

***masibus***<sup>®</sup>

A Sonepar Company



# Field Interface Module Offerings

# Introduction

Field Interface Module (FIM) is a family of versatile, truly modular I/O products suitable to use in a wide range of control system architecture which provide easily configurable discrete and analog I/O interface. These modules simplify interconnections between system I/O cards and field equipment.

FIMs can manage signal transmission and distribution from the control system to the field (system, machine, process) and vice versa, It also provides signal isolation between I/O cards and field instruments. They are available in standard configurations, and can also be customized quickly for various requirements.

Masibus offers broad spectrum of compact and cost effective FIMs that allows I/O signals from automation devices to be customized to interface input/ output modules of the control system.

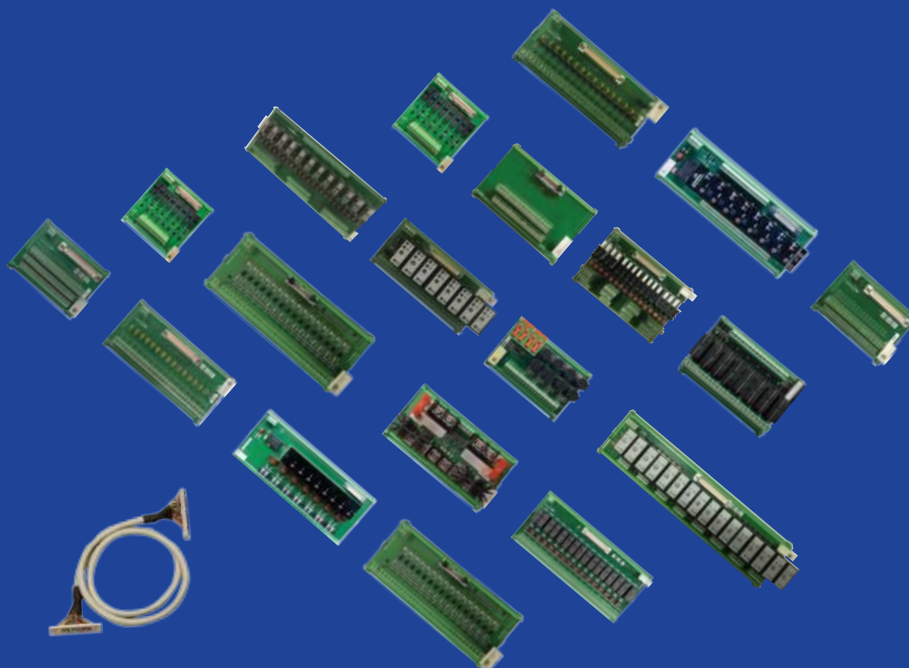
Masibus FIM consists of multiple channels (4, 8, 12, 16 etc.) and perform the function of signal conditioning and channel to channel isolation at the input/ output side to generate calibrated and linearly proportional 0 -  $\pm 5V$ , 0 -  $\pm 10V$ , 2 -  $\pm 10V$  0-20mA, 4-20mA, RTD, Thermocouple, etc. of 2 wire or 4 wire output signal which is connected to input/ output of discrete system.

Our strong research and development team can design any specific requirement from customers to fulfill the application needs. We have developed various customized field interface module as per the specific requirement of global OEMs.

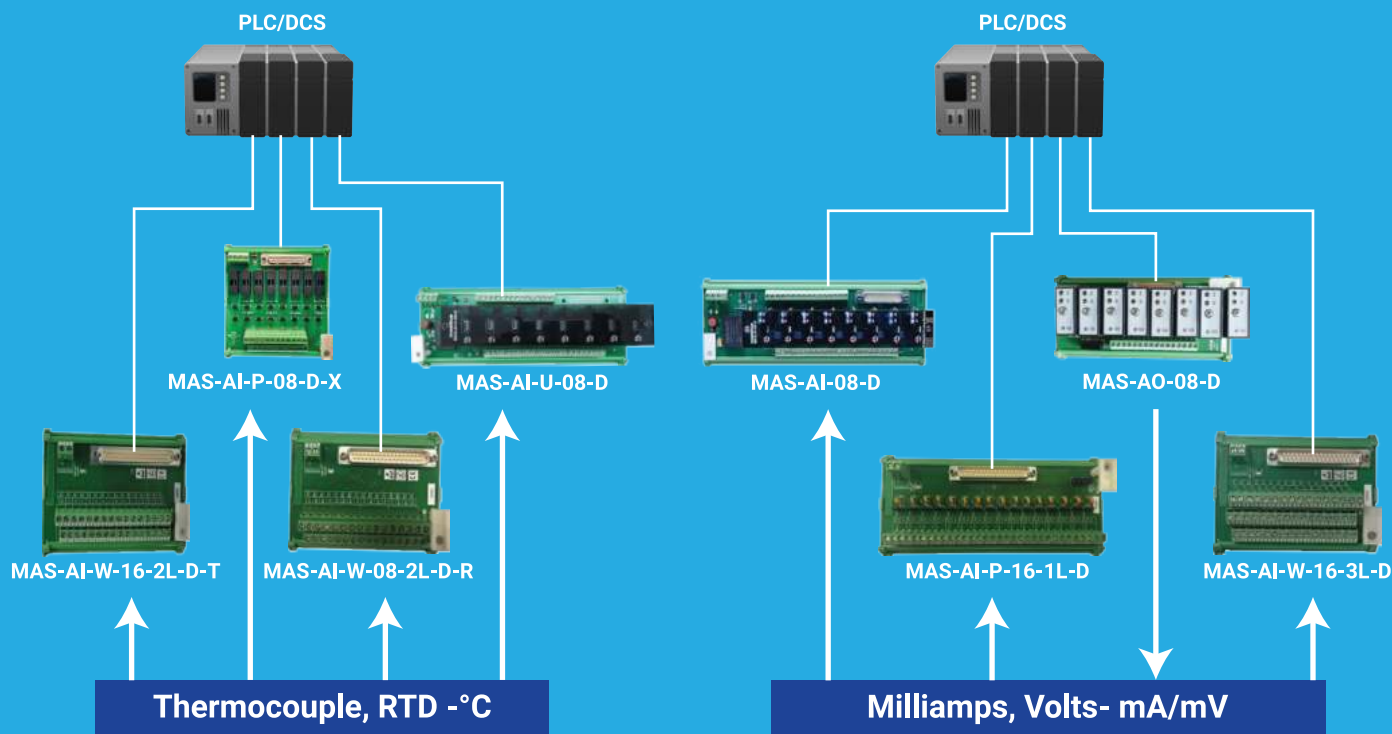
From Masibus we have a wide range of offering of FIMs product categorized into PASSIVE & ACTIVE FIMs.

**Passive FIMs** provides simplified cabling between field interface and I/O modules, it also provides protection of the I/O cards against any abnormality in the field.

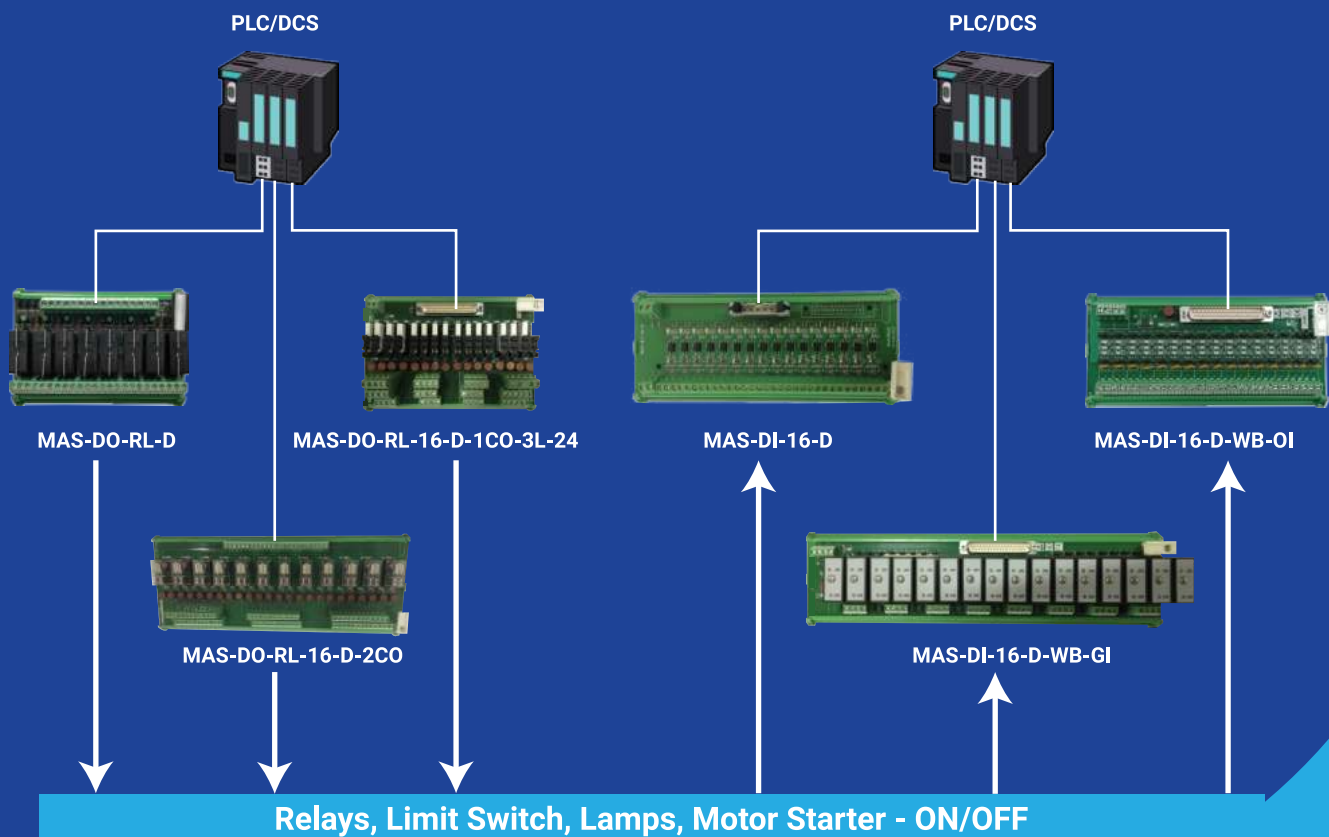
**Active FIMs** provides signal conversion as well as isolation between field interface and I/O module.



