub-D, square design	Straight plug/straight socket/straight socket, angled plug/straight socket	RJ11-plug/Sub-D, socket, 15-pin, RJ12-plug/Sub-D, socket, 15-pin	4-pin/4-pin/2-pin, straight socket/angled plug/straight socket
Cable length	0.3 ... 20 m	2 m	1.2 m, 1.8 m	2.5 m
Description	<ul style="list-style-type: none"> <li>For I/O interface</li> <li>For connecting motor controller CMMS-ST to any control system</li> </ul>	<ul style="list-style-type: none"> <li>Used as Ethernet diagnostic cable, for integration in a CPI system, for I/O extension, for compact vision system type SBOC-Q, SBOI-Q</li> </ul>	<ul style="list-style-type: none"> <li>For connecting electrical terminal CPX to operator unit FED</li> </ul>	<ul style="list-style-type: none"> <li>For AS-Interface</li> <li>For any slaves such as individual valve interface, valve terminal with AS-Interface connection</li> <li>Reverse polarity protected</li> </ul>
→ Page/online	<a href="#">nebc</a>	<a href="#">sboa</a>	<a href="#">fec-kgb</a>	<a href="#">kasi-adr</a>


## Connecting cables for control systems

Type	 Control cable KES	 Programming cable KDI	 Programming cable PS1-ZK11	 Connecting cable KV-M12
Electrical connection		4-pin, 5-pin, 9-pin, 25-pin, straight socket, straight plug, M8x1, M12x1, Sub-D	10-pin/10-pin, 10-pin/30-pin, socket / terminal strip	Straight plug / straight socket
Cable length	2.5 ... 10 m	2.5 ... 5 m	1.5 m	1.5 ... 3.5 m
Description	<ul style="list-style-type: none"> <li>For I/O interface for connecting motor controller SFC-DC to any controller</li> <li>For I/O interface for connecting motor unit MTR-DCI to any controller</li> </ul>	<ul style="list-style-type: none"> <li>Pre-assembled at both ends</li> <li>For diagnostic interface</li> <li>For servo motor MTR-DCI</li> </ul>	<ul style="list-style-type: none"> <li>Connecting cable for motor controller CMMS-ST</li> </ul>	<ul style="list-style-type: none"> <li>Plug socket with cable for diagnostic interface (to CPX terminal)</li> <li>Pre-assembled at both ends</li> <li>5-pin/4-wire</li> <li>Round plug</li> <li>Mounting via union nut M12</li> </ul>
→ Page/online	<a href="#">kes</a>	<a href="#">kdi</a>	<a href="#">cmms-st</a>	<a href="#">kv-m12</a>

## Connecting cables for motors

Type	 Encoder cable NEBM	 Motor cable KMTR	 Supply cable KPWR	 Fieldbus adapter FBA-CO, FBA-PB
Electrical connection	Connection technology left: M12, A-coded, M23, M40, Sub-D, ITT M3, connection technology right: open end, M12, A-coded, Sub-D, ITT M3			9-pin/5-pin, Sub-D/M12x1
Cable length	1.5 ... 15 m	2.5 ... 10 m	2.5 ... 10 m	
Description	<ul style="list-style-type: none"> <li>For servo motor EMMS-AS and stepper motor EMMS-ST</li> <li>Suitable for use with energy chains</li> </ul>	<ul style="list-style-type: none"> <li>For motor controller SFC-DC</li> </ul>	<ul style="list-style-type: none"> <li>For motor unit MTR-DCI</li> <li>For motor controller SFC-DC for connecting load and logic supply</li> </ul>	<ul style="list-style-type: none"> <li>9-pin Sub-D plug to 5-pin round plug/M12 socket</li> </ul>
→ Page/online	<a href="#">nebm</a>	<a href="#">kmtr</a>	<a href="#">kpwr</a>	<a href="#">fba</a>

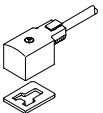
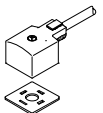

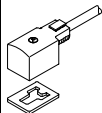
## Connecting cables for positioning

	Connecting cable NEBP
Type	
Electrical connection	Plug: screw connector M9x0.5, socket: screw connector M16x0.75
Cable length	2 m
Description	<ul style="list-style-type: none"> <li>• Connection between displacement encoder MME and measuring module CPX-CMIX</li> </ul>
→ Page/online	<a href="#">nebp</a>





## Connecting cables for valves

				
Type	Connecting cable NEDV	Plug socket with cable KMYZ2, KMYZ3, KMYZ4, KMYZ9	Plug socket with cable KMEB1, KMEB2, KMEB3	Plug socket with cable KME
Electrical connection	M12, 3-pin, 2x angled socket, 1x angled plug, M8, 4-pin	2-pin, 3-pin, 2-wire, socket: angled, plug: straight, angled, cable, square design, M8x1, open end, square design/open end, square design/square design	2-pin, 3-pin, 4-pin, 5-pin, angled socket, type C, to DIN EN 175301-803	3-pin, angled socket, type C, to DIN EN 175301-803
Cable length	0.2 m	0.2 ... 10 m	0.5 ... 10 m	2.5 ... 10 m
Description	<ul style="list-style-type: none"> <li>• For proportional valves VPWP</li> <li>• Pre-assembled</li> <li>• For connection to connecting plate VAPV-S3</li> </ul>	<ul style="list-style-type: none"> <li>• For valves with ZB solenoid coil: MZBH, MOZBH</li> <li>• For valves with ZC solenoid coil: CPE10-M1BH, CPE14-M1BH, MH2, MH3</li> <li>• Mounting via central screw</li> </ul>	<ul style="list-style-type: none"> <li>• For valves with EB solenoid coil: CPE18, CPE24, MEBH, MOEBH, JMEBH, JMEBDH, JMN2DH</li> <li>• Polyvinyl chloride or polyurethane cable</li> <li>• Mounting via central screw</li> </ul>	<ul style="list-style-type: none"> <li>• For valves with E solenoid coil: MEH, MOEH, JMEH</li> <li>• Mounting via central screw</li> <li>• Polyvinyl chloride cable</li> <li>• Temperature range -20 ... +80 °C</li> </ul>
→ Page/online	<a href="#">nedv</a>	<a href="#">kmyz-2</a>	<a href="#">kmeb-1</a>	<a href="#">kme</a>



