

# FLM BK ETH M12 DI 8 M12-2TX


Order No.: 2736916



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The Ethernet bus coupler opens a local bus for up to 16 devices. Additional functions: 10 Mbps and 100 Mbps, auto negotiation, auto crossover, 8 digital inputs, channel-specific diagnostics, short-circuit and overload protection, M12 fast connection technology.

## Ethernet

Commercial data	
GTIN (EAN)	4  046356 094283
sales group	L040
Pack	1 pcs.
Customs tariff	85389091
Catalog page information	Page 369 (AX-2009)

### Product notes

WEEE/RoHS-compliant since: 12/08/2009



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## Product description

The Fieldline Modular FLM BK ETH M12 DI8 M12 bus coupler with 8 digital inputs couples a Fieldline Modular local bus station to an Ethernet network and is also used for measuring digital signals. The bus coupler consists of two Ethernet connections that are designed as D-encoded M12 sockets. Additional Ethernet devices can be connected due to the integrated, manageable 3-port switch to implement a line structure. The transmission speeds are 10 Mbps and 100 Mbps and are automatically selected by the device (autonegotiation). The interfaces can automatically interchange the receive and transmit cables (autocrossover). Following network protocols are supported by the FLM BK ETH M12 DI8 M12 bus coupler:

- Modbus/TCP
- Modbus/UDP
- DDI (Device Driver Interface)

The Ethernet bus coupler provides a powerful local bus as lower-level bus. The total length of the local bus is 20 m and it can connect up to 16 I/O units. Selectable transmission speeds in the range 500 kBaud to 2 Mbaud allow for flexible adaptation to the application and also permit savings on warehousing costs. The local bus connection is provided by 5-pos. B-encoded M12 connectors. The four double-occupied sensor slots can be assigned through 5-pos. A-encoded M12 connectors with sensors in 2, 3 or 4 conductor technology respectively.

The sensor supply is short-circuit and overload-protected and thus guarantees a high plant availability. The diagnosis and status indicators for voltage supply, network and local bus operation with the corresponding monitoring functions reduce bus downtime and provide support if service becomes necessary.

The high-performance SPEEDCON technology used allows connection times to be reduced by up to 90%. The classic M12 connections can continued to be used with full compatibility.

## Technical data

### General data

Width	70 mm
Height	178 mm
Depth	50 mm
Drill hole spacing	178 mm
Weight	280 g
Mounting type	Wall mounting
Ambient temperature (operation)	-25 °C ... 60 °C
Ambient temperature (storage/transport)	-25 °C ... 85 °C
Permissible humidity (storage/transport)	95 %
Air pressure (operation)	80 kPa ... 106 kPa (up to 2000 m above sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Degree of protection	IP65/67
Protection class	III, IEC 61140, EN 61140, VDE 0140-1
Test section	To I/O 500 V DC

### Interface

Fieldbus system	Ethernet
Name	Ethernet
Type of connection	M12 plug connectors, D-coded
Designation connection point	Copper cable
Transmission speed	10/100 Mbps, autonegotiation
	10/100 MBit/s ( mit Autonegotiation )

Number of positions	4
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**Local bus gateway**

Name	Local bus gateway
Type of connection	M12 connector, B-coded
Transmission speed	500 kBaud/ 2 MBaud, can be selected
Max. number of local bus devices	16
Max. length of local bus	20 m

**Power supply for module electronics**

Type of connection	M12 male connector
Name	$U_L$
Supply voltage	24 V DC
Supply voltage range	18 V DC ... 30 V DC IEC 61131-2 (including ripple)
Supply current	< 100 mA

**Fieldline potential routing**

Voltage supply $U_L$	24 V DC
Power supply at $U_L$	max. 4 A
Current consumption from $U_L$	max. 118 mA (At 2 Mbaud)
	Typ. 118 mA (At 2 Mbaud)
	max. 60 mA (At 500 kBaud)
	Typ. 60 mA (At 500 kBaud)
Voltage supply $U_s$	24 V DC
Power supply at $U_s$	max. 4 A
Current consumption from $U_s$	Typ. 5 mA (plus power supply for sensors)
	max. 600 mA

