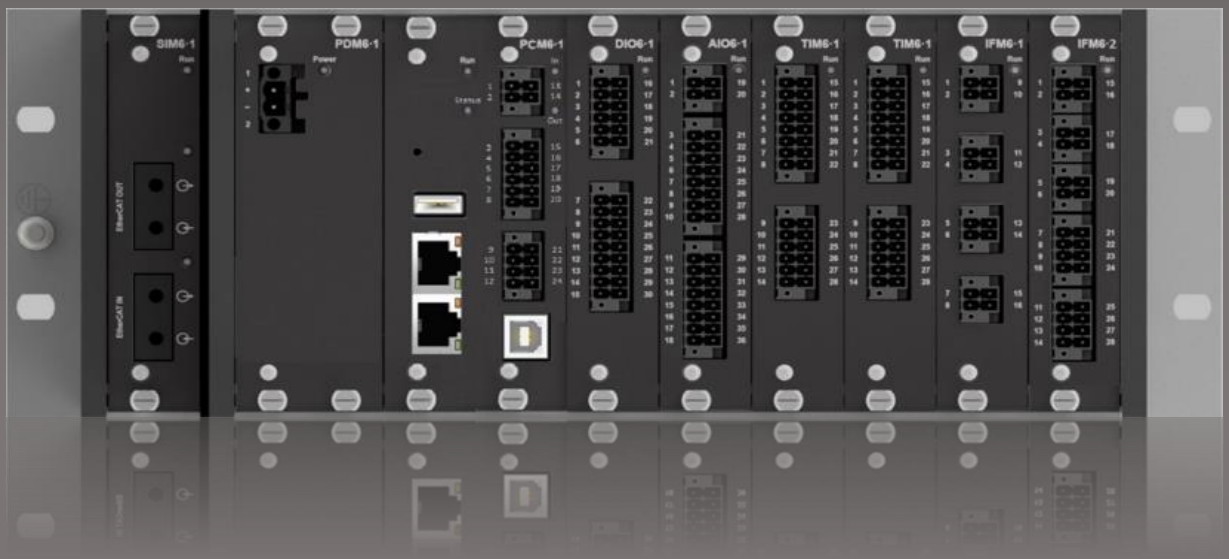

Controller AWP100 Data Sheet

Document No.: 4155000060
Document version: 2.0.0.1
Release Date: August 21, 2023

PRACTEK Technology Co., Ltd.
www.practek.cn

1 Version

Version	Author	Release Date	Description
1.0	GHA	January 22, 2021	First issue
1.1	CHS	May 20, 2021	Increase the size of the rack; modify the typesetting;
1.2	TSH	October 10, 2021	Increase IFM6.1 FI frequency input; and adjust test parameters;
2.0.0.0	CHS	October 20, 2022	New revision, editing and release;
2.0.0.1	TSH	August 21, 2023	IFM6.1 DP Baud rate modification;

2 Introduction

2.1 About AWP100

AWP100 is an advanced control system platform designed and developed to meet demanding application environments. Modular controller and I/O module have high reliability, robustness and flexibility. Rack backplane bus communication is used between AWP100 product series modules, and extension modules are used for distributed connection between racks.

2.2 Safety instructions

In all operational activities covered by this Manual, operators should always comply with the safety and environmental related laws and regulations of the country, region, and manufacturer, including but not limited to: high- and low-voltage electrical operation specifications, safety regulations, personal protection, and environmental protection. PRACTEK Technology Co., Ltd. refuses to assume responsibility for personal safety and property losses caused by personal negligence of relevant laws and regulations.

2.3 Disclaimer

PRACTEK reserves the right to modify any of the contents of this Manual without notice.

2.4 Trademark

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EtherCAT® is the registered trademarks and patented technologies of Beckhoff Automation GmbH.

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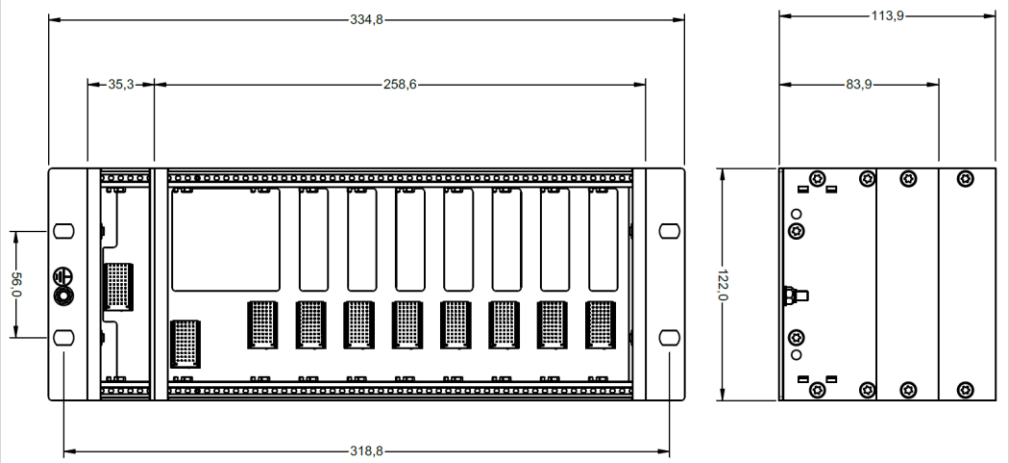
2.5 Copyright