## Connecting cables for valves

				
Type	Plug socket with cable KMF	Plug socket with cable KMC	Plug socket with cable KMH	Plug socket with cable KMV
Electrical connection	Socket	Socket, type A	2-pin, 3-pin, socket	Socket, type B
Cable length	2.5 ... 10 m	2.5 ... 10 m	0.5 ... 5 m	2.5 ... 10 m
Description	<ul style="list-style-type: none"> <li>• For valves with F solenoid coil: MFH, MOFH, JMFH, JMFDH, NVF3, MUFH</li> <li>• Mounting via central screw</li> <li>• Polyvinyl chloride cable</li> <li>• Temperature range -20 ... +80 °C</li> </ul>	<ul style="list-style-type: none"> <li>• For valves with D solenoid coil: MDH, MODH, JMDH,</li> <li>• For valves with N1 solenoid coil: MN1H, JMN1H, JMN1DH</li> <li>• Polyvinyl chloride cable</li> <li>• Mounting via central screw</li> <li>• Temperature range -20 ... +80 °C</li> </ul>	<ul style="list-style-type: none"> <li>• For miniature valves MHA1 and MHP1</li> <li>• For fast-switching valves MHA2 and MHP2</li> <li>• Mounting via clip</li> <li>• Temperature range -40 ... +80 °C</li> <li>• Polyvinyl chloride cable</li> </ul>	<ul style="list-style-type: none"> <li>• For valves with V solenoid coil</li> <li>• Mounting via central screw M3</li> <li>• Polyvinyl chloride cable</li> <li>• Temperature range -20 ... +80 °C</li> </ul>
→ Page/online	<a href="#">kmf</a>	<a href="#">kmc</a>	<a href="#">kmh</a>	<a href="#">kmv</a>




## Connecting cables for valves

				
Type	Connecting cable KRP	Electrical plug-in base MHAP-PI	Plug socket with cable KMPPE	Connecting cable KMPYE-AIF, KMPYE5, KMPYE-...
Electrical connection	2-pin, angled socket	2-pin, 3-pin, socket	8-pin, angled, socket M16	
Cable length	2.5 ... 5 m	0.5 ... 1 m	2.5 m, 5 m	0.3 ... 5 m
Description	<ul style="list-style-type: none"> <li>Plug socket with cable for connecting relay plates (valve terminal CPV10 and CPV14)</li> <li>Pre-assembled</li> <li>Mounting via self-tapping central screw</li> </ul>	<ul style="list-style-type: none"> <li>Plug base with cable for connecting individual valves</li> <li>Pre-assembled</li> <li>2-pin or 3-pin plug socket</li> <li>Mounting via clip</li> </ul>	<ul style="list-style-type: none"> <li>For proportional pressure regulators MPPE and MPPE5</li> <li>Temperature range –30 ... +80 °C</li> <li>Mounting with union nut M16x0.75</li> <li>Polyvinyl chloride cable</li> </ul>	<ul style="list-style-type: none"> <li>Plug socket with cable, screened, 5 m cable, for proportional directional control valves MPYE</li> </ul>
→ Page/online	<a href="#">krp</a>	<a href="#">mhap</a>	<a href="#">kmppe</a>	<a href="#">kmpye</a>




## Connecting cables for valves

		
Type	Connecting cable MHJ9-KMH	Connecting cable NEBV-H1, NEBV-M8
Electrical connection	2-pin/2-pin/4-wire, straight socket/straight socket/cable	2-, 3-, 4-pin, socket: straight, angled, plug: straight, cable, square design
Cable length	0.5 ... 2.5 m	0.5 ... 30 m
Description	<ul style="list-style-type: none"> <li>For valves MHJ9</li> <li>With plug sockets KMH</li> <li>With control electronics for two valves</li> </ul>	<ul style="list-style-type: none"> <li>Connecting cable for valves with ZC solenoid coils (CPE10, CPE14), for valves VUVG</li> <li>Pre-assembled</li> </ul>
→ Page/online	<a href="#">mhj9-kmh</a>	<a href="#">nebv</a>


## Connecting cables for valve terminals

			
Type	Connecting cable NEBV-S1	Connecting cable KMP3, KMP4, KMP6	Connecting cable KVI
Electrical connection	10-pin, 15-pin, 25-pin, 26-pin, 37-pin, 44-pin, socket: straight, angled	15-pin, 25-pin, 26-pin, 9-pin, socket, Sub-D	Straight plug/straight socket, angled plug/angled socket, 5-pin round plug
Cable length	2.5 m, 5 m, 10 m	2.5 ... 10 m	0.25 ... 8 m
Description	<ul style="list-style-type: none"> <li>Connecting cable for multi-pin plug connection</li> <li>Pre-assembled</li> </ul>	<ul style="list-style-type: none"> <li>Plug socket with cable for multi-pin plug connection</li> <li>Pre-assembled</li> <li>Mounting by union nut, with 2 screws</li> </ul>	<ul style="list-style-type: none"> <li>For fieldbus connection (CP bus valve terminal CPV and installation system CPI)</li> <li>Pre-assembled at both ends</li> <li>Suitable for use with energy chains</li> </ul>
→ Page/online	<a href="#">nebv</a>	<a href="#">kmp</a>	<a href="#">kvi</a>




