

# Bus coupler - FLM BK ETH M12 DI 8 M12-2TX - 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.

## 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-coded 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 (auto negotiation). 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-coded M12 connectors. The four double-occupied sensor slots can be assigned through 5-pos. A-coded 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.


## Your advantages

- Modbus/TCP
- 8 inputs, 24 V DC
- M12 connection technology with SPEEDCON fast locking system



Ethernet

## Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 094283
GTIN	4046356094283

## Technical data

### Note

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## Technical data

### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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### Dimensions

Width	70 mm
Height	178 mm
Depth	50 mm
Drill hole spacing	178 mm

### Ambient conditions

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/IP67

### General

Mounting type	Wall mounting
Color	anthracite
Net weight	280 g
Mounting type	Wall mounting, optionally on mounting plate

### Interfaces

Designation	Ethernet (Modbus TCP)
Connection method	M12 connectors, D-coded
Designation connection point	Copper cable
Transmission speed	10/100 Mbps (auto negotiation)
Number of positions	4

### Local bus gateway

Designation	Local bus gateway
Connection method	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

Connection method	M12 connector
Designation	U <sub>L</sub>
Supply voltage	24 V DC
Supply voltage range	18 V DC ... 30 V DC (including ripple)
Supply current	< 100 mA

### Fieldline potentials

# Bus coupler - FLM BK ETH M12 DI 8 M12-2TX - 2736916

## Technical data

### Fieldline potentials

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	IEC 61131-2 type 1
Connection method	M12 connector
Connection technology	2, 3, 4-wire
Number of inputs	8 (EN 61131-2 type 1)
Protective circuit	Short-circuit protection, overload protection of the sensor supply Reverse polarity protection
Nominal input voltage $U_{IN}$	24 V DC
Filter time	3 ms
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

### Electrical isolation

Test section	To I/O 500 V DC
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### Standards and Regulations

Connection in acc. with standard	CUL
Protection class	III (IEC 61140, EN 61140, VDE 0140-1)

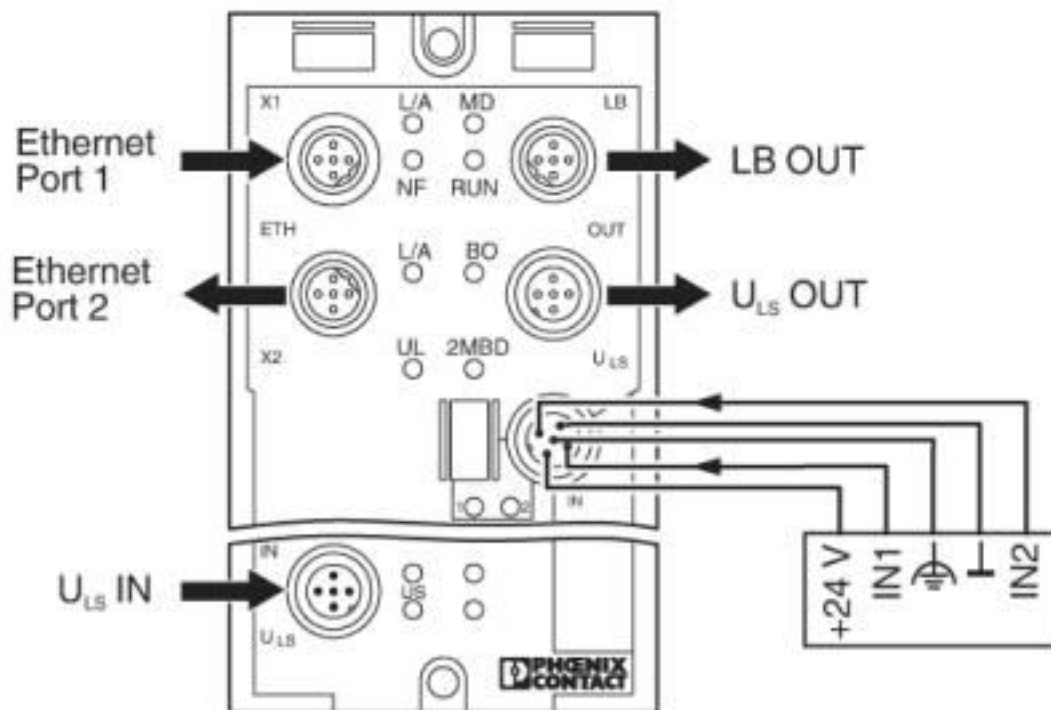
### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