## Analog Signals



## Digital Signals



## Passive FIMs

Sr. No.	Model No.	Description	Category	Sub Category
1	MAS-P-DXX-M / MAS-P-DXX-F Where XX is - 15/25/37/50	D Sub (PLC/DCS) to Screw Terminals (Field)	Passive	AI, AO, DI, DO
2	MAS-P-DXX-M-P / MAS-P-DXX-F-P Where XX is - 15/25/37/50	D Sub (PLC/DCS) to Screw Terminals (Field) with Resettable Electronic Fuse / Surge Protection	Passive	AI, AO, DI, DO
3	MAS-P-FXX-M / MAS-P-FXX-F Where XX is - 16/20/40/50	FRC (PLC/DCS) to Screw Terminals (Field)	Passive	AI, AO, DI, DO
4	MAS-P-FXX-M-P / MAS-P-FXX-F-P Where XX is - 16/20/40/50	FRC (PLC/DCS) to Screw Terminals (Field) with Resettable Electronic Fuse / Surge Protection	Passive	AI, AO, DI, DO
5	MAS-AI-W-16-3L-D	16 Channel Analog Input FIM Track FIM with Three Tier termination at Field Side	Passive	AI
6	MAS-AI-P-16-1L-D	16 Channel Analog Input FIM Track with Resettable Electronic Fuse with Single Tier Termination at Field Side	Passive	AI
7	MAS-AI-W-08-1L-D-R	8 Channel RTD Input FIM Track with Single Tier Termination at Field Side	Passive	AI
8	MAS-AI-P-08-D-X	8 Channel Analog Input FIM with Fuse Track with Two Tier Termination at Field Side	Passive	AI
9	MAS-AI-W-08-2L-D-R	8 Channel RTD Input FIM Track with Two Tier Termination at Field Side	Passive	AI
10	MAS-AI-W-16-1L-D-T	16 Channel TC Input FIM Track with Single Tier Termination at Field Side	Passive	AI
11	MAS-AI-W-16-2L-D-T	16 Channel TC Input FIM Track with Two Tier Termination at Field Side	Passive	AI
12	MAS-AO-W-08-2L-D	8 Channel Analog Output FIM Track with Two Tier Termination at Field Side	Passive	AO
13	MAS-AO-P-08-2L-D	8 Channel Analog Output FIM Track with Resettable Electronic Fuse with Two Tier Termination at Field Side	Passive	AO
14	MAS-DI-W-16-2L-D	16 Channel Digital Input FIM Track with Two Tier Termination at Field Side	Passive	DI
15	MAS-DI-P-16-2L-D	16 Channel Digital Input FIM Track With Resettable Electronic Fuse with Termination at Field Side	Passive	DI
16	MAS-DO-W-16-2L-D	16 Channel Digital Output FIM Track with Two Tier Termination at Field Side	Passive	DO
17	MAS-DO-P-16-1L-D	16 Channel Digital Output FIM Track with Resettable Electronic Fuse with Single Tier Termination at Field Side	Passive	DO



## Active FIMs

Sr. No.	Model No.	Description	Category	Sub Category
18	MAS-AI-08-D	8 Channel Isolated Analog Input FIM	Active	AI
19	MAS-AI-16-D	16 Channel Isolated Analog Input FIM	Active	AI
20	MAS-AI-08-D-H	8 Channel Isolated Analog Input FIM with HART	Active	AI
21	MAS-AI-16-D-H	16 Channel Isolated Analog Input FIM with HART	Active	AI
22	MAS-AI-U-08-D	8 Channel Isolated Analog Linearized RTD/TC FIM	Active	AI
23	MAS-AI-R-08-D	8 Channel Isolated Analog RTD FIM	Active	AI
24	MAS-AO-08-D	8 Channel Isolated Analog Output FIM	Active	AO
25	MAS-AO-8-D-H	8 Channel Isolated Analog Output FIM with HART	Active	AO
26	MAS-DI-16-D	16 Channel Digital Input FIM Optically Isolated	Active	DI
27	MAS-DI-16-D-WB-OI	16 Channel Digital Input FIM Optically Isolated with Wire Break Detection	Active	DI
28	MAS-DI-16-D-WB-GI	16 Channel Digital Input FIM Galvanic Isolated with Wire Break Detection	Active	DI
29	MAS-DO-RL-16-D-1CO-1L-24 MAS-DO-RL-16-D-1CO-1L-230	16 Channel Relay FIM 1CO with Fuse on Relay for 24 VDC / 230VAC Contact	Active	DO
30	MAS-DO-RL-08-D-1CO MAS-DO-RL-16-D-1CO	8/16 Channel Relay FIM – 1CO	Active	DO
31	MAS-DO-RL-08-D-2CO MAS-DO-RL-16-D-2CO	8/16 Channel Relay FIM – 2CO	Active	DO
32	MAS-DO-RL-16-D-1CO-3L-24 MAS-DO-RL-16-D-1CO-3L-230	16 Channel Relay FIM 1CO with Fuse on Relay for 24 VDC / 230VAC Contact	Active	DO
33	MAS-DO-RL-16-D-2CO-2L-24 MAS-DO-RL-16-D-2CO-2L-230	16 Channel Relay FIM 2CO with Fuse on Relay for 24 VDC / 230VAC Contact	Active	DO
34	MAS-RS-RL	4/8 Channel Relay Module with RS-485 Communication	Active	DO
35	MAS-DX-08-D	8 Channel AC Input FIM (CT/PT)	Active	DX
36	MAS-FM-07-D	MCC/VFD Feeder Monitoring FIM (3 CT + 3 PT + 1 CBCT)	Active	CBCT
37	MAS-PD-08-D-X	8 Channel (1 to 5 AMP) Power Distribution Board	Active	PD
38	MAS-DR-08-D	Diode Oring Modules	Active	DR

Passive FIM

D Sub (PLC/DCS) to Screw Terminals (Field)

MAS-P-DXX-M / MAS-P-DXX-F

Where XX is - 15/25/37/50

Features

- No. of pins: 15/25/37/50
- Cost reduction- In terms of TB's, space, wiring manpower
- Reduces cable costing - 20 core/40 core prefab cable in place of conventional wiring
- Simplicity of wiring by prefab cable
- Reduce installation and assembly time (Just install the FIM on DIN-Rail and connect prefab cable within a minute)

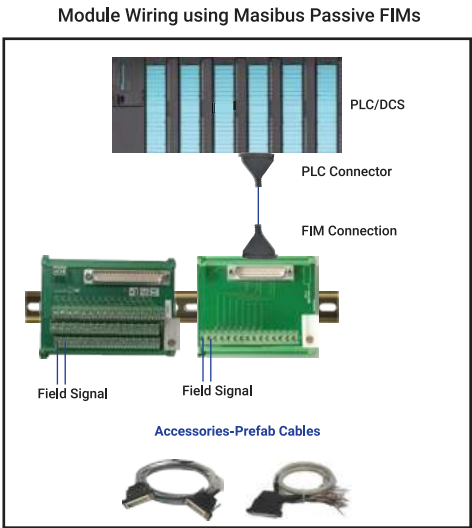
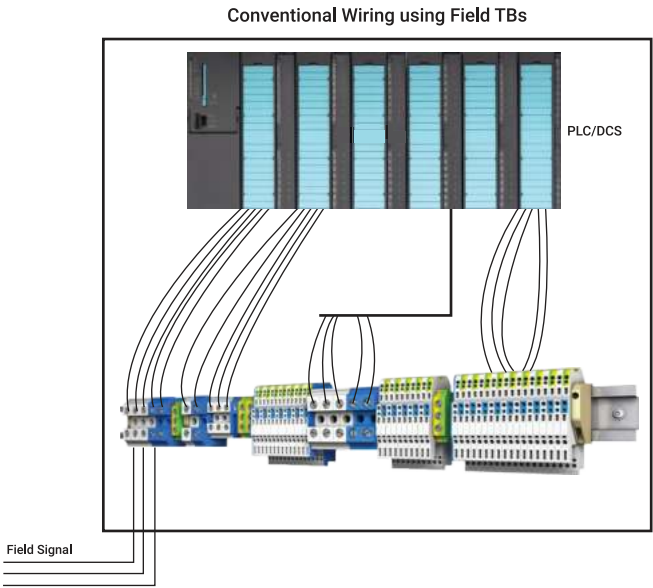
FIMs available with male/female connector with seperate order code

Dimensions in mm:

For MAS-P-D15-M-S / MAS-P-D15-F-S	90(L) x 90(W) x 70(D)
For MAS-P-D25-M-S / MAS-P-D25-F-S	150(L) x 90(W) x 70(D)
For MAS-P-D37-M-S / MAS-P-D37-F-S	200(L) x 90(W) x 70(D)
For MAS-P-D50-M-S / MAS-P-D50-F-S	275(L) x 90(W) x 70(D)



Effective Alternative to End to End Cabling



Passive FIM

D Sub (PLC/DCS) to Screw Terminals (Field) with Resettable Electronic Fuse / Surge Protection

MAS-P-DXX-M-P / MAS-P-DXX-F-P

Where XX is - 15/25/37/50

Features

- No. of pins: 15/25/37/50
- Protection: Fuse, MOV (Surge), (Resettable fuse)
- Cost reduction- In terms of TB's, space, wiring manpower
- Reduces cable costing 20 core/40 core prefab cable instead of conventional wiring
- Simplicity of wiring by prefab cable
- Reduce installation and assembly time (Just install the FIM on DIN-Rail and connect prefab cable within a minute)
- Available for DC Voltage & AC voltage separately

