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MVK FUSION
The Fieldbus Module with Extreme Range

02 Safety

IO-Link

03

01 Standard IO

1 0 1 0

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.

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!

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.
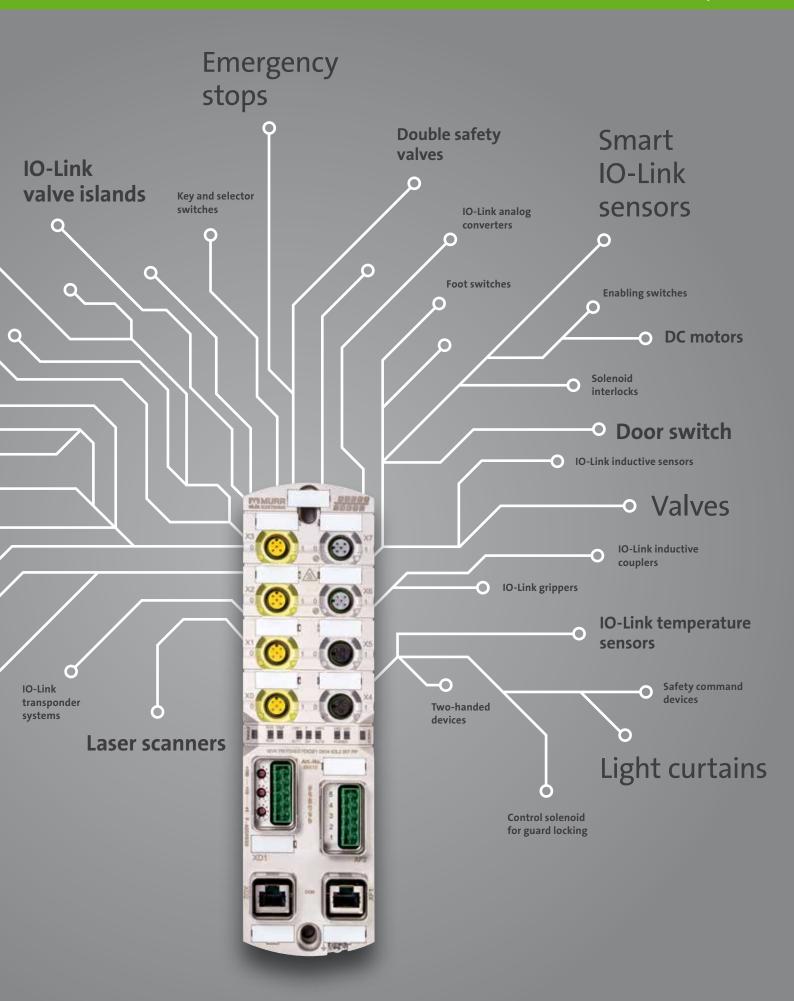
High Performance

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.

IO-Link
button systems

Safety
valves

Safety door
systems

IO-Link
hubs

IO-Link distance sensors

IO-Link
pressure sensors

Electromechanical
safety switches

Digital
sensors

Emergency stops

Double safety valves

Smart IO-Link sensors

IO-Link valve islands

Key and selector switches

IO-Link analog converters

Foot switches

Enabling switches

DC motors

Solenoid interlocks

Door switch

IO-Link inductive sensors

Valves

IO-Link inductive couplers

IO-Link grippers

IO-Link temperature sensors

IO-Link transponder systems

Two-handed devices

Safety command devices

Laser scanners

Light curtains

Control solenoid for guard locking

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 und 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 Metal 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 Hubs	**Art.-No.**
MVP12 plastic DI16 IOL, Compact module, IO-Link version 1.1, Port Class Type A	59401
MVP12 plastic DI8 DO8 IOL, Compact module, IO-Link version 1.1 , Port Class Type B	59402
MVP12 metal 8xM12 DI8 DO8 IOL K3, Compact module, IO-Link version 1.1 , Port Class Type B (galvanic separated)	55518
MVP12 metal 8xM12 DI16 IOL, Compact module, IO-Link version 1.1 , Port Class Type A	55519
E-Stop and Reset Button	**Art.-No.**
E-Stop Button, 2 N/C, width 42 mm, M12 connection (4-pin)	69000
E-Stop Button, 2 N/C, width 42 mm, M12 connection (5-pin)	69001
E-Stop Button with illumination, 2 N/C, width 42 mm, M12 connection (8-pin)	69002
E-stop/Reset Button, 2 N/C, 1 N/O, width 42 mm, M12 connection (8-pin)	69003
E-Stop with illumination Button, 2 N/C, 1 N/O, width 42 mm, M12 connection (8-pin)	69004
Reset Button, 1 N/O, width 42 mm, M12 connection (4-pin)	69010
2 Reset Button, 2 N/O, width 42 mm, M12 connection (4-pin)	69011
2 Reset Button with illumination, 2 N/O, width 42 mm, M12 connection (8-pin)	69012
Reset Button with illumination, 1 N/O, width 42 mm, M12 connection (4-pin)	69013
E-Stop Button, 2 N/C, width 72 mm, M12 connection (4-pin)	55550
E-Stop Button, 2 N/C, width 72 mm, M12 connection (5-pin)	69041
E-Stop Button with protective collar, 2 N/C, width 72 mm, M12 connection (4-pin)	69040
E-Stop Button with protective collar, 2 N/C, width 72 mm, M12 connection (5-pin)	69042
E-Stop Button with illumination, 2 N/C, width 72 mm, M12 connection (8-pin)	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-pin devices at MVK Metal Safety	7030-42602-0000000
T-coupler (SlimLine) for connection of M12 8-pin Pilz Sensoren (z.B. PSEN sl-0.5p, sl-1.0p, cs3.1p, cs4.1p) at MVK Metal Safety module	7030-42603-0000000
T-coupler (SlimLine) for connection of M12 8-pin Euchner CES-A-... sensors at MVK Metal Safety module	7030-42642-0000000
T-coupler (SlimLine) for connection of M12 8-pin Euchner CETx-AP-..., CTP-AP-... sensors at MVK Metal Safety module	7030-42662-0000000
T-coupler (SlimLine) for connection of M12 8-pin Schmersal AZM400 sensors at MVK Metal Safety module	7030-42671-0000000
T-coupler (SlimLine) for connection of M12 8-pin E-Stop button at MVK Metal Safety module (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-pol. AIDA, PUR 5X0,34 yellow UL/CSA	7030-40041-126XXXX
4-pol. 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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