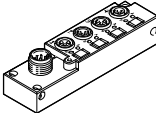
## Connecting cables for valve terminals

			
Type	Connecting cable KVIA	T-adapter FB-TA	Connecting cable VMPA-KMS1, VMPA-KMS2, VMPAL-KM, VMPAL-KMSK
Electrical connection	Straight plug, straight socket, angled socket	5-pin, M12x1/M8x1, plug/ socket	25-pin, 44-pin, socket Sub-D
Cable length	5 ... 10 m	1.4 m	2.5 ... 10 m
Description	<ul style="list-style-type: none"> <li>For inputs/outputs (analogue connections)</li> <li>Pre-assembled at both ends</li> <li>4-pin/5-pin round plug</li> <li>Suitable for use with energy chains</li> </ul>	<ul style="list-style-type: none"> <li>For fieldbus connection (for valve terminal CPV and CP installation system)</li> <li>Branch line for connecting and disconnecting fieldbus components</li> <li>With open cable end or with 5-pin push-in connector</li> </ul>	<ul style="list-style-type: none"> <li>Plug socket with cable for multi-pin connection (to valve terminal MPA)</li> <li>Variant suitable for use with energy chains</li> <li>Cable outlet straight or to side</li> <li>Pre-assembled at one end</li> <li>Polyvinyl chloride or polyurethane cable</li> </ul>
→ Page/online	<a href="#">kvia</a>	<a href="#">fb-ta</a>	<a href="#">vmpa-kms</a>

## Connecting cables for sensors




	
Type	Connecting cable NEBS
Electrical connection	Socket, square design L1, 4-pin, socket, square design L2, 4-pin, socket, square design L2, 5-pin
Cable length	2.5 ... 5 m
Description	<ul style="list-style-type: none"> <li>For pressure sensor SPAB</li> <li>Degree of protection IP40</li> </ul>
→ Page/online	<a href="#">nebs</a>

## Universal plug connectors





				
Type	Plug socket with cable NEFU	Plug NECU, NECU-HX	Push-in T-connector NEDU	Multi-pin plug distributor NEDU
Electrical connection	Socket, M12x1, 4-pin, A-coded	3-pin, 4-pin, 5-pin, 8-pin, 9-pin, Sub-D, straight socket, straight plug, spring-loaded terminal, screw terminal, insulation displacement connector, 7/8", AIDA push-pull, M8x1, M12x1, for self-assembly, can be screened, square design	4-pin/3-pin, 4-pin/4-pin, A-coded/A-coded, M12x1/M12x1, M12x1/M8x1, M8x1/M8x1, plug/socket	3-pin, 8-pin, M8, M12, socket, plug
Connection cross section		0.08 ... 2.5 mm <sup>2</sup>		
Degree of protection	IP20, IP65, IP67, in mounted condition to IEC 60529	IP40, IP65, IP67, IP68	IP65, IP67	IP68
Description	<ul style="list-style-type: none"> <li>Cable socket for branching the AS-Interface network at any required point</li> <li>Reconnecting AS-Interface flat cable to 5-pin M12 socket</li> <li>Reverse polarity protected</li> </ul>	<ul style="list-style-type: none"> <li>Power supply socket for fieldbus connection</li> <li>Plug and socket for power supply</li> <li>Can be assembled with any cable lengths</li> <li>NECU-HX: reconnectable M8 and M12 round plug connectors with Harax® quick connection technology for low-voltage applications</li> </ul>	<ul style="list-style-type: none"> <li>For fieldbus connection</li> <li>Branch line for connecting and disconnecting fieldbus components</li> </ul>	<ul style="list-style-type: none"> <li>Multi-pin plug distributor</li> <li>Particularly compact</li> </ul>
→ Page/online	<a href="#">nefu</a>	<a href="#">necu</a>	<a href="#">nedu</a>	<a href="#">nedu</a>



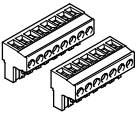
## Universal plug connectors

Type	 Plug SEA	 Cable distributor ASI-KVT	 Plug socket with cable ASI-SD
Electrical connection	3-pin, 4-pin, 5-pin, angled socket, straight plug, screw terminal, insulation displacement connector, solder connection, type A, M8x1, M12x1	2-pin, 4-pin, socket M12, insulation displacement technology	2-pin, 4-pin, 5-pin, straight socket, straight socket/insulation displacement technology, screw terminal
Connection cross section	0.08 ... 0.75 mm <sup>2</sup>	1.5 mm <sup>2</sup>	0.75 ... 1.5 mm <sup>2</sup>
Degree of protection	IP65, IP67	IP65, in assembled state	IP65, IP67
Description	<ul style="list-style-type: none"> <li>• Sensor plug and socket for inputs/outputs</li> <li>• Can be assembled with any cable lengths</li> </ul>	<ul style="list-style-type: none"> <li>• Flat cable distributor for branching or for reconnecting AS-Interface flat cables</li> <li>• Reverse polarity protected</li> </ul>	<ul style="list-style-type: none"> <li>• For AS-Interface</li> <li>• Flat cable socket for connecting AS-Interface stations to the AS-Interface bus system</li> <li>• M12 connection</li> <li>• Reverse polarity protected</li> <li>• Detachable connection</li> </ul>
→ Page/online	<a href="#">sea</a>	<a href="#">asi-kvt</a>	<a href="#">asi-sd</a>





