

MVK Fusion

The Fieldbus Module with
Extreme Range

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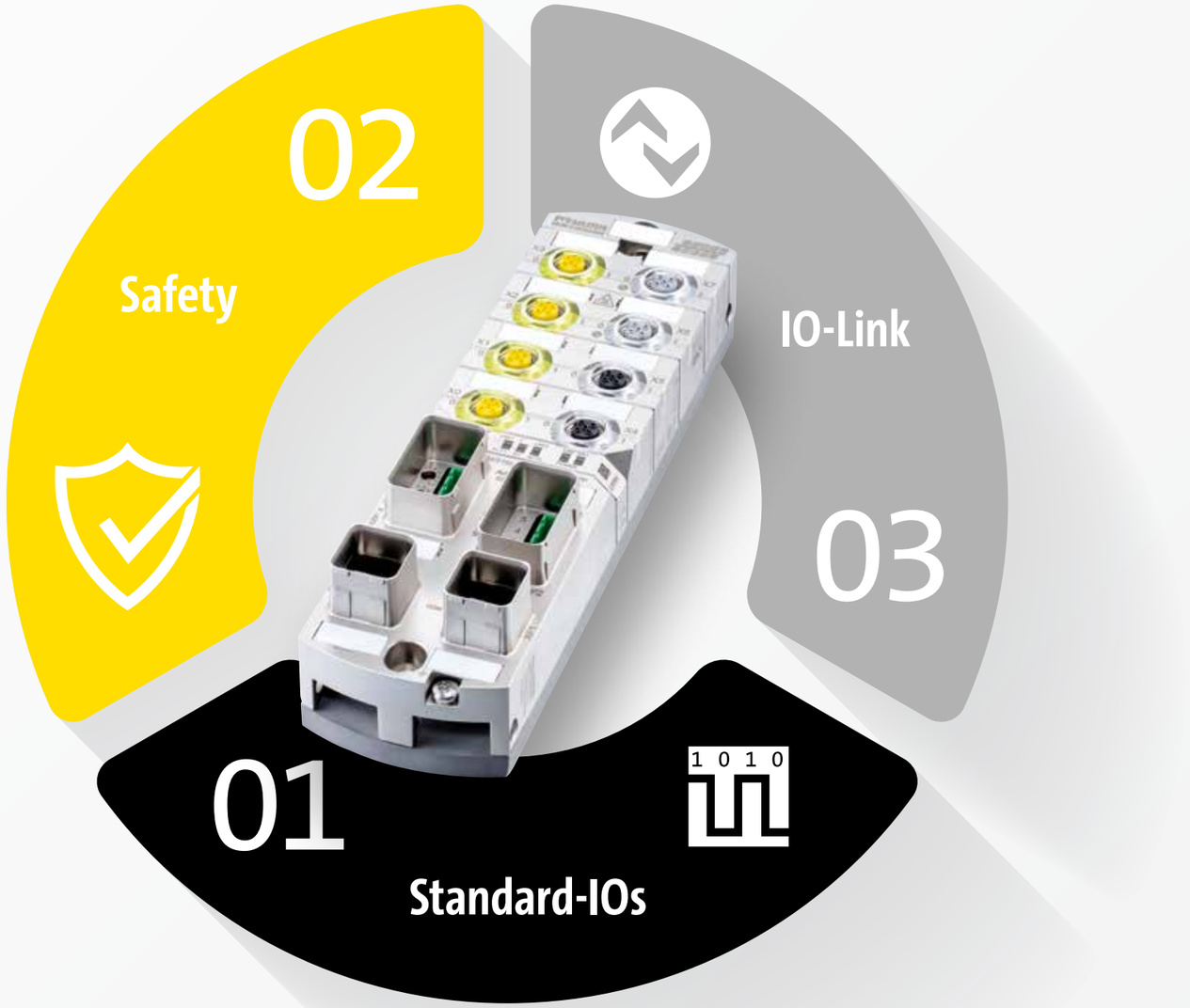


MVK Fusion

... standardizes three components, opening the door to a one-module strategy

Revolutionary 3-in-1 Module

What makes the MVK Fusion fieldbus module unique is its variety. It combines three basic functions: standard digital sensors and actuators, safety digital sensors and actuators and IO-Link.

This combination is new and innovative. It enables unique and ground-breaking automation concepts to be realized. Installation becomes simpler and faster.

MVK Fusion makes complex configurations easier because they can be done entirely by the engineering tool in the safety control system. Software developers and electrical engineers no longer need in-depth knowledge of other manufacturers' tools and manuals.

MVK Fusion makes it possible to have fewer fieldbus modules per unit. Some applications might only require a single module. This opens up new opportunities for many automation applications!

01

The two standard digital ports can be configured as inputs or outputs – they are customizable for each application.