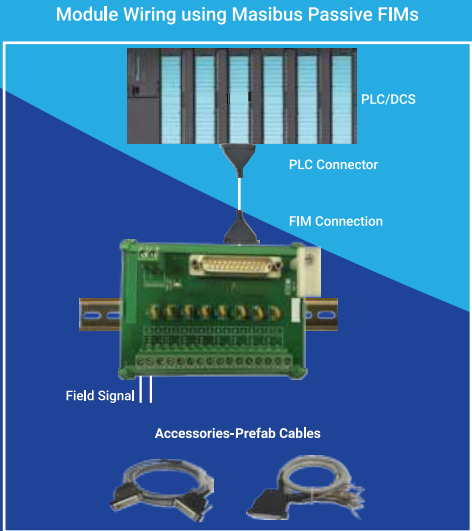
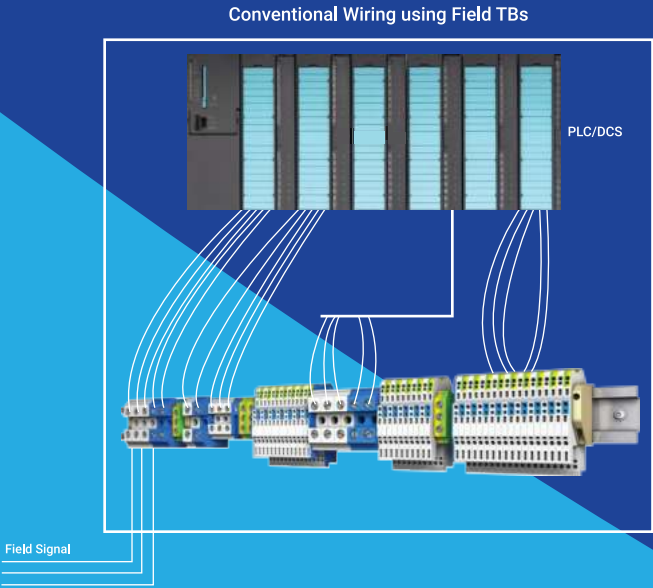
FIMs available with male/female connector with seperate order code

Dimensions in mm:

For MAS-P-D15-M-P-S / MAS-P-D15-F-P-S	90(L) x 90(W) x 70(D)
For MAS-P-D25-M-P-S / MAS-P-D25-F-P-S	150(L) x 90(W) x 70(D)
For MAS-P-D37-M-P-S / MAS-P-D37-F-P-S	200(L) x 90(W) x 70(D)
For MAS-P-D50-M-P-S / MAS-P-D50-F-P-S	275(L) x 90(W) x 70(D)



Effective Alternative to End to End Cabling



## Passive FIM FRC (PLC/DCS) to Screw Terminals (Field) MAS-P-FXX-M / MAS-P-FXX-F

Where XX is - 16/20/40/50

### Features

- No. of pins: 16/20/40/50
- Cost reduction- In terms of TB's, space, wiring manpower
- Reduces cable costing 20 core/40 core prefab cable instead of conventional wiring
- Simplicity of wiring by prefab cable
- Reduce installation and assembly time (Just install the FIM on DIN-Rail and connect prefab cable within a minute)

FIMs available with male/female connector with separate order code

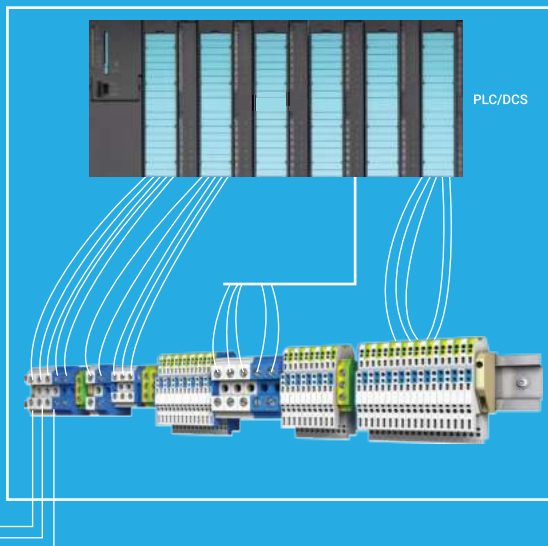
### Dimensions in mm:

For MAS-P-F16-M / MAS-P-F16-F	90(L) x 90(W) x 70(D)
For MAS-P-F20-M / MAS-P-F20-F	150(L) x 90(W) x 70(D)
For MAS-P-F40-M / MAS-P-F40-F	200(L) x 90(W) x 70(D)
For MAS-P-F50-M / MAS-P-F50-F	275(L) x 90(W) x 70(D)

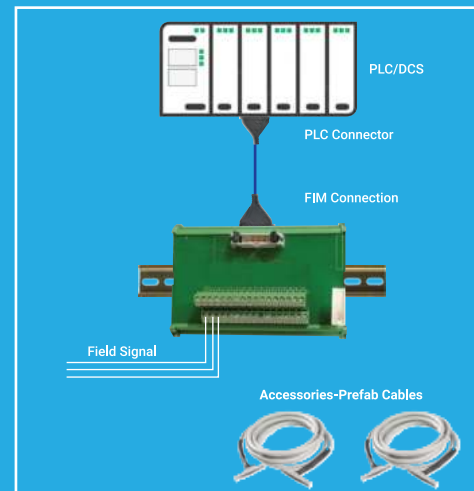


### Effective Alternative to End to End Cabling

Conventional Wiring using Field TBs



Module Wiring using Masibus Passive FIMs



## Passive FIM FRC (PLC/DCS) to Screw Terminals (Field) with Resettable Electronic Fuse / Surge Protection MAS-P-FXX-M-P / MAS-P-FXX-F-P

Where XX is - 16/20/40/50

### Features

- No. of pins: 16/20/40/50
- Protection: Fuse, MOV (Surge), (Resettable fuse)
- Cost reduction- In terms of TB's, space, wiring manpower
- Reduces cable costing 20 core/40 core prefab cable instead of conventional wiring
- Simplicity of wiring by prefab cable
- Reduce installation and assembly time (Just install the FIM on DIN-Rail and connect prefab cable within a minute)
- These FIMs are available with electronic resettable fuse for input/output protection

FIMs available with male/female connector with separate order code

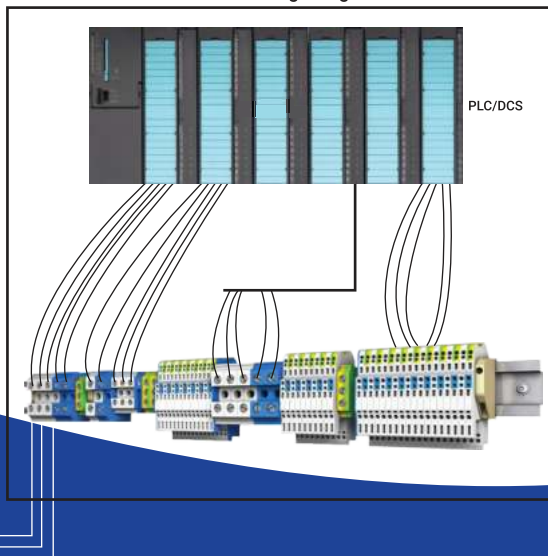
### Dimensions in mm:

For MAS-P-F16-M-P / MAS-P-F16-F-P	90(L) x 90(W) x 70(D)
For MAS-P-F20-M-P / MAS-P-F20-F-P	150(L) x 90(W) x 70(D)
For MAS-P-F40-M-P / MAS-P-F40-F-P	200(L) x 90(W) x 70(D)
For MAS-P-F50-M-P / MAS-P-F50-F-P	275(L) x 90(W) x 70(D)

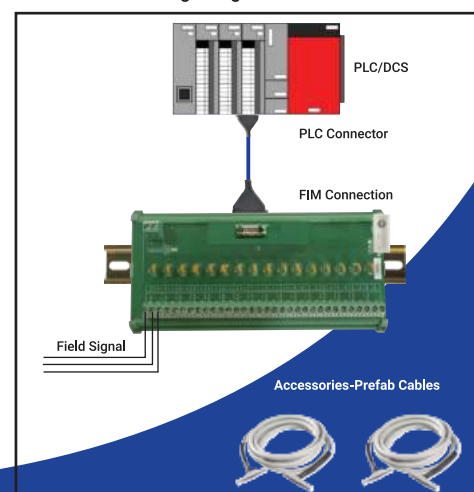


### Effective Alternative to End to End Cabling

Conventional Wiring using Field TBs



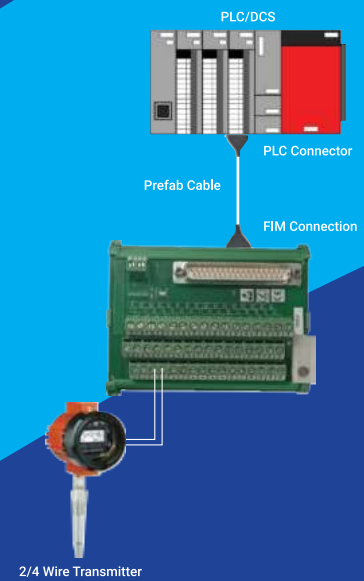
Module Wiring using Masibus Passive FIMs



**Passive FIM**  
**16 Channel Analog Input FIM**  
**Track FIM with Three Tier termination at Field Side**  
**MAS-AI-W-16-3L-D**