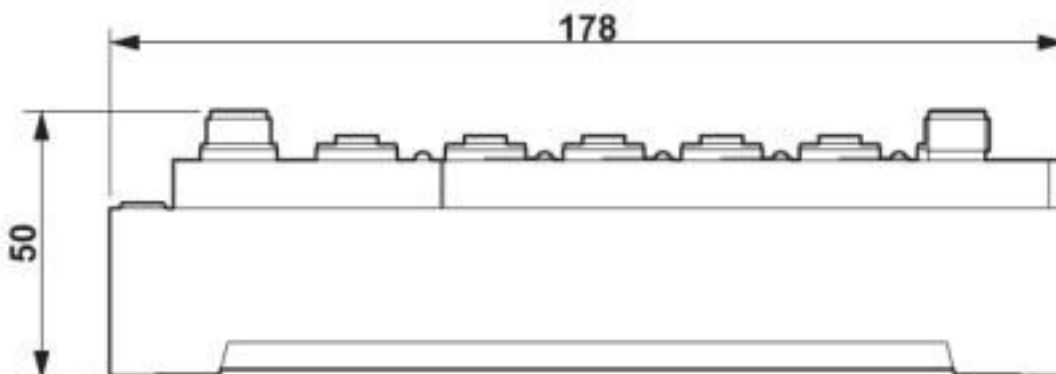
## Drawings

# Bus coupler - FLM BK ETH M12 DI 8 M12-2TX - 2736916

Connection diagram



Dimensional drawing



## Classifications

eCl@ss

eCl@ss 10.0.1	27242608
eCl@ss 4.0	27250200
eCl@ss 4.1	27250200
eCl@ss 5.0	27250200
eCl@ss 5.1	27242600
eCl@ss 6.0	27242600
eCl@ss 7.0	27242608

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## Classifications

### eCl@ss

eCl@ss 8.0	27242608
eCl@ss 9.0	27242608

### ETIM

ETIM 2.0	EC001434
ETIM 3.0	EC001604
ETIM 4.0	EC001604
ETIM 5.0	EC001604
ETIM 6.0	EC001604
ETIM 7.0	EC001604

### UNSPSC

UNSPSC 6.01	43172015
UNSPSC 7.0901	43201404
UNSPSC 11	43172015
UNSPSC 12.01	43201404
UNSPSC 13.2	32151602
UNSPSC 18.0	32151602
UNSPSC 19.0	32151602
UNSPSC 20.0	32151602
UNSPSC 21.0	32151602

## Approvals

### Approvals

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#### Approvals

UL Recognized / cUL Recognized / cULus Recognized

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#### Ex Approvals

UL Recognized / cUL Recognized / cULus Recognized

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### Approval details

UL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 140324
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cUL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 140324
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## Approvals

cULus Recognized



## Accessories

### Accessories

#### Circular connector (cable-side)

Data connector - SACC-M12MSD-4CON-PG 7-SH - 1521258



Data connector, Ethernet/PROFINET CAT5 (100 Mbps), 4-position, shielded, Plug straight M12, Coding: D, Screw connection, knurl material: Zinc die-cast, nickel-plated, cable gland Pg7, external cable diameter 4 mm ... 6 mm

Data connector - SACC-M12MSD-4CON-PG 9-SH - 1521261



Data connector, Ethernet/PROFINET CAT5 (100 Mbps), 4-position, shielded, Plug straight M12, Coding: D, Screw connection, knurl material: Zinc die-cast, nickel-plated, cable gland Pg9, external cable diameter 6 mm ... 8 mm

Connector - SACC-M12MS-5SC M - 1508187



Connector, 5-position, Plug straight M12, Coding: A, Spring-cage connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

Connector - SACC-M12FS-5SC M - 1508200



Connector, 5-position, Socket straight M12, Coding: A, Spring-cage connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

## Configuration and diagnostics

## Bus coupler - FLM BK ETH M12 DI 8 M12-2TX - 2736916

### Accessories

#### Software - CONFIG+ OEM - 2700779



Config+ project license, for configuration and diagnostics of an INTERBUS system. Please enter the project number in the configuration field or get in touch with your contact person in our sales organization.

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#### Software - CONFIG+ DEMO - 2868046



#### Software - CONFIG+ - 2868059



Config+ full version for configuration and diagnostics of an INTERBUS system

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#### Software - CONFIG+ CPY - 2868062



The Config+ copy license enables the installation and parallel use of the Config+ software on multiple workstations. A single-user full license is also required. It is a workstation license

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### Data cable preassembled

#### Bus system cable - SAC-4P-M12MSD/ 2,0-930 - 1524006



Bus system cable, Ethernet CAT5 (100 Mbps), 4-position, PUR halogen-free, water blue RAL 5021, shielded, Plug straight M12, coding: D, on free cable end, cable length: 2 m

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## Bus coupler - FLM BK ETH M12 DI 8 M12-2TX - 2736916

### Accessories

Bus system cable - SAC-4P-M12MSD/ 5,0-930 - 1524019



Bus system cable, Ethernet CAT5 (100 Mbps), 4-position, PUR halogen-free, water blue RAL 5021, shielded, Plug straight M12, coding: D, on free cable end, cable length: 5 m

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Bus system cable - SAC-4P-M12MSD/10,0-930 - 1524022



Bus system cable, Ethernet CAT5 (100 Mbps), 4-position, PUR halogen-free, water blue RAL 5021, shielded, Plug straight M12, coding: D, on free cable end, cable length: 10 m