02

The four safety ports ensure that almost all digital safety requirements are integrated into the installation.

03

The two IO-Link ports offer a wide range of functions: they integrate smart devices into the fieldbus system and they also enable the system to be expanded cost-effectively via IO-Link hubs.

Flexibility within Safety Applications

MVK Fusion integrates all safety aspects into one module:

- Safety sensors signals are transmitted over the three safe input ports, each of which have two channels. Emergency stop buttons, light curtains, two-handed units, safety doors, etc. can be qualified up to Performance Level e.
- The safety output port has two safe outputs that can be configured according to the application (PP, PM or PPM switching). You can integrate a wide variety of actuator types like double valves and valve islands that still qualify up to Performance Level e.
- A special Class B IO-Link port ensures that IO-Link devices like valve islands and hubs can be easily and safely switched-off complying with safety standards up to Performance Level d.

MVK Fusion lets you achieve high safety standards, protecting both man and machine.

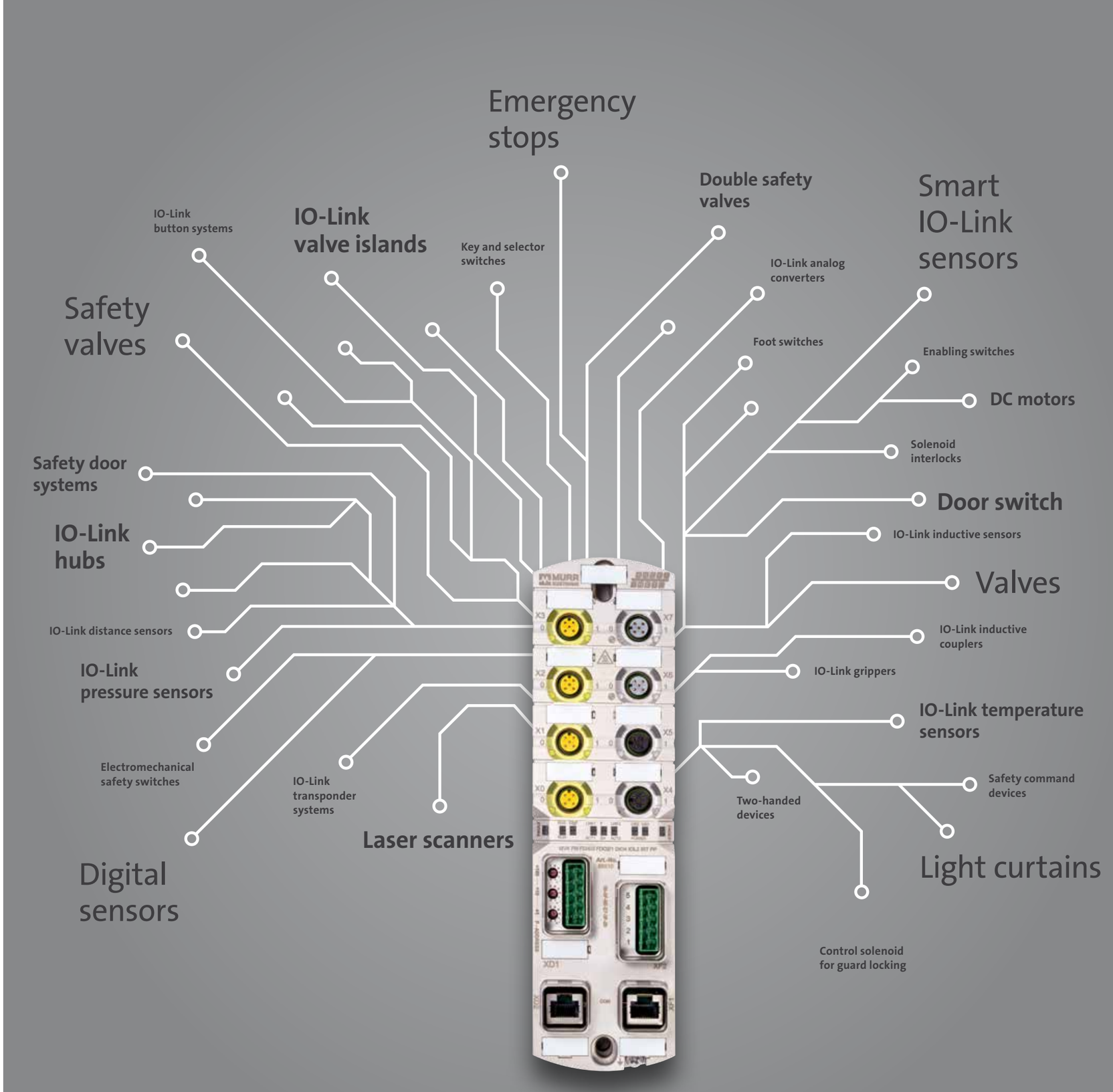
Safety Configuration within a Mouse Click

MVK Fusion makes configuring safety sensors and actuators extremely easy: select the safety function in the safety control system engineering tool, and within a few mouse clicks configuration is done.