**Digital inputs**

Input name	Digital inputs
Description of the input	EN 61131-20 type 1
Type of connection	M12 male connector
Connection method	2, 3, 4-wire
Number of inputs	8
Protective circuit	Short-circuit protection, overload protection of the sensor supply Protection against polarity reversal
Filter time	3 ms

Input characteristic curve	IEC 61131-2 type 1
Input voltage	24 V DC
Input voltage range "0" signal	-30 V DC ... 5 V DC
Input voltage range "1" signal	13 V DC ... 30 V DC

### Certificates / Approvals



Certification	CUL, UL
Certification Ex:	CUL-EX, UL-EX

### Accessories

Item	Designation	Description
<b>Cable/conductor</b>		
1518368	SAC-5P- 2,0-186/FS SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Free conductor end, on Socket, straight M12-SPEEDCON, A-coded, Cable length: 2 m
1518371	SAC-5P- 5,0-186/FS SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Free conductor end, on Socket, straight M12-SPEEDCON, A-coded, Cable length: 5 m
1518384	SAC-5P-10,0-186/FS SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Free conductor end, on Socket, straight M12-SPEEDCON, A-coded, Cable length: 10 m
1518397	SAC-5P-15,0-186/FS SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Free conductor end, on Socket, straight M12-SPEEDCON, A-coded, Cable length: 15 m
1518407	SAC-5P-MS/ 0,3-186/FS SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Plug, straight M12-SPEEDCON, A-coded, on Socket, straight M12-SPEEDCON, A-coded, Cable length: 0.3 m
1518410	SAC-5P-MS/ 0,5-186/FS SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Plug, straight M12-SPEEDCON, A-coded, on Socket, straight M12-SPEEDCON, A-coded, Cable length: 0.5 m
1518423	SAC-5P-MS/ 1,0-186/FS SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Plug, straight M12-SPEEDCON, A-coded, on Socket, straight M12-SPEEDCON, A-coded, Cable length: 1 m
1518326	SAC-5P-MS/ 2,0-186 SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Plug, straight M12-SPEEDCON, A-coded, on Free conductor end, Cable length: 2 m

1518436	SAC-5P-MS/ 2,0-186/FS SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Plug, straight M12-SPEEDCON, A-coded, on Socket, straight M12-SPEEDCON, A-coded, Cable length: 2 m
1518339	SAC-5P-MS/ 5,0-186 SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Plug, straight M12-SPEEDCON, A-coded, on Free conductor end, Cable length: 5 m
1518449	SAC-5P-MS/ 5,0-186/FS SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Plug, straight M12-SPEEDCON, A-coded, on Socket, straight M12-SPEEDCON, A-coded, Cable length: 5 m
1518342	SAC-5P-MS/10,0-186 SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Plug, straight M12-SPEEDCON, A-coded, on Free conductor end, Cable length: 10 m
1518452	SAC-5P-MS/10,0-186/FS SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Plug, straight M12-SPEEDCON, A-coded, on Socket, straight M12-SPEEDCON, A-coded, Cable length: 10 m
1518355	SAC-5P-MS/15,0-186 SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Plug, straight M12-SPEEDCON, A-coded, on Free conductor end, Cable length: 15 m
1518465	SAC-5P-MS/15,0-186/FS SCO	Sensor/Actuator cable, 5-position, PUR, Black-gray RAL 7021, Plug, straight M12-SPEEDCON, A-coded, on Socket, straight M12-SPEEDCON, A-coded, Cable length: 15 m
1657575	VS-M12MSD-RJ45-931/ 1,0	Assembled Ethernet cable, CAT5e, shielded, 2-pair, AWG 26 stranded (7-wire), RAL 5021 (water blue), M12 4-pos. D-coded on RJ45 connector, length: 1 m
1657588	VS-M12MSD-RJ45-931/ 2,0	Assembled Ethernet cable, CAT5e, shielded, 2-pair, AWG 26 stranded (7-wire), RAL 5021 (water blue), M12 4-pos. D-coded on RJ45 connector, length: 2 m
1657591	VS-M12MSD-RJ45-931/ 5,0	Assembled Ethernet cable, CAT5e, shielded, 2-pair, AWG 26 stranded (7-wire), RAL 5021 (water blue), M12 4-pos. D-coded on RJ45 connector, length: 5 m