## Plug connectors for control systems

Type	 Plug NECC	 Plug PS1-SAC, PS1-ZC	 Plug FBS-SUB9-WS	 Plug FBS-RJ45
Electrical connection	11-pin, 9-pin/9-pin, spring-loaded terminal, plug, Sub-D/screw terminal	10-pin/10-pin, 10-pin/30-pin, socket/terminal strip	5-pin, type A, M12x1, straight plug/screw terminal	5-pin, type A, M12x1, straight plug/screw terminal
Connection cross section	0.2 ... 2.5 mm <sup>2</sup>	0.08 ... 0.75 mm <sup>2</sup>	0.75 mm <sup>2</sup>	0.75 mm <sup>2</sup>
Degree of protection	IP40		IP40, in assembled state, to IEC 60529	IP40, IP65, IP67, in assembled state, to IEC 60529
Description	<ul style="list-style-type: none"> <li>• Encoder plug for motor controller CMMS-ST</li> <li>• Plug for multi-axis controller CMXR for interface housing CAMI-C, 11-pin</li> <li>• Plug for multi-axis controllers CMXR and for modular controllers CECX for peripheral modules</li> <li>• 2-pin, 4-pin, 6-pin, 8-pin, 11-pin, 18-pin</li> </ul>	<ul style="list-style-type: none"> <li>• For power supply</li> <li>• Cable connection using clamping technology</li> <li>• Individually or as a set</li> </ul>	<ul style="list-style-type: none"> <li>• Plug connector for bus connection CAN Bus and PROFIBUS</li> <li>• Cable connection 2x horizontal or 2x vertical</li> <li>• Printed circuit terminal block with screw connector</li> </ul>	<ul style="list-style-type: none"> <li>• Ethernet plug with 8-pin RJ45 connection</li> <li>• High transmission quality</li> <li>• Detachable connection</li> </ul>
→ Page/online	<a href="#">necc</a>	<a href="#">ps1</a>	<a href="#">fbs-sub-9-ws</a>	<a href="#">fbs-rj</a>




## Plug connectors for control systems

Type	 Plug assortment NEKM
Electrical connection	2... 9-pin, screw connector
Connection cross section	0.2 ... 2.5 mm <sup>2</sup>
Degree of protection	
Description	<ul style="list-style-type: none"> <li>• For motor cable, encoder cable, power supply, reference switch, STO safety function</li> <li>• Comprising plug for power supply and plug for motor connection</li> </ul>
→ Page/online	<a href="#">nekm</a>





## Plug connectors for valves

				
<b>Type</b>	Plug socket MSSD	Soldering base PCBC	Multi-pin plug socket NECA	Angled socket MPPE3-B
<b>Electrical connection</b>	3-pin, 4-pin, angled socket, type A, type B, type C, to DIN EN 175301-803, to DIN EN 61984, square design	2-pin	9-pin/9-pin, Sub-D/screw terminal	8-pin, angled socket, solderable
<b>Connection cross section</b>	0.25 ... 1.5 mm <sup>2</sup>		0.34 ... 1 mm <sup>2</sup>	0.75 mm <sup>2</sup>
<b>Degree of protection</b>	IP50, IP65, IP67, in assembled state, to IEC 60529	IP40	IP65 to IEC 60529	IP67
<b>Description</b>	<ul style="list-style-type: none"> <li>For valves with F, D, N1, V, E, EB, N2, Y, Z, ZB, ZC, MD-2 and MH-2 solenoid coils</li> <li>For connecting individual valves</li> <li>Cable connection using clamping screws, insulation displacement technology or push-in connector</li> <li>Optionally with LED display</li> </ul>	<ul style="list-style-type: none"> <li>For mounting miniature valves MHA1 and MHP1 on a PCB with plug connection underneath (-PI)</li> </ul>	<ul style="list-style-type: none"> <li>For soft-start/quick exhaust valves MS6-SV, MS series</li> <li>Electrical connection via 9-pin Sub-D, 9-pin screw terminal</li> </ul>	<ul style="list-style-type: none"> <li>For proportional pressure regulators MPPE and MPPE3</li> <li>Mounting via union nut</li> </ul>
<b>→ Page/online</b>	<a href="#">mssd</a>	<a href="#">pcbc</a>	<a href="#">ms6-sv</a>	<a href="#">mppe-3-b</a>

## Plug connectors for valves

			
<b>Type</b>	Time delay insert MFZ	Illuminating seal MF-LD, MC-LD, MV-LD, ME-LD, MEB-LD	Indicator insert MCL, MCLZ, MFL, MFLZ
<b>Electrical connection</b>	For connector socket or device plug, type F	Type A, B, C, to DIN EN 175301-803, square design, MSC	Plug-in to DIN 43650, plug-in for F coil
<b>Connection cross section</b>			
<b>Degree of protection</b>	IP64	IP65	IP64 (without seal: IP40)
<b>Description</b>	<ul style="list-style-type: none"> <li>Electronic timer with adjustable time delay of between 0 ... 10 s</li> <li>For mounting between the solenoid coil and connector socket and plug</li> </ul>	<ul style="list-style-type: none"> <li>For mounting between the plug socket and solenoid coil</li> <li>The seal is illuminated yellow when the power is switched on</li> <li>For F, D, N1, V, E and EB solenoid coils</li> </ul>	<ul style="list-style-type: none"> <li>For mounting between the solenoid coil and plug connection</li> <li>Variant with integrated protective circuit</li> <li>With yellow LED display</li> </ul>
<b>→ Page/online</b>	<a href="#">mfz</a>	<a href="#">mc-ld</a>	<a href="#">mcl</a>