**Features**

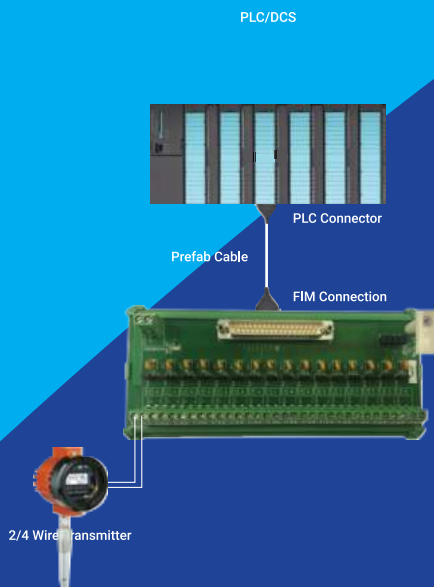
- No. of channels: 16
- Input: (Field side) - 4-20mA (2/4 Wire)/2-10 VDC
- Output: (PLC/DCS side) - 4-20mA (2 Wire)/2-10 VDC
- Current per channel 0.5A max.
- Surge protection: upto2KV
- Termination at field side: Screw type, max. 2.5 mm<sup>2</sup> conductor
- Dimensions in mm: 110 x 90 x 70 mm (H x W x D)



**Passive FIM**  
**16 Channel Analog Input FIM**  
**Track with (Resettable Electronic Fuse) with**  
**Single Tier Termination at Field Side**  
**MAS-AI-P-16-1L-D**

**Features**

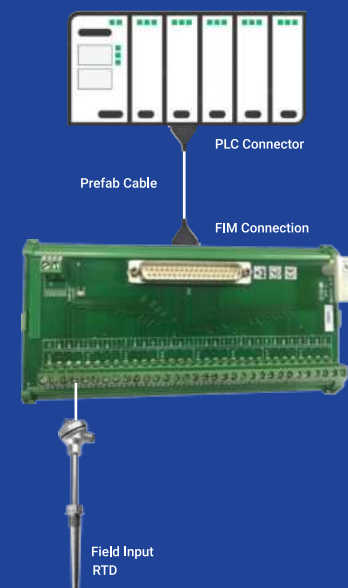
- No. of channels: 16
- Input: (Field side) - 4-20mA (2/4 Wire)
- Output: (PLC/DCS side) - 4-20mA (2 Wire)
- Short circuit protection: Channel wise short circuit protection by electronically resettable fuse
- Surge protection: Up To 2KV
- Termination at field side: Screw type, max. 2.5 mm<sup>2</sup> conductor
- Dimensions in mm: 180 x 90 x 70 mm (H x W x D)



**Passive FIM**  
**8 Channel RTD Input FIM**  
**Track with Single Tier Termination at Field Side**  
**MAS-AI-W-08-1L-D-R**

**Features**

- No. of channels: 8
- Input: (Field side) - RTD, 3/4 Wire
- Output: (PLC/DCS side) - RTD, 3/4 Wire
- Current per channel 0.5A max.
- Surge protection: upto2KV
- Termination at field side: Screw type, max. 2.5 mm<sup>2</sup> conductor
- Dimensions in mm: 180 x 90 x 70 mm (H x W x D)

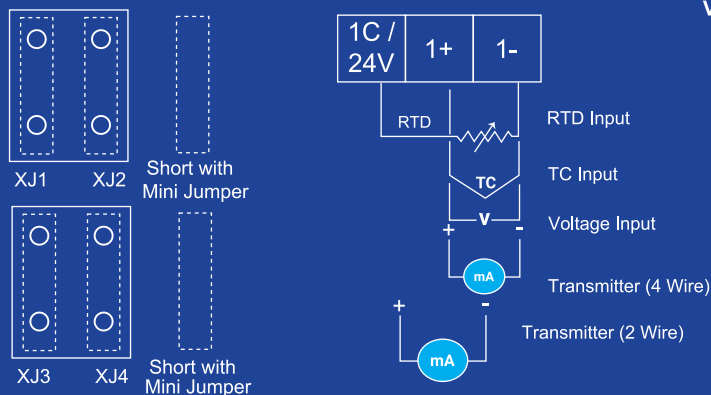
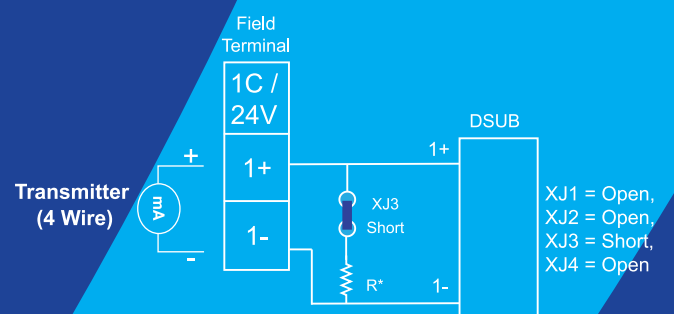




## 8 Channel Analog Input FIM with Fuse Track with Two Tier Termination at Field Side MAS-AI-P-08-D-X



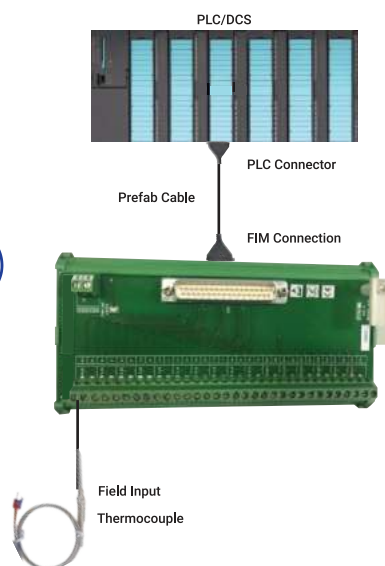
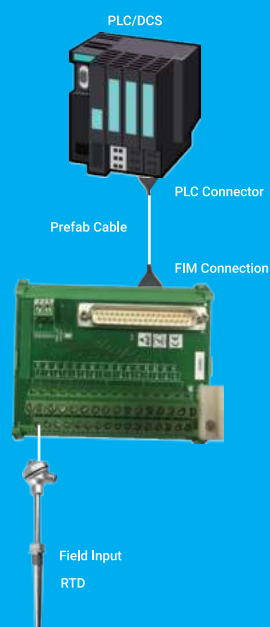
- Universal input current (2 wire / 4 wire) / voltage / RTD / thermocouple  
Selection of each channel using hardware jumpers
- Fuse - 50mA each channel
- Resistance selection for Masibus Products - MINT-AI / 85XX+ / 8040 / 8204 / 8208
- Compact in design
- Reduce installation and assembly time (Just install the FIM on DIN-Rail and connect prefab cable within a minute)
- Dimensions in mm 110 (L) x 126(w) x 70 (D)



**Passive FIM**  
**8 Channel RTD Input FIM**  
**Track with Two Tier Termination at Field Side**  
**MAS-AI-W-08-2L-D-R**

**Features**

- No. of channels: 8
- Input: (Field side) - RTD, 3/4 Wire
- Output: (PLC/DCS side) - RTD, 3/4 Wire
- Current per channel 0.5A max.
- Surge protection: upto2KV
- Termination at field side: Screw type, max. 2.5 mm<sup>2</sup> conductor
- Reduce the size of the module for panels space utilization by two tier terminal
- Dimensions in mm: 110 x 90 x 70 mm (H x W x D)



**Passive FIM**  
**16 Channel TC Input FIM**  
**Track with Single Tier Termination at Field Side**  
**MAS-AI-W-16-1L-D-T**

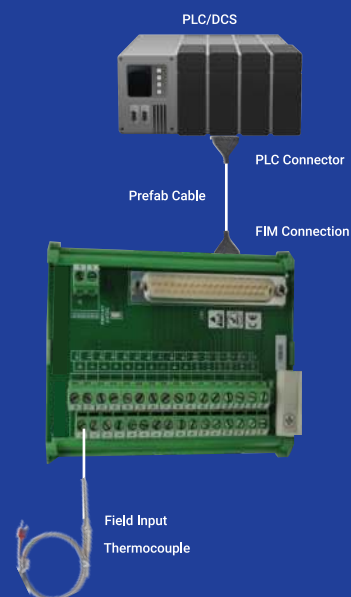
**Features**

- No. of channels: 16
- Input: (Field side) - Thermocouple
- Output: (PLC/DCS side) - Thermocouple
- Current per channel 0.5A max.
- Surge protection: upto2KV
- Termination at field side: Screw type, max. 2.5 mm<sup>2</sup> conductor
- Dimensions in mm: 180 x 90 x 70 mm (H x W x D)

**Passive FIM**  
**16 Channel TC Input FIM**  
**Track with Two Tier Termination at Field Side**  
**MAS-AI-W-16-2L-D-T**

**Features**

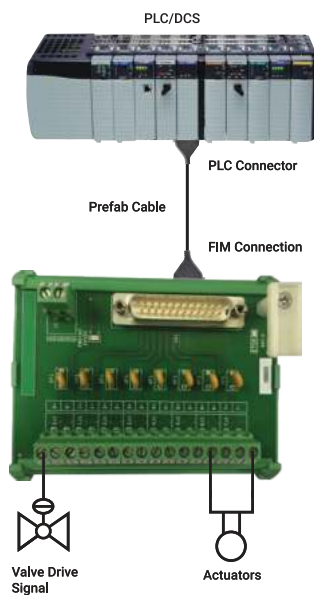
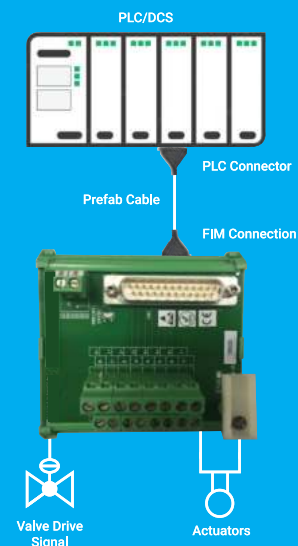
- No. of channels: 16
- Input: (Field side) - Thermocouple
- Output: (PLC/DCS side) - Thermocouple
- Current per channel 0.5A max.
- Surge protection: upto2KV
- Termination at field side: Screw type, max. 2.5 mm<sup>2</sup> conductor
- Reduce the size of the module for panels space utilization by two tier terminal
- Dimensions in mm: 110 x 90 x 70 mm (H x W x D)