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Bus system cable - SAC-4P-M12MSD/15,0-930 - 1524035



Bus system cable, Ethernet CAT5 (100 Mbps), 4-position, PUR halogen-free, water blue RAL 5021, shielded, Plug straight M12, coding: D, on free cable end, cable length: 15 m

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Bus system cable - SAC-4P-M12MSD/ 2,0-930/M12MSD - 1521533



Bus system cable, Ethernet CAT5 (100 Mbps), 4-position, PUR halogen-free, water blue RAL 5021, shielded, Plug straight M12, coding: D, on Plug straight M12, coding: D, cable length: 2 m

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Bus system cable - SAC-4P-M12MSD/ 5,0-930/M12MSD - 1524051



Bus system cable, Ethernet CAT5 (100 Mbps), 4-position, PUR halogen-free, water blue RAL 5021, shielded, Plug straight M12, coding: D, on Plug straight M12, coding: D, cable length: 5 m

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### Device marking



## Bus coupler - FLM BK ETH M12 DI 8 M12-2TX - 2736916

### Accessories

Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snap into tall marker groove, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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### Device parameterization

Software - AX+ BASIC - 2985068



Software CD for FDT container for integrating device DTMs (free download)

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### Programming

Software - AX DTM LIB - 2988065



DTM library

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### Sensor/actuator cable

Sensor/actuator cable - SAC-5P-MS/ 2,0-186 SCO - 1518326



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on free cable end, cable length: 2 m

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Sensor/actuator cable - SAC-5P-MS/ 5,0-186 SCO - 1518339



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on free cable end, cable length: 5 m

## Bus coupler - FLM BK ETH M12 DI 8 M12-2TX - 2736916

### Accessories

Sensor/actuator cable - SAC-5P-MS/10,0-186 SCO - 1518342



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on free cable end, cable length: 10 m

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Sensor/actuator cable - SAC-5P-MS/15,0-186 SCO - 1518355



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on free cable end, cable length: 15 m

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Sensor/actuator cable - SAC-5P- 2,0-186/FS SCO - 1518368



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, free cable end, on Socket straight M12 SPEEDCON, coding: A, cable length: 2 m

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Sensor/actuator cable - SAC-5P- 5,0-186/FS SCO - 1518371



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, free cable end, on Socket straight M12 SPEEDCON, coding: A, cable length: 5 m

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Sensor/actuator cable - SAC-5P-10,0-186/FS SCO - 1518384



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, free cable end, on Socket straight M12 SPEEDCON, coding: A, cable length: 10 m

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## Bus coupler - FLM BK ETH M12 DI 8 M12-2TX - 2736916

### Accessories

Sensor/actuator cable - SAC-5P-15,0-186/FS SCO - 1518397



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, free cable end, on Socket straight M12 SPEEDCON, coding: A, cable length: 15 m

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Sensor/actuator cable - SAC-5P-MS/ 0,3-186/FS SCO - 1518407



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on Socket straight M12 SPEEDCON, coding: A, cable length: 0.3 m

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Sensor/actuator cable - SAC-5P-MS/ 0,5-186/FS SCO - 1518410



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on Socket straight M12 SPEEDCON, coding: A, cable length: 0.5 m

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Sensor/actuator cable - SAC-5P-MS/ 1,0-186/FS SCO - 1518423



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on Socket straight M12 SPEEDCON, coding: A, cable length: 1 m

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Sensor/actuator cable - SAC-5P-MS/ 2,0-186/FS SCO - 1518436



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on Socket straight M12 SPEEDCON, coding: A, cable length: 2 m

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## Bus coupler - FLM BK ETH M12 DI 8 M12-2TX - 2736916

### Accessories

Sensor/actuator cable - SAC-5P-MS/ 5,0-186/FS SCO - 1518449



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on Socket straight M12 SPEEDCON, coding: A, cable length: 5 m

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Sensor/actuator cable - SAC-5P-MS/10,0-186/FS SCO - 1518452



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on Socket straight M12 SPEEDCON, coding: A, cable length: 10 m

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Sensor/actuator cable - SAC-5P-MS/15,0-186/FS SCO - 1518465



Sensor/actuator cable, 5-position, PUR, black-gray RAL 7021, Plug straight M12 SPEEDCON, coding: A, on Socket straight M12 SPEEDCON, coding: A, cable length: 15 m

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### Terminal marking

Zack Marker strip, flat - ZBF 12:UNBEDRUCKT - 0809735



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snap into flat marker groove, for terminal block width: 12 mm, lettering field size: 5.15 x 12.15 mm, Number of individual labels: 5

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Network cable - VS-M12MSD-RJ45-931/ 0,5 - 1657562



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

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## Bus coupler - FLM BK ETH M12 DI 8 M12-2TX - 2736916

### Accessories

#### Software - IPASSIGN - 2701094



IPAssign is an easy to use tool for setting the IP address of devices which rely on BOOTP. No installation or administrative rights are required to use IPAssign.

This product is free and only available from the "Downloads" tab.

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