## Plug connectors for valve terminals

Type	 Bus connection FBSD-KL	 Plug, plug socket FBS, FBSD	 Power supply socket NTSD	 Bus connection FBA1, FBA2
Electrical connection	5-pin/5-pin, angled socket/ screw terminal	4-pin, 5-pin, socket: straight, angled, plug: straight, screw terminal, type A, M12x1	4-pin, 5-pin, socket: straight, angled, plug: straight, screw terminal	9-pin/5-pin, straight socket/ straight plug, straight socket/ plug and socket, Sub-D/-, Sub- D/M12x1
Connection cross section	0.2 ... 2.5 mm <sup>2</sup>	0.75 mm <sup>2</sup> , 0.2 ... 2.5 mm <sup>2</sup>	0.75 ... 2.5 mm <sup>2</sup>	
Degree of protection	IP20	IP20, IP67	IP67	IP40, IP65, IP67, to IEC 60529
Description	<ul style="list-style-type: none"> <li>Angled socket, 5-pin;</li> <li>Screw terminal, 5-pin</li> </ul>	<ul style="list-style-type: none"> <li>For fieldbus connection</li> <li>Straight or angled design</li> <li>Can be assembled with any cable lengths</li> </ul>	<ul style="list-style-type: none"> <li>Straight or angled design</li> <li>For power supply</li> <li>Can be assembled with any cable lengths</li> </ul>	<ul style="list-style-type: none"> <li>Can be assembled with any cable lengths</li> </ul>
→ Page/online	<a href="#">fbzd-kl</a>	<a href="#">fbs</a>	<a href="#">ntsd</a>	<a href="#">fba-1</a>

## Plug connectors for valve terminals

Type	 Plug FBS-SUB	 Sensor socket SIE-GD, SIE-WD	 Cover cap ISK	 Plug socket, plug SD-SUB
Electrical connection	5-pin, type A, M12x1, straight plug / screw terminal	4-pin, straight socket, angled socket, M12x1		25-pin, plug, Sub-D
Connection cross section	0.75 mm <sup>2</sup>	0.25 ... 0.75 mm <sup>2</sup>		
Degree of protection	IP40, IP65, IP67, in assembled state, to IEC 60529	IP67	IP65	IP65 to IEC 60529
Description	<ul style="list-style-type: none"> <li>Variants for PROFIBUS DP, INTERBUS nodes CPX and CPV, CC-Link CPX and CPV, CPX-FEC</li> <li>Position of DIL switches can be read externally</li> <li>Easy assembly</li> </ul>	<ul style="list-style-type: none"> <li>For customised fabrication of cables</li> <li>Pin adapter for fieldbus connection</li> <li>With screw terminals</li> <li>Straight or angled design</li> </ul>	<ul style="list-style-type: none"> <li>For sealing unused ports/openings</li> <li>Thread M8, M12</li> </ul>	<ul style="list-style-type: none"> <li>Socket for multi-pin plug connection</li> <li>Plug for inputs/outputs</li> <li>Can be assembled with any cable lengths</li> </ul>
→ Page/online	<a href="#">fbs-sub</a>	<a href="#">sie-gd</a>	<a href="#">isk</a>	<a href="#">sd-sub</a>

## Plug connectors for sensors

Type	 Angled socket PEV-WD	 Angled socket SD4-WD
Electrical connection	4-pin, angled socket	4-pin, plug, Sub-D
Connection cross section		
Degree of protection	IP65	IP65 to IEC 60529
Description	<ul style="list-style-type: none"> <li>For pressure switch PEV</li> <li>15 ... 30, 180 V DC, 230 V AC</li> <li>Optionally with LED display</li> <li>Angled design</li> </ul>	<ul style="list-style-type: none"> <li>For swivel module DSMI</li> <li>Angled design</li> </ul>
→ Page/online	<a href="#">pev*wd</a>	<a href="#">sd-4-wd</a>



Overview/Configuration/Ordering  
→ [www.festo.com/catalogue/nebu](http://www.festo.com/catalogue/nebu)



Additional information/Support/User documentation  
→ [www.festo.com/sp/nebu](http://www.festo.com/sp/nebu)

Cables  
Universal connecting cables  
Connecting cables

# NEBU



- + Designs for static, standard, energy chain and robot applications
- + Design with switching status indication
- + Designs for connecting sensors and actuators



- Connecting cables for basic, standard, energy chain and robot applications
- Versions with switching status indication
- Cable length 0.1 ... 30 m freely selectable
- ★ Quick ordering of basic designs → 1167

→ [www.festo.com/catalogue/nebu](http://www.festo.com/catalogue/nebu)