**Passive FIM**  
**8 Channel Analog Output FIM**  
**Track with Two Tier Termination at Field Side**  
**MAS-AO-W-08-2L-D**

**Features**

- No. of channels: 16
- Input (PLC/DCS side) - 4-20mA
- Output (Field side) - 4-20mA
- Current per channel 0.5A max.
- Surge protection: upto2KV
- Reduce the size of the module for panels space utilization by two tier terminal
- Dimensions in mm: 85 x 90 x 70 mm (H x W x D)



**Passive FIM**  
**8 Channel Analog Output FIM**  
**Track with Resettable Electronic Fuse with**  
**Single Tier Termination at Field Side**  
**MAS-AO-P-08-1L-D**

**Features**

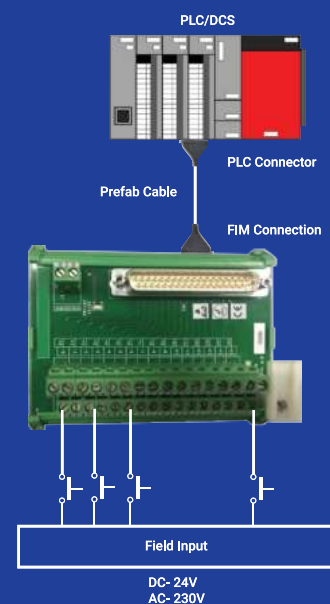
- No. of channels: 8
- Input (PLC/DCS side) - 4-20mA
- Output (Field side) - 4-20mA
- Current per channel 0.5A max.
- Short circuit protection: Channel wise 30mA (Resettable type fuse)
- Surge protection: upto2KV
- Dimensions in mm: 110 x 90 x 70 mm (H x W x D)



**Passive FIM**  
**16 Channel Digital Input FIM**  
**Track with Two Tier Termination at Field Side**  
**MAS-DI-W-16-2L-D**

**Features**

- No. of channels: 16
- Input: (Field side) - 24VDC
- Output: (PLC/DCS side) - 24VDC
- Current per channel 0.5A max.
- Surge protection: upto2KV
- Termination at field side: Screw type, max. 2.5 mm 2 conductor
- Dimensions in mm: 110 x 90 x 70 mm (H x W x D)





## Passive FIM

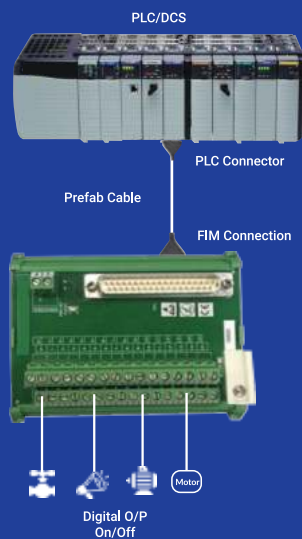
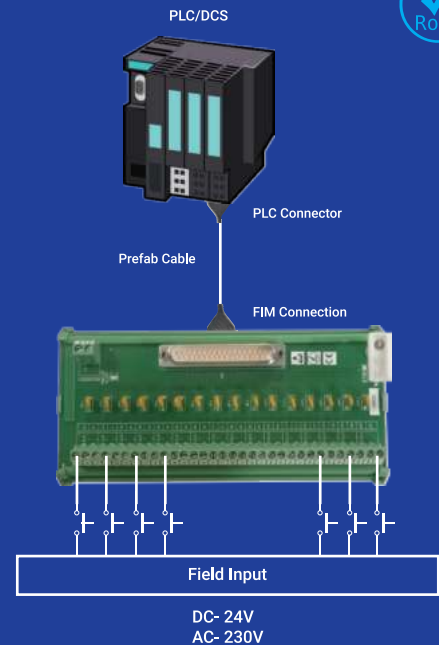
### 16 Channel Digital Input FIM

Track With Resettable Electronic Fuse with Termination at Field Side

MAS-DI-P-16-1L-D

#### Features

- No. of channels: 16
- Input: (Field side) - 24VDC
- Output: (PLC/DCS side) - 24VDC
- Current per channel 0.5A max.
- Surge protection: upto2KV
- Termination at field side: Screw type, max. 2.5 mm<sup>2</sup> conductor
- Dimensions in mm: 180 x 90 x 70 mm (H x W x D)



## Passive FIM

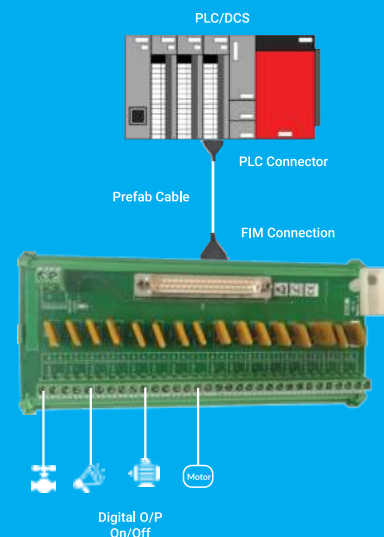
### 16 Channel Digital Output FIM

Track with Two Tier Termination at Field Side

MAS-DO-W-16-2L-D

#### Features

- No. of channels: 16
- Input: (PLC/DCS side) - 24VDC
- Output: (Field side) - 24VDC
- Current per channel 0.5A max.
- Surge protection: upto2KV
- Termination at field side: Screw type, max. 2.5 mm<sup>2</sup> conductor
- Dimensions in mm: 180 x 90 x 70 mm (H x W x D)



## Passive FIM

### 16 Channel Digital Output FIM

Track with Resettable Electronic Fuse with Single Tier Termination at Field Side

MAS-DO-P-16-1L-D

#### Features

- No. of channels: 16
- Input: (PLC/DCS side) - 24VDC
- Output: (Field side) - 24VDC
- Current per channel 0.5A max.
- Short circuit protection: Channel wise 0.5A (Resettable type fuse)
- Surge protection: upto2KV
- Termination at field side: Screw type, max. 2.5 mm<sup>2</sup> conductor
- Dimensions in mm: 180 x 90 x 70 mm (H x W x D)



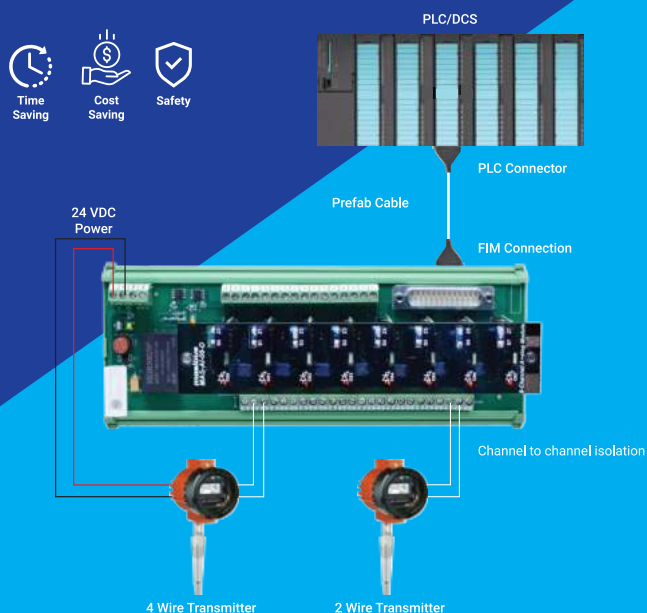
## Active FIM 8 Channel Isolated Analog Input FIM MAS-AI-08-D

### Features

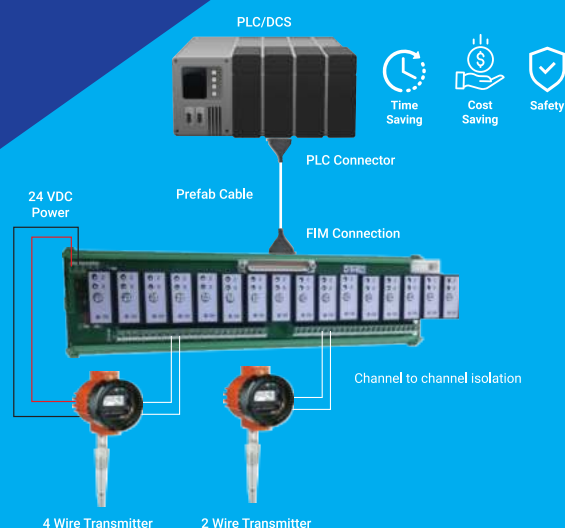
- No. of channels: 8
- Input: (Field side): 0/4-20 mA, 0/1-5VDC, 0-10VDC
- Output: (PLC/DCS side): 0/4-20 mA, 0/1-5VDC, 0-10VDC
- Short circuit protection: 25 mA  $\pm$  5% short circuit current protection in transmitted power supply
- Signal monitoring: LED (Red) for under / over / open indication (Input side)
- Load driving capacity/ channel: Up to 600  $\Omega$
- Galvanic isolation: 1.5 KV AC, channel wise - Input to output, channel to channel (Input side), input to power supply (DC24V)
- Dimensions in mm: 225(L) x 90(W) x 90(D)