The users – usually the software developer or the electrical engineer – do not require any special knowledge to configure the module. The MVK Fusion module eliminates the extra verification work step (CRC calculation) and doesn't require additional manufacturer-specific software. This speeds up the process because it prevents entry of incorrect data.

High Performance

MVK Fusion is excellent for high power applications when reliability cannot be compromised. The module is one hundred percent compatible with PROFINET solutions. MVK Fusion is suitable for Conformance Class C (IRT), Shared Device and Netload Class III applications.



A Wide Range of Uses and Comprehensive Diagnostics

- Rugged, fully-molded metal housing made for a wide range of uses – like extreme welding applications.
- MVK Fusion saves error information with a time stamp on an integrated web server, even in the event of power failure, helping you identify errors and reduce downtimes.
- The safety address is set directly on the module via rotary switch – MVK Fusion can also be restored to its default setting via the address 000.
- The module functions at high outdoor temperatures (up to 60° C) in combination with high currents (up to 16 A). We offer an optional heat sink is for these extreme conditions, which extends the life of the module.
- Unique to the market, the module can be used in at very high altitudes: up to 3,000 meters (10,000 feet).
- Every single channel is monitored for problems like overloads, sensor shorts or short circuits – the comprehensive diagnostics detect errors quickly, so they can be analyzed and fixed.

Technical Data

Description	Art.-No.	Art.-No.
MVK PN FDI6/3 FDO2/1 DIO4 IOL2 IRT PP	**55510**	**with heat sink** **5551001**
Connections		
Fieldbus	10/100 Mbit/s; Push Pull RJ45 data connector	
Sensor-system/actuator supply	Push Pull 5-pole; 24 V DC (EN 61131-2); galvanic separated supply US1 to US2	
I/O ports	M12, 5-pole, A-coded	
PROFINET		
Specification	V2.3, Conformance Class C (IRT)	
PROFINET Netload Class	III	
PROFIenergy	V1.2 (grade 1: shutdown LED and outputs X4, X5; grade 2: additional shutdown inputs & IO-Link X4, X5, X6, X7)	
Shared Device	yes, for 2 controls	
MRP	yes	
Addressing	DCP	
PROFIsafe V2.6.1		
PL (Performance Level)	X0, X1, X2 and X3 up to PLe, X7 (pin 2) up to PLd	
Category	X0, X1, X2 and X3 up to category 4, X7 (pin 2) up to category 3	
SIL	X0, X1, X2 and X3 up to SIL3, X7 (pin 2) up to SIL2	
Safe input: M12, 5-pole, A-coded	6 FDI X0,X1,X2 (per port max. 700mA)	
Safe output: M12, 5-pole, A-coded	2 FDO X3 (pin 2 and pin 4, pp-, pm-, ppm-switch / sum current max. 2 A); 1 FDO X7 (pin 2, pp-switch / max. 2 A)	
IO-Link		
Specification	Version 1.1.2	
Operating modes	COM1; COM2; COM3	
Port Class	1 x Typ A (X6); 1 Typ B (X7) with safe shutdown PIN2 (US2)	
Nominal current US1 (Pin 1-3)	max. 700 mA	
Nominal current US2 (Pin 2-5) X7	max. 2 A	
Input		
Operating voltage	EN 61131-2 24 V	
Number of channels	max. 7 (X4/X5 pin 2/4 each at US2, X6 pin 2/4 and X7 pin 4 each at US1)	
Total current	max. 1.4 A (total current from X4 and X5 Pin1)	
Output		
Operating voltage	EN 61131-2 24 V	
Number of channels	max. 5 (4x X4/X5, pin 2 and pin 4 each at US2 and X7 pin 2 (IO-Link) at US2)	
Total current	max. 8 A (total current from X3, X4, X5 Pin2 and pin 4 plus X7 Pin2)	
Invert voltage resistant	yes	
General Data		
Temperature range	-20 °C ... +60 °C	
Dimensions H × W × D	225 x 63 x 51.2 mm	225 x 63 x 102 mm