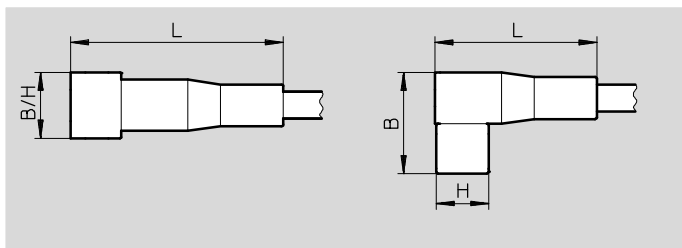
### Product range overview

Type	Electrical connection		Cable characteristics	Electrical connection		Number of wires	Cable length [m]	→ Page/online
	Left	Right		Left	Right			
NEBU-LE	Open end	Basic	Plug M8x1	3, 4, 5	0.1 ... 30	1162		
			Plug M12x1					
		Standard	Plug M8x1	3, 4, 5	0.1 ... 30		1162	
			Plug M12x1					
NEBU-M5	Socket M5x0.5	Standard	Open end	3	5	nebu-m5		
			Plug M8x1	3	1			
			Plug M12x1	4	1			
NEBU-M8	Socket M8x1	Basic	Open end	2, 3, 4	0.1 ... 30	1162		
			Plug M8x1					
			Plug M12x1					
		Standard	Open end	2, 3, 4	0.1 ... 30	1162		
			Plug M8x1					
			Plug M12x1					
		Suitable for use with energy chains	Open end	3, 4	0.1 ... 30	1162		
			Plug M8x1					
			Plug M12x1					
		Suitable for robot applications	Open end	3, 4	0.1 ... 30	1162		
			Plug M8x1					
			Plug M12x1					
With switching status indication	Open end	3	0.1 ... 30	1162				
	Plug M8x1							
	Plug M12x1							
NEBU-M12	Socket M12x1	Basic	Open end	3, 4, 5	0.1 ... 30	1162		
			Plug M8x1					
			Plug M12x1					
		Standard	Open end	3, 4, 5	0.1 ... 30	1162		
			8		2, 5			
			Plug M8x1	3, 4, 5	0.1 ... 30			
		Suitable for use with energy chains	Open end	3, 4, 5	0.1 ... 30	1162		
			Plug M8x1					
			Plug M12x1					
		Suitable for robot applications	Open end	3, 4, 5	0.1 ... 30	1162		
			Plug M8x1					
			Plug M12x1					
With switching status indication	Open end	3	0.1 ... 30	1162				
	Plug M8x1							
	Plug M12x1							
NEBU-G78	Socket 7/8"	Standard	Open end	5	2	nebu-g78		

# Connecting cables NEBU

FESTO

## Data sheet



Technical data		NEBU-LE	NEBU-M8	NEBU-M12
Type				
Conforms to standard		EN 61076-2-101	–	EN 61076-2-101
		EN 61076-2-104	EN 61076-2-104	–
		EN 61984		
Cable characteristics	NEBU-...-P	Basic		
	NEBU-...-K	Standard		
	NEBU-...-E	Suitable for use with energy chains, cables halogen-free and oil-resistant		
	NEBU-...-R	Suitable for robot applications, cables halogen-free and oil-resistant		

Electrical connection	Socket M8x1		Plug M8x1		Socket M12x1		Plug M12x1		
	Straight	Angled	Straight	Angled	Straight	Angled	Straight	Angled	
Cable composition	2x0.25 mm <sup>2</sup>				–				
	3x0.25 mm <sup>2</sup>				3x0.25 mm <sup>2</sup>				
	4x0.25 mm <sup>2</sup>				4x0.25 mm <sup>2</sup>				
	–				5x0.25 mm <sup>2</sup>				
	–				5x1.00 mm <sup>2</sup>				
Conductor nominal cross section	[mm <sup>2</sup> ]	0.25				0.25			
	[mm <sup>2</sup> ]	–				1	–	1	–
Cable diameter	[mm]	4.5				4.5			
Cable length	[m]	0.1 ... 30				0.1 ... 30			
Plug coding		–				A			
Length L/width W/height H	[mm]	35/9/9	27/17/9	42/10/10	27/24/10	48/15/15	38/26/15	55/15/15	38/33/15

Type	NEBU-...P	NEBU-...N	NEBU-...L	NEBU-...P2
Display	LED, PNP	LED, NPN	LED, DC	2x LED, PNP
Ready status display	Green LED	Green LED	–	Green LED
Switching status indication	Yellow LED	Yellow LED	Yellow LED	Yellow LED
	–	–	–	Blue LED

Electrical data		NEBU-M8			
Type		2x0.25 mm <sup>2</sup>		4x0.25 mm <sup>2</sup>	
Cable composition		3x0.25 mm <sup>2</sup>		–	
Display		L	–	P, N	–
Operating voltage range <sup>1)</sup>	[V AC]	–	0 ... 60	–	0 ... 30
	[V DC]	21.6 ... 30	0 ... 60	10 ... 30	0 ... 30
Surge capacity <sup>1)</sup>	[kV]	0.8	1.5	0.8	0.8
Acceptable current load at 40 °C <sup>1)</sup>	[A]	3			
Degree of contamination		3			

1) When different connection technologies are combined, the lower value applies.

## Technical data

Type	NEBU-M12							
Cable composition	3x0.25 mm <sup>2</sup>		4x0.25 mm <sup>2</sup>		5x0.25 mm <sup>2</sup>		5x1.00 mm <sup>2</sup>	
Display	–		P, N		–		P2	
Operating voltage range <sup>1)</sup>	[V AC]	0 ... 250	–		0 ... 250	–		
	[V DC]	0 ... 250	10 ... 30		0 ... 250	10 ... 30		
Surge capacity <sup>1)</sup>	[kV]	2.5 <sup>2)</sup>	0.8		2.5	0.8		
Acceptable current load at 40 °C <sup>1)</sup>	[A]	4						
Degree of contamination	3							

1) When different connection technologies are combined, the lower value applies.  
 2) 0.8 kV applies for alternative number of wires = 3.