## Cost-Effective Solutions for Field Signal Isolation



## Cost-Effective Solutions for Field Signal Isolation



## Active FIM 16 Channel Isolated Analog Input FIM MAS-AI-16-D

### Features

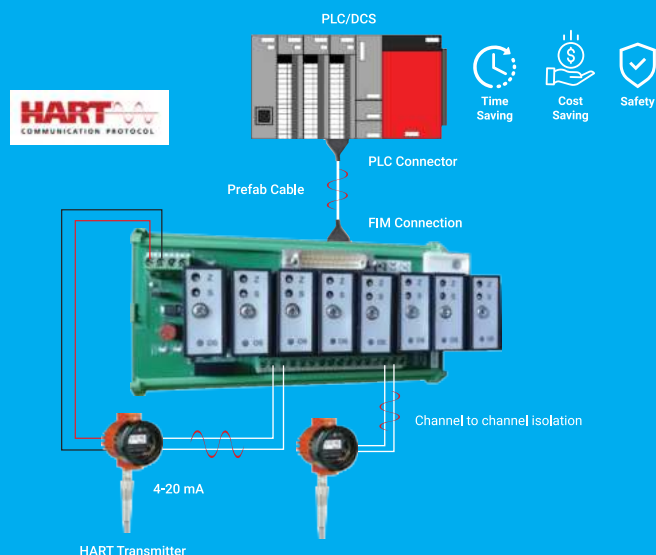
- No. of channels: 16
- Input: (Field side) - 4-20mA (2/4 Wire)
- Output: (PLC/DCS side) - 4-20mA (4 Wire)
- Short circuit protection: 25 mA  $\pm$  5% short circuit current protection in transmitted power supply
- Signal monitoring: LED (Red) for under / over / open indication (Input side)
- Load driving capacity/ channel: Up to 600  $\Omega$
- Galvanic isolation: 1.5 KV AC, channel wise - Input to output, channel to channel (Input side), input to power supply (DC24V)
- Dimensions in mm: 300 x 90 x 95 mm (H x W x D)

## Active FIM 8 Channel Isolated Analog Input FIM with HART MAS-AI-08-D-H

### Features

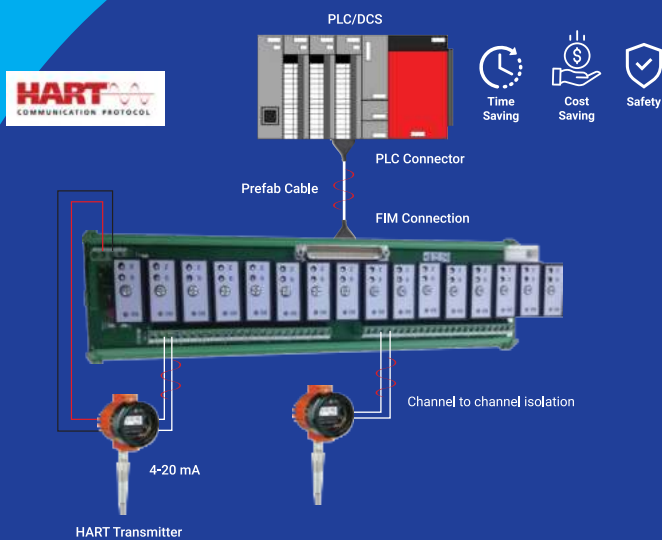
- No. of channels: 8
- Input: (Field side) - 4-20mA (2/4 Wire)
- Output: (PLC/DCS side) - 4-20mA (4 Wire)
- Short circuit protection: 25 mA  $\pm$  5% short circuit current protection in transmitted power supply
- Signal monitoring: LED (Red) for under / over / open indication (Input side)
- Load driving capacity/ channel: Up to 500  $\Omega$
- Galvanic isolation: 1.5 KV AC, channel wise - Input to output, channel to channel (Input side), input to power supply (DC24V)
- HART communication
- Dimensions in mm: 225(L) x 90(W) x 90(D)

## Cost-Effective Solutions for Field Signal Isolation with HART





## Cost-Effective Solutions for Field Signal Isolation with HART



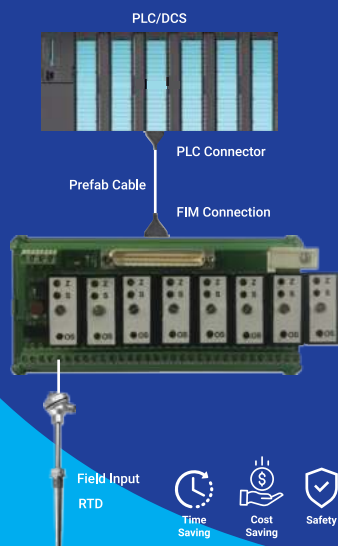
## Active FIM 8 Channel Isolated Analog Linearized RTD/TC FIM MAS-AI-U-08-D

### Features

- No. of channels: 8
- Input: (Field side): For linear type: 0/4-20 mA, 0/1-5VDC, 0-10VDC  
For: RTD/TC: Input: RTD Pt100 and thermocouple (J,K,T,E,R,S,N & B)
- Each channel is configurable for input type
- Output: (PLC/DCS side): 0/4-20 mA, 0/1-5VDC, 0-10VDC
- 24VDC @25mA transmitter power supply
- LED indication for signal over / under
- 3-Way isolation for analog signals / channel to channel isolation 1.5 KV AC
- +/- 0.1% accuracy across span
- Output direction: direct or reverse
- Zero and span calibration possible for each channel through the mini USB port
- Dimensions in mm: 225(L) x 90(W) x 90(D)

### Cost Saving:

- Thermocouple/RTD card at PLC/DCS end can be replaced by normal 4-20 mA card by using this FIMs- Minimum cost saving per 8 channel shall be approximately 35K/45K INR.
- Combination of RTD + Thermocouple (anytype) can be connected to this FIMs hence reducing the requirement of multiple RTD/Thermocouple card at PLC/DCS end- Minimum cost saving 65K to 95K INR per 8 channel with combination input
- These FIMs gives channel to channel isolation for PLC/DCS cards hence saving cost 45K to 55K each channel

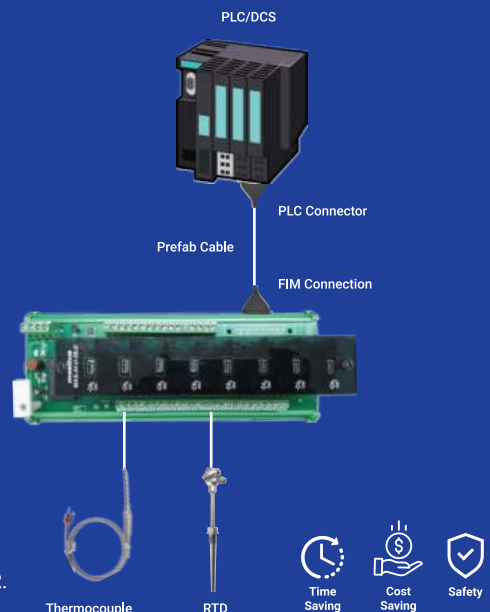


## Active FIM 16 Channel Isolated Analog Input FIM with HART MAS-AI-16-D-H

### Features

- No. of channels: 16
- Input: (Field side) - 4-20mA (2/4 Wire)
- Output: (PLC/DCS side) - 4-20mA (4 Wire)
- Short circuit protection: 25 mA  $\pm$  5% short circuit current protection in transmitted power supply
- Signal monitoring: LED (Red) for under / over / open indication (Input side)
- Load driving capacity/ channel: Up to 500  $\Omega$
- Galvanic isolation: 1.5 KV AC, channel wise  
- Input to output, channel to channel (Input side), input to power supply (DC24V)
- HART communication
- Dimensions in mm: 300 x 90 x 95 mm (H x W x D)

## Reduce PLC/DCS Costs with Signal Conditioners - Temperature Measurement Applications

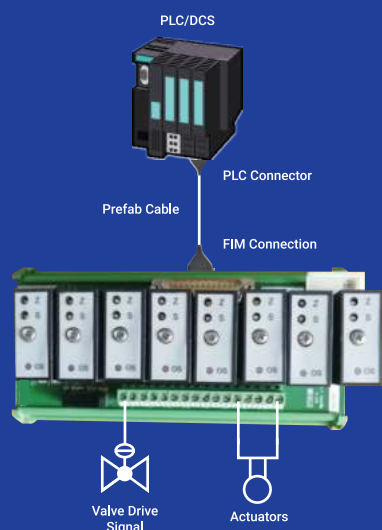


## Active FIM 8 Channel Isolated Analog RTD FIM MAS-AI-R-08-D

### Features

- No. of channels: 8
- Input: (Field side) - 3/4 wire RTD Pt100
- Output: (PLC/DCS side) - 3/4 wire RTD Pt100
- Signal monitoring: LED (Red) for open/short circuit protection/burnout
- Load driving capacity/ channel: Up to 600  $\Omega$
- Galvanic isolation: 1.5 KV AC, input to output - channel to channel (Input side) - Input to power supply (DC24V)
- Dimensions in mm: 180 x 90 x 70 mm (H x W x D)

## Reduce System Solution Cost with Signal Conditioner



### Active FIM 8 Channel Isolated Analog Output FIM MAS-AO-08-D

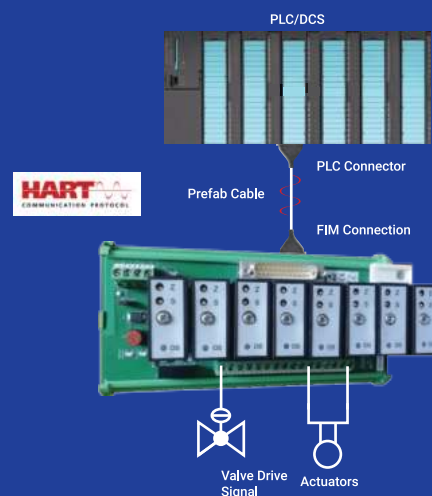
#### Features

- No. of channels: 8
- Input (PLC/DCS side) - 4-20mA/0-20 mA/ 0-5 VDC/0-10 VDC & 1-5 VDC
- Output (Field side) - 4-20mA/0-20 mA/ 0-5 VDC/0-10 VDC & 1-5 VDC  
Voltage: 0-5 VDC/0-10 VDC & 1-5 VDC
- Signal monitoring: LED (Red) for under / over / open indication (Output side)
- Load driving capacity/ channel: Up to 750  $\Omega$
- Galvanic isolation: 1.5 KV AC, input to output- channel to channel  
(Output side) Output to power supply (DC24V)
- Dimensions in mm: 180 x 90 x 95 mm (H x W x D)