**General**

1524006	SAC-4P-M12MSD/ 2,0-930	Bus system cable, 4-position, PUR, halogen-free, water blue RAL 5021, shielded, Plug, straight M12, D-coded, on Free conductor end, Cable length: 2 m
1521533	SAC-4P-M12MSD/ 2,0-930/ M12MSD	Bus system cable, 4-position, PUR, halogen-free, water blue RAL 5021, shielded, Plug, straight M12, D-coded, on Plug, straight M12, D-coded, Cable length: 2 m
1524051	SAC-4P-M12MSD/ 5,0-930/ M12MSD	Bus system cable, 4-position, PUR, halogen-free, water blue RAL 5021, shielded, Plug, straight M12, D-coded, on Plug, straight M12, D-coded, Cable length: 5 m
1524022	SAC-4P-M12MSD/10,0-930	Bus system cable, 4-position, PUR, halogen-free, water blue RAL 5021, shielded, Plug, straight M12, D-coded, on Free conductor end, Cable length: 10 m
1524035	SAC-4P-M12MSD/15,0-930	Bus system cable, 4-position, PUR, halogen-free, water blue RAL 5021, shielded, Plug, straight M12, D-coded, on Free conductor end, Cable length: 15 m

1521258	SACC-M12MSD-4CON-PG 7-SH	Bus system plug connector, male, straight, 4-pos., M12, shielded, D-coded, screw connection, metal knurl, cable screw connection Pg7
1521261	SACC-M12MSD-4CON-PG 9-SH	Bus system plug connector, male, straight, 4-pos., M12, shielded, D-coded, screw connection, metal knurl, cable screw connection Pg9
1657562	VS-M12MSD-RJ45-931/ 0,5	Assembled Ethernet cable, CAT5e, shielded, 2-pair, AWG 26 stranded (7-wire), RAL 5021 (water blue), M12 4-pos. D-coded on RJ45 connector, length: 0.5 m

**Marking**

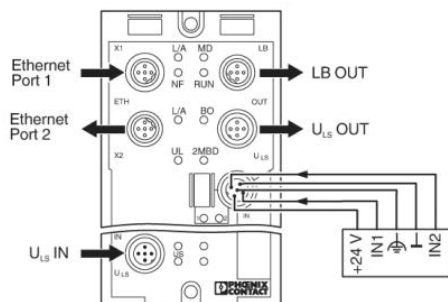
0809735	ZBF 12:UNBEDRUCKT	Zack strip, flat, unprinted, 5-section, divisible, for labeling by the customer
2809128	ZBN 18:UNBEDRUCKT	Unprinted marker labels, strips with 5 labels for individual labeling with M-PEN or CMS system, for terminal block width: 17.5 mm, color: White

**Plug/Adapter**

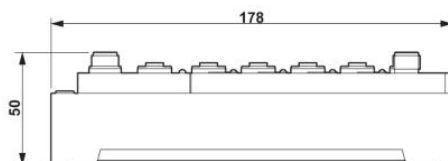
1508200	SACC-M12FS-5SC M	Sensor/actuator connector, female, straight, 5-pos., M12, A-coded, spring-cage connection, metal knurl, cable cross section max. 8 mm
1508187	SACC-M12MS-5SC M	Sensor/actuator connector, male, straight, 5-pos., M12, A-coded, spring-cage connection, metal knurl, cable cross section max. 8 mm

**Diagrams/Drawings**

Connection diagram



Dimensioned drawing



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