## Materials

Type	NEBU-...-P	NEBU-...-K	NEBU-...-E	NEBU-...-R
Cable characteristics	Basic	Standard	Suitable for use with energy chains	Suitable for robot applications
Housing	PUR	PUR	PUR	PUR
Union nut	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Cable sheath	PVC	PUR	PUR	PUR
Pin contacts	Gold-plated brass	Gold-plated brass	Gold-plated brass	Gold-plated brass
Insulating sheath	PVC	PVC	TPE-E	TPE-E

## Operating conditions

Type	NEBU-...-P	NEBU-...-K	NEBU-...-E	NEBU-...-R
Cable characteristics	Basic	Standard	Suitable for use with energy chains	Suitable for robot applications
Ambient temperature	[°C] –25 ... +70	–25 ... +70	–25 ... +80	–25 ... +80
Ambient temperature with flexible cable installation	[°C] –5 ... +80	–5 ... +70	–5 ... +80	–5 ... +80
Degree of protection	IP65, IP68			

## Pin allocation to EN 60947-5-2

Socket M8x1						Plug M8x1					
3-pin	Pin	Wire colour	4-pin	Pin	Wire colour	3-pin	Pin	Wire colour	4-pin	Pin	Wire colour
	1	Brown		1	Brown		1	Brown		1	Brown
	3	Blue		2	White		3	Blue		2	White
	4	Black		3	Blue		4	Black		3	Blue
				4	Black					4	Black

Socket M12x1			4-pin			5-pin		
3-pin	Pin	Wire colour	4-pin	Pin	Wire colour	5-pin	Pin	Wire colour
	1	Brown		1	Brown		1	Brown
	3	Blue		2	White		2	White
	4	Black		3	Blue		3	Blue
				4	Black		4	Black
							5	Grey

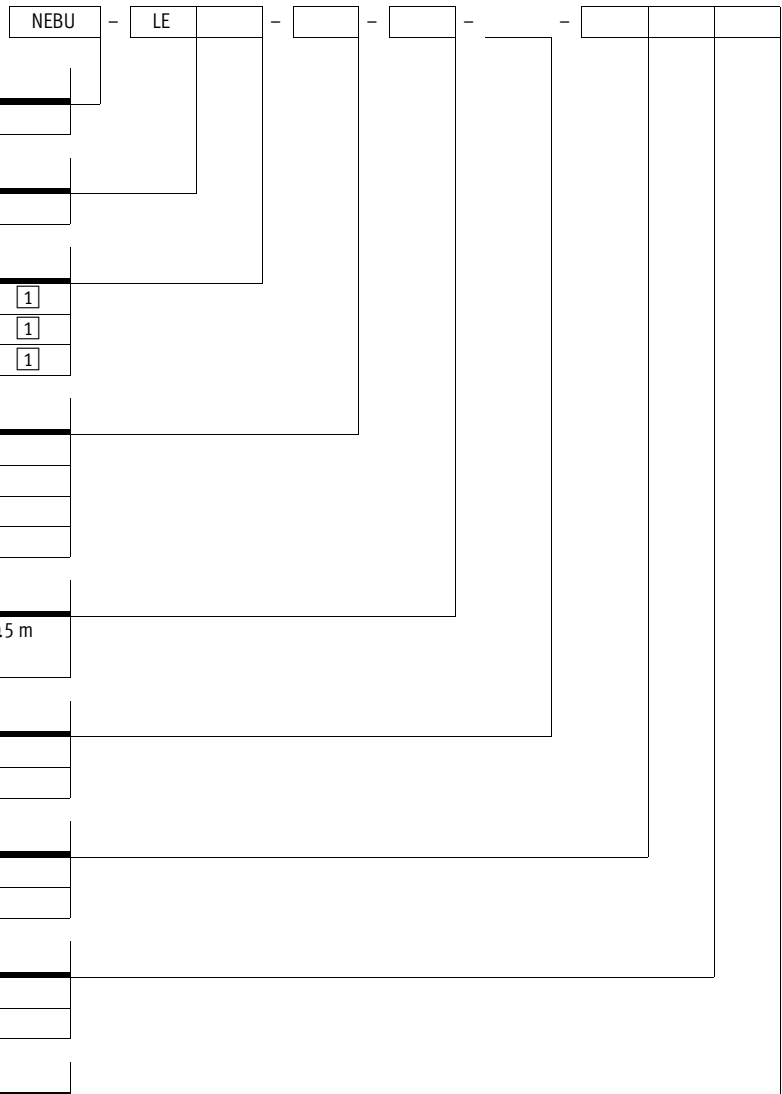
Plug M12x1			4-pin			5-pin		
3-pin	Pin	Wire colour	4-pin	Pin	Wire colour	5-pin	Pin	Wire colour
	1	Brown		1	Brown		1	Brown
	3	Blue		2	White		2	White
	4	Black		3	Blue		3	Blue
				4	Black		4	Black
							5	Grey

## Pin allocation – Display L

Socket M8x1			Plug M8x1			Plug M12x1	
4-pin	Pin	Wire colour	3-pin	Pin	4-pin	2-pin	Pin
	3	Black		3			3
	4	Black		4			4

# Connecting cables NEBU-LE

## Order code



Function	
NEBU	Connecting cable

Connection technology, on the left	
LE	Open end

Number of pins/wires (on the left)	
3	3-pin (suitable for open end, plug M8) <span style="border: 1px solid black; padding: 0 2px;">1</span>
4	4-pin (suitable for open end, plug M8) <span style="border: 1px solid black; padding: 0 2px;">1</span>
5	5-pin (suitable for 3, 4 and 5-pin plug M12) <span style="border: 1px solid black; padding: 0 2px;">1</span>

Cable characteristics	
P	Basic
K	Standard
E	Suitable for use with energy chains
R	Suitable for robot applications

Cable length	
0.1 ... 30	0.1 ... 30 m (0.1 ... 2.5 m in 0.1 m increments, 2.5 ... 30 m in 0.5 m increments)

Cable designation	
-	With inscription label holder (standard)
N	Without inscription label holder

Connection technology, on the right	
M8	Plug with connecting thread M8
M12	Plug with connecting thread M12, A-coded

Plug design	
G	Straight
W	Angled

Number of pins/wires (on the right)	
3	3-pin (suitable for socket M8/M12) <span style="border: 1px solid black; padding: 0 2px;">2</span>
4	4-pin (suitable for socket M8/M12) <span style="border: 1px solid black; padding: 0 2px;">2</span>
5	5-pin (suitable for socket M12) <span style="border: 1px solid black; padding: 0 2px;">2</span>

1 With connection technology LE on the left, the number of wires selected must be equal to the number of pins (on the right).