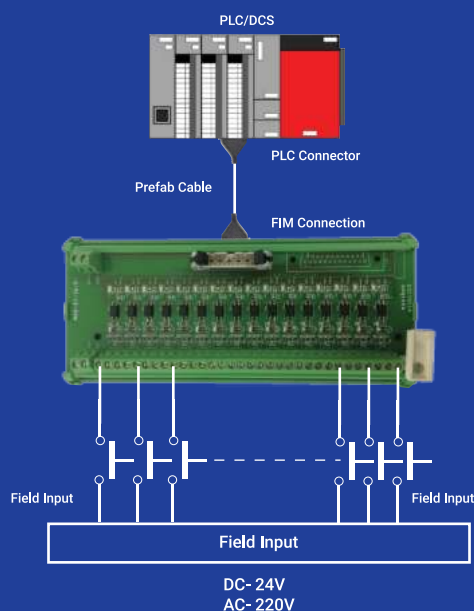
### Active FIM 8 Channel Isolated Analog Output FIM with HART MAS-AO-8-D-H

#### Features

- No. of channels: 8
- Input (PLC/DCS side) - 4-20mA
- Output (Field side) - 4-20mA
- Signal monitoring: LED (Red) for under / over / open indication (Output side)
- Load driving capacity/ channel: Up to 500  $\Omega$
- Galvanic isolation: 1.5 KV AC, input to output - Channel to channel  
(Output side) Output to power supply (DC24V)
- HART communication
- Dimensions in mm: 180 x 90 x 95 mm (H x W x D)



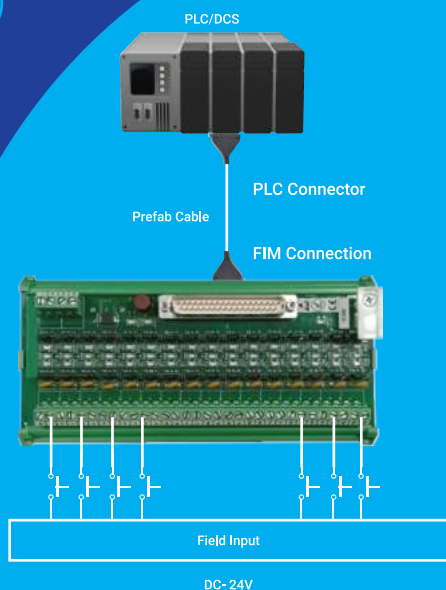
## Translate and Isolate AC/DC Field Voltages to 24V Signals



### Active FIM 16 Channel Digital Input FIM Optically Isolated MAS-DI-16-D

#### Features

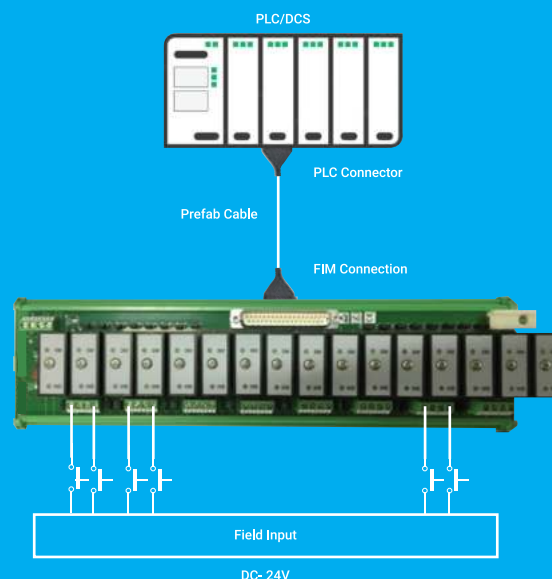
- No. of channels: 16
- Input (Field Side): 110/230 VAC, 12/24/48/110/220 VDC
- Output (PLC/DCS Side): Open collector, source or sink
- Signal healthy indication for each channel
- Optical isolation between input to output
- Output option with FRC or D-type
- Translate and isolate AC/DC field voltages to 24V signals
- Dimensions in mm: 200(L) x 90(W) x 60(D)



### Active FIM 16 Channel Digital Input FIM Galvenic Isolated with Wire Break Detection MAS-DI-16-D-WB-GI

#### Features

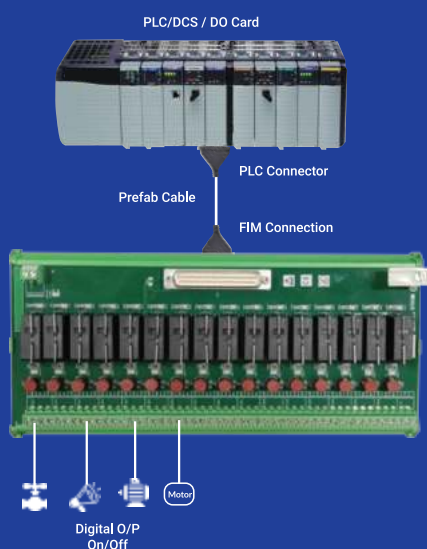
- No. of channels: 16
- Input (Field side): 24VDC
- Output (PLC/DCS side): 24VDC
- Signal monitoring: (Each channel wise):
  - Signal healthy status: LED (Green)
  - For short circuit: LED (Red)
  - Wire break monitoring (Field side): LED (Red)
- Wire break monitoring: <1 mA at output side
- Operating current: <10 mA / channel
- Short circuit protection: provided, 120 mA
- Optical isolation: 1.5KV AC, channel wise
  - Input to output
  - Channel to channel (Input side)
  - Input to power supply (DC24V)
- High signal (0 - 1): > 15V DC
- Low signal (1 - 0): < 13V DC
- Dimensions in mm: 300 x 90 x 95 mm (H x W x D)



### Active FIM 16 Channel Digital Input FIM Optically Isolated with Wire Break Detection MAS-DI-16-D-WB-OI

#### Features

- No. of channels:16
- Input (Field side): 24VDC
- Output (PLC/DCS side): 24VDC
- Signal monitoring: (Each channel wise):
  - Signal healthy status: LED (Green)
  - For short circuit: LED (Red)
  - Wire break monitoring (Field side): LED (Red)
- Wire break monitoring: <1 mA at output side
- Operating current: <10 mA / channel
- Short circuit protection: Provided, 120 mA
- Optical isolation: 1.5KV AC, channel wise - input to output
- High signal (0 - 1): > 15V DC
- Low signal (1 - 0): < 13V DC
- Dimensions in mm: 180 x 90 x 95 mm (H x W x D)



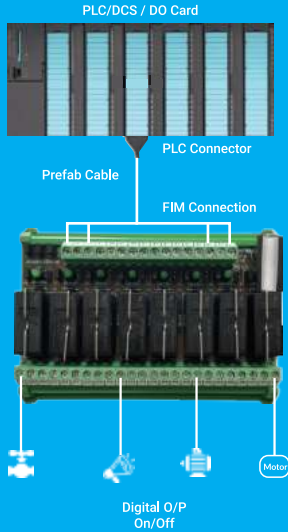
### Active FIM 16 Channel Relay FIM 1CO with Fuse on Relay Pole for 24 VDC / 230VAC Contact MAS-DO-RL-16-D-1CO-1L-24 / MAS-DO-RL-16-D-1CO-1L-230

#### Features

- No. of channels: 16
- Input: (PLC/DCS side) - 24VDC
- Output: (Field side) - 24VDC/ 230VAC @ 5A
  - LED (Green) for relay 'ON'
  - LED (Red) for short circuit protection
- Galvanic isolation: 1.5KV AC - input to output
- Protection: Field side 5A normal fuse
- Dimensions in mm: 270 x 126 x 70 mm (H x W x D)



## Driving Digital Output/Interfacing DO with PLC/DCS (DO Cards)



### Active FIM

#### 8/16 Channel Relay FIM – 2CO MAS-DO-RL-08-D-2CO

Dimensions in mm: 128x 126x 75 (8 ch.)

#### MAS-DO-RL-16-D-2CO

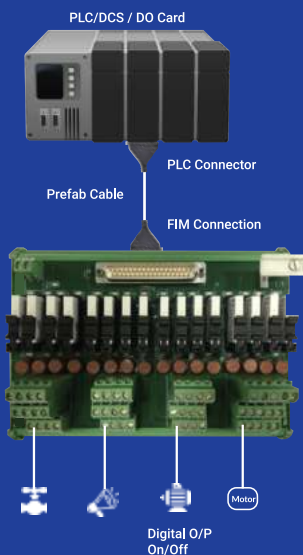
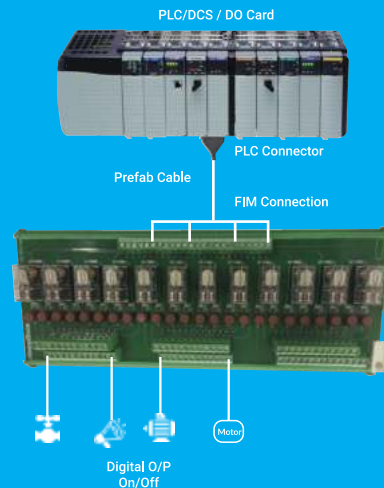
Dimensions in mm: 252x 126x 75 (16 ch.)

### Active FIM

#### 8/16 Channel Relay FIM – 1CO MAS-DO-RL-08-D-1CO MAS-DO-RL-16-D-1CO

#### Features

- No. of channels: 08/16
- Input: (PLC/DCS side) - 5VDC, 12VDC, 24VDC and 48VDC
- Output: (Field side) - 230VAC@5A, 30VDC@5A
- LED (Green) for relay 'ON'
- Galvanic isolation: 1.5KV AC - input to output
- Freewheeling diode across coil for protection
- Jumper setting for positive / negative looping
- Option for 1CO or 2 CO
- Pluggable relays
- Dimensions in mm: 128x 90x 60 (8 ch.) / 252x 90x 60 (16 ch.)