Accessories



MVK Fusion Heat Sink	Art.-No.
An optional heat sink for extreme conditions expands the conditions of use	**5551002**
MVK Metall Safety	**Art.-No.**
MVK ProfiNet/PROFIsafe compact module, metal, DI16/8, IRT, push-pull connection	**55562**
MVK ProfiNet/PROFIsafe compact module, metal, DI8/4 DO4, IRT, push-pull connection	**55563**
MVK ProfiNet/PROFIsafe compact module, metal, DI16/8, IRT, 7/8“ power connection	**55556**
MVK ProfiNet/PROFIsafe compact module, metal, DI8/4 DO4, IRT, 7/8“ power connection	**55557**
IO-Link Hub	**Art.-No.**
MVP8 plastic (30 mm), IO-Link V1.1 Class B (M12) COM3, 4DIO 4DIO (M8 3-pole), two galvanically isolated voltage groups, plug & play version (preconfigured parameter range), IP65/67	**59504**
MVP8 plastic (30 mm), IO-Link V1.1 Class B (M12) COM3, 4DIO 4DIO (M8 3-pole), two galvanically isolated voltage groups, extended parameter range, IP65/67	**59604**
MVP12 plastic (60 mm), IO-Link V1.1 Class B (M12) COM3, 8DIO 8DIO (M12), two galvanically isolated voltage groups, plug & play version (preconfigured parameter range), IP65/67	**59718**
MVP12 plastic (60 mm), IO-Link V1.1 Class B (M12) COM3, 8DIO 8DIO (M12), two galvanically isolated voltage groups, extended parameter range, IP65/67	**59818**
E-Stop and Reset Button	**Art.-No.**
E-Stop Button, 2 N/C, mounting hole 22 mm, M12 connection (5-pole)	**69051**
E-Stop Button, 2 N/C, mounting hole 30.3 mm, M12 connection (5-pole)	**69101**
E-Stop Button, 2 N/C, width 42 mm, M12 connection (5-pole)	**69001**
E-Stop Button with illumination, 2 N/C, width 42 mm, M12 connection (8-pole)	**69002**
E-stop/Reset Button, 2 N/C, 1 N/O, width 42 mm, M12 connection (8-pole)	**69003**
E-Stop with illumination Button, 2 N/C, 1 N/O, width 42 mm, M12 connection (8-pole)	**69004**
Reset Button, 1 N/O, width 42 mm, M12 connection (4-pole)	**69010**
2 Reset Button, 2 N/O, width 42 mm, M12 connection (4-pole)	**69011**
2 Reset Button with illumination, 2 N/O, width 42 mm, M12 connection (8-pole)	**69012**
Reset Button with illumination, 1 N/O, width 42 mm, M12 connection (4-pole)	**69013**
E-Stop Button, 2 N/C, width 72 mm, M12 connection (5-pole)	**69041**
E-Stop Button with protective collar, 2 N/C, width 72 mm, M12 connection (5-pole)	**69042**
E-Stop Button with illumination, 2 N/C, width 72 mm, M12 connection (8-pole)	**69043**
Adaptor & T-coupler	**Art.-No.**
Adaptor M12 male / M12 female shielded AIDA	**7030-42291-0000000**
Adaptor M12 male / M12 female shielded for PIN adjustment (2-4/4-2/3-5)	**333497**
T-coupler (SlimLine) for connection of M12 8-pole Schmersal MZM100, AZM200, AZM300 Sens. at MVK Metall Safety module	**7030-42602-0000000**
T-coupler (SlimLine) for connection of M12 8-pole Pilz Sensoren (z.B. PSEN sl-0.5p, sl-1.0p, cs3.1p, cs4.1p) at MVK Metall Safety module	**7030-42603-0000000**
T-coupler (SlimLine) for connection of M12 8-pole Euchner CES-A-... sensors at MVK Metall Safety module	**7030-42642-0000000**
T-coupler (SlimLine) for connection of M12 8-pole Euchner CETx-AP-..., CTP-AP-... sensors at MVK Metall Safety module	**7030-42662-0000000**
T-coupler (SlimLine) for connection of M12 8-pole Schmersal AZM400 sensors at MVK Metall Safety module	**7030-42671-0000000**
T-coupler (SlimLine) for connection of M12 8-pole E-Stop Button at MVK Metall Safety (not for article 69012)	**7030-42622-0000000**
T-coupler (SlimLine) M12 male 5p/2x M12 female 3p for connection of 2 one-channel sensors at one FDI port	**7000-41155-0000000**
T-coupler (SlimLine) for connection of 69012	**7030-42623-0000000**
Cable Fixation	**Art.-No.**
8xM12 black, to lock the plug position of actor/sensor cables	**55554**
M12 Male 0°/M12 Female 0° Connecting Cables	**Art.-No.**
5-pole AIDA, PUR 5X0.34 yellow UL/CSA	**7030-40041-126XXXX**
4-pole AIDA, PUR 4X0.34 black UL/CSA	**7030-40021-634XXXX**

xxxx = Wire length in cm (e.g. 0100 = 100 cm)

More information about MVK Fusion as well as accessories, data sheets, installation instructions etc. can be found in the online shop at **shop.murrelektronik.com**

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