2 With connection technology LE on the left, the number of wires (on the left) must be copied over.

### Order example:

NEBU-LE5-K-1-N-M12G5

Connecting cable NEBU – open end, 5-pin – standard – cable length 1 m – without inscription label holder – plug M12x1, A-coded, straight, 5-pin



## Order code

NEBU		-	M 8			-		-		-			
<b>Function</b>													
NEBU	Connecting cable												
<b>Connection technology, on the left</b>													
M8	Socket with connecting thread M8												
<b>Socket design</b>													
G	Straight												
W	Angled												
<b>Number of pins/wires (on the left)</b>													
3	3-pin (suitable for open end, plug M8)												
4	4-pin (suitable for open end, plug M8)												
<b>Display</b>													
-	Without LED, DC (standard)												
P	LED, PNP												1
N	LED, NPN												1
L	LED, DC												2
<b>Cable characteristics</b>													
P	Basic												
K	Standard												
E	Suitable for use with energy chains												
R	Suitable for robot applications												
<b>Cable length</b>													
0.1 ... 30	0.1 ... 30 m (0.1 ... 2.5 m in 0.1 m increments, 2.5 ... 30 m in 0.5 m increments)												
<b>Cable designation</b>													
-	With inscription label holder (standard)												
N	Without inscription label holder												
<b>Connection technology, on the right</b>													
LE	Open end												
M8	Plug with connecting thread M8												
M12	Plug with connecting thread M12, A-coded												
<b>Plug design</b>													
-	Open end												3
G	Straight												4
W	Angled												4
<b>Number of pins/wires (on the right)</b>													
2	2-pin												5
3	3-pin (suitable for socket M8/M12)												
4	4-pin (suitable for socket M8/M12)												

- 1 Can only be combined with socket design W and 3 pins/wires (on the left).
- 2 Can only be combined with 4 pins/wires (on the left), M8 connection technology on the right with 3, 4 pins/wires (on the right) or with connection technology LE on the right, M12 with 2 pins/wires (on the right) (always a 2-wire cable), cable characteristics K.

- 3 Must be selected with connection technology LE on the right.
- 4 Must be selected with M8, M12 connection technology on the right.
- 5 Can only be combined with connection technology LE on the right. Cannot be combined with cable characteristics P, E, R.

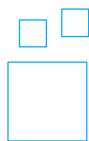
**Order example:**

NEBU-M8G4-K-5-LE4

Connecting cable NEBU – socket M8x1, straight, 4-pin, without LED, DC – standard – cable length 5 m – with inscription label holder – open end, 4-pin



## Ordering – Product options



Configurable  
product

This product and all its options can  
be ordered using the configurator.

The configurator can be found under  
Products on the DVD or

Enter the type code in the search field.

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

★ Quick ordering<sup>1)</sup>

	Cable length [m]	Part no.	Type
<b>Straight socket, 3-pin, M8</b>			
Open cable end, 3-wire	2.5	541333	NEBU-M8G3-K-2.5-LE3
	5	541334	NEBU-M8G3-K-5-LE3
	10	541332	NEBU-M8G3-K-10-LE3
Straight plug, 3-pin, M8	0.5	541346	NEBU-M8G3-K-0.5-M8G3
	1	541347	NEBU-M8G3-K-1-M8G3
	2.5	541348	NEBU-M8G3-K-2.5-M8G3
	5	541349	NEBU-M8G3-K-5-M8G3
<b>Angled socket, 3-pin, M8</b>			
Open cable end	2.5	541338	NEBU-M8W3-K-2.5-LE3
	5	541341	NEBU-M8W3-K-5-LE3
	10	541335	NEBU-M8W3-K-10-LE3

	Cable length [m]	Part no.	Type
<b>Angled socket, 3-pin, M8</b>			
Open cable end, for NPN N/O contact	2.5	541336	NEBU-M8W3N-K-2.5-LE3
	5	541339	NEBU-M8W3N-K-5-LE3
Open cable end, for PNP N/O contact	2.5	541337	NEBU-M8W3P-K-2.5-LE3
	5	541340	NEBU-M8W3P-K-5-LE3
<b>Straight socket, 5-pin, M12</b>			
Straight plug, 5-pin, M12	5	574321	NEBU-M12G5-E-5-Q8N-M12G5
	7.5	574322	NEBU-M12G5-E-7.5-Q8N-M12G5
	10	574323	NEBU-M12G5-E-10-Q8N-M12G5
Open cable end, 3-wire	2.5	541363	NEBU-M12G5-K-2.5-LE3
	5	541364	NEBU-M12G5-K-5-LE3
Open cable end, 4-wire	2.5	550326	NEBU-M12G5-K-2.5-LE4
	5	541328	NEBU-M12G5-K-5-LE4

1) All products in this table are easy to select and quick to order.