### Active FIM

#### 16 Channel Relay FIM 1CO with Fuse on Relay Pole for 24 VDC / 230VAC Contact MAS-DO-RL-16-D-1CO-3L-24 / MAS-DO-RL-16-D-1CO-3L-230

#### Features

- No. of channels: 16
- Input: (PLC/DCS side) - 24VDC
- Output: (Field side) - 24VDC/ 230VAC @ 5A
  - LED (Green) for relay 'ON'
  - LED (Red) for short circuit protection
- Galvanic isolation: 1.5KV AC - input to output
- Protection: Field side 5A normal fuse
- Dimensions in mm: 180 x 126 x 70 mm (H x W x D)

## Active FIM

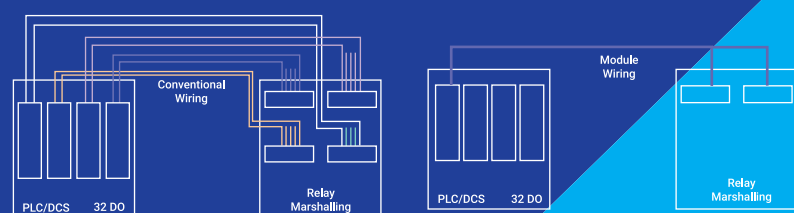
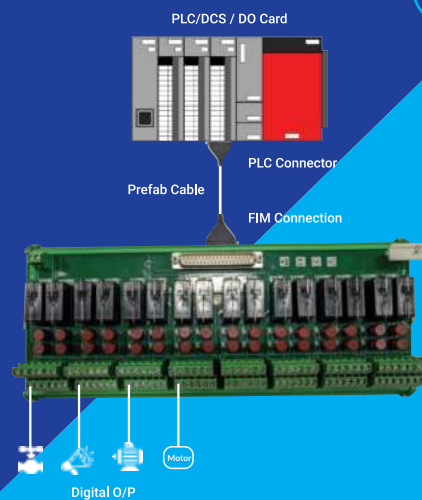
### 16 Channel Relay FIM

#### 2CO with Fuse on Relay Pole for 24 VDC / 230VAC Contact

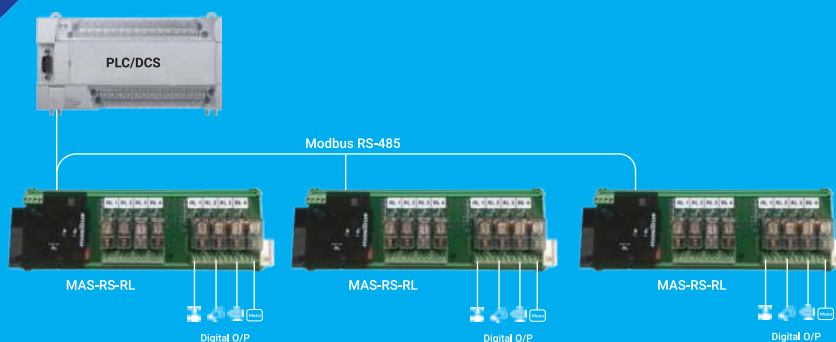
#### MAS-DO-RL-16-D-2CO-2L-24 / MAS-DO-RL-16-D-2CO-2L-230

#### Features

- No. of channels: 16
- Input: (PLC/DCS side) - 24VDC
- Output: (Field side) - 24VDC/230VAC@5A
  - LED (Green) for relay 'ON'
  - LED (Red) for short circuit protection
- Galvanic isolation: 1.5KV AC - input to output
- No. of contacts: Two
- Protection: Field side 5A normal fuse
- Dimensions in mm: 300 x 126 x 70 mm (H x W x D)



## Driving DO/Relay Output Through Modbus RS-485



## Active FIM

### Relay - RS - Communication (MAS-RS-RL)

#### Features

- No. of channels: 4/8
- Input: (PLC/DCS side) - 24VDC
- Output: (Field side) - 24VDC/230VAC @ 5A
- Communication: RS-485 (2 Wire)- Modbus RTU protocol
- Dimensions in mm:
  - For 8 channel: 246 (L) x 90 (W) x 70 (D)
  - For 4 channel: 158 (L) x 90 (W) x 70 (D)

## Active FIM

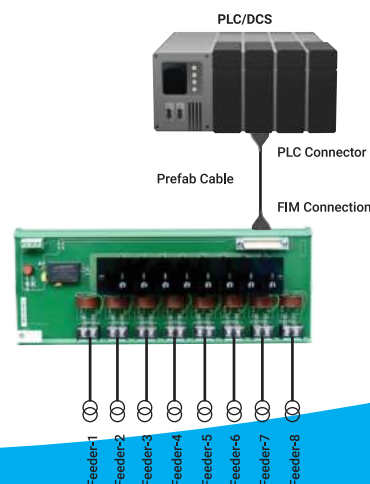
### 8 Channel AC Input FIM (CT/PT)

#### MAS-DX-08-D

#### Features

- Multi-channel configurations
- 8 Ch CT/ PT or Combination of CT/PT Inputs
- Input (Field Side): Current: 0-5A AC, 0-1A AC, 0-300mA AC
  - Voltage: 0-150VAC, 0-300VAC, 0-450VAC
- Output (PLC/DCS side): 4-20 mA, 0/1-5VDC, 0-10VDC
- 3-Way isolation for analog signals / channel to channel isolation
- Independent zero & span for each channel
- Re-Transmission to interface with SCADA/PLC/DCS
- Dimensions in mm: 300(W) x 126(H) x 90(D) mm

## Line Voltage / Current, Earth Leakage Current Measurement & Protection

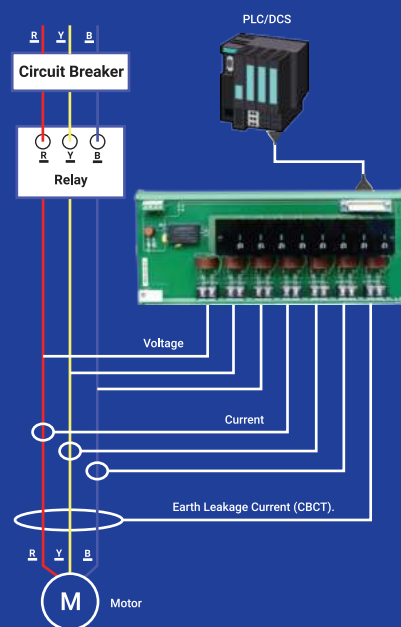


## Active FIM MCC/ VFD Feeder Monitoring FIM (3 CT+3 PT+1 CBCT) MAS-FM-07-D

### Features

- Multi-Channel configurations
- Wide range of AC inputs and DC outputs
- Input (Field Side): Current: 0-5A AC, 0-1A AC, 0-300mA AC, 0 - 10mA
  - Voltage: 0-150VAC, 0-300VAC, 0-450VAC
- Output (PLC/DCS Side): 4-20 mA, 0/1-5VDC, 0-10VDC
- 3-Way isolation for analog signals / channel to channel isolation
- Independent zero & span for each channel
- Re-Transmission to interface with SCADA/PLC/DCS
- Dimensions in mm: 275(W) x 126(H) X 90(D) mm

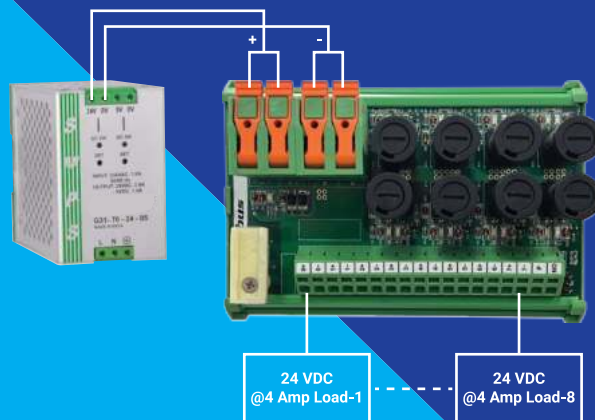
## Earth Leakage Current Measurement for MCC/ VFD Feeders



## 8 Channel (1 to 4 AMP) Power Distribution Board MAS-PD-08-D-X

### Features

- Incoming feeder: 01
- Incoming feeder monitoring: LED (Green) for healthy status
- Outgoing feeders: 08
- Outgoing feeder fuse rating: 4A
- Current per outgoing feeder: 4A
- Outgoing feeder fuse monitoring: LED (Green) for healthy status, LED (Red) for blown fuse status
- Diagnostic signal: Common fault signal available as potential free O/P for all channel
- Dimensions in mm: 130 x 90 x 80 mm (H x W x D)

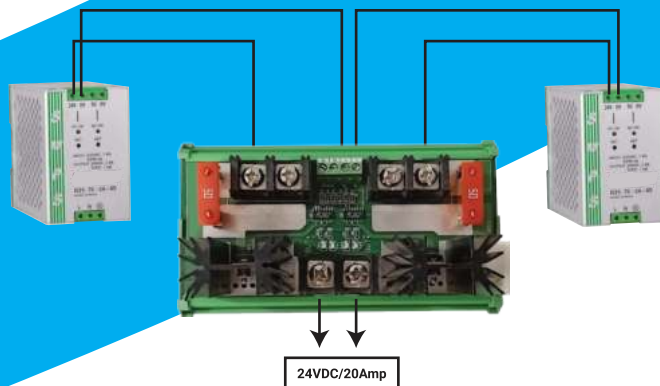


## Diode Oring Modules MAS-DR-08-D-X

Diode oring modules are used when two smps are connected in parallel (Redundancy), available upto 80 Amp

### Features

- Operating voltage: 24VDC
- Module side termination: Barrier connector
- Field side termination: Barrier connector
- Mounting: Universal Din-Rail - 35 mm mountable
- Used for decoupling the incoming redundant 24V DC power supply feeders
- Suitable for powering system DCS cabinets (Basic cabinet, extension & field Interface cabinet)
- Dimensions in mm: 150 x 90 x 70 mm (H x W x D)





A Sonepar Company

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