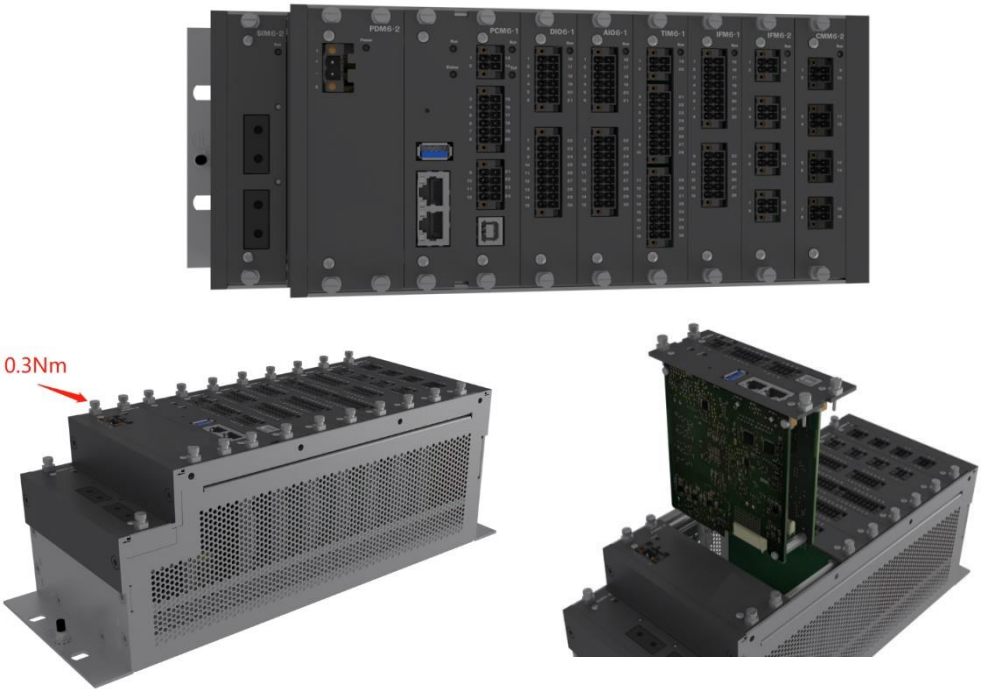
3 Technical Specifications

3.1 Rack

3.1.1 Rack specifications

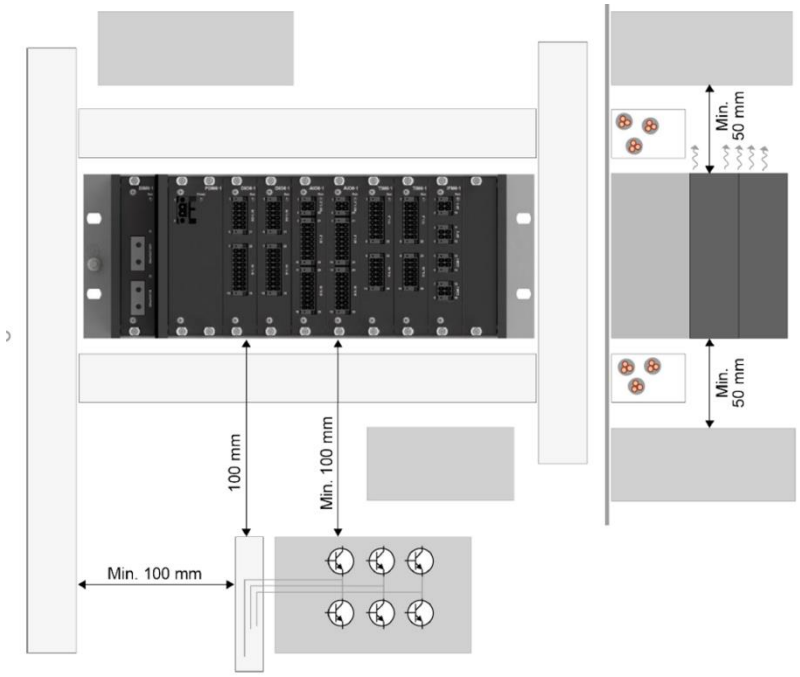
Rack	Slots	Dimensions (H×D×L)	Mounting Hole Spacing (H×L)	Weight
Rack6.4	4	122 × 113.9 × 182.4 mm	56 × 166.4 mm	715 g
Rack6.6	6	122 × 113.9 × 233.2 mm	56 × 217.2 mm	870 g
Rack6.8	8	122 × 113.9 × 284.4 mm	56 × 268.0 mm	1020 g
Rack6.10	10	122 × 113.9 × 334.8 mm	56 × 318.8 mm	1175 g
Rack6.12	12	122 × 113.9 × 385.6 mm	56 × 369.6 mm	1335 g
Rack6.14	14	122 × 113.9 × 436.4 mm	56 × 420.4 mm	1500 g
Blank6.1	1	118 × 25.2 mm	Blank baffle	25 g
Examples Rack6.10	Rack 6.10 has 10 slots in total; Slot position 1 is the dedicated slot for SIM 6.1/SIM 6.2/SIM 6.3; Slot position 2 is the dedicated slot for PDM6.1/PDM6.2; The remaining 8 slots are reserved for CPU and I/O modules; PCM6.1 must be used and occupy both slot positions 3 and 4; 			

The controller AWP100 product module should be inserted into the rack slot according to the application configuration sequence, and the module card should be slowly inserted into the rack base along the guide rail and fastened with fixing bolts (0.3Nm).



3.1.2 Ventilation and heat dissipation

It is recommended to leave at least 50mm clearance above and below the rack to ensure the heat dissipation of AWP100 module. Where the controller temperature is higher than 40°C, it is recommended to install and operate forced air cooling, and ensure that other heating devices are kept away from the AWP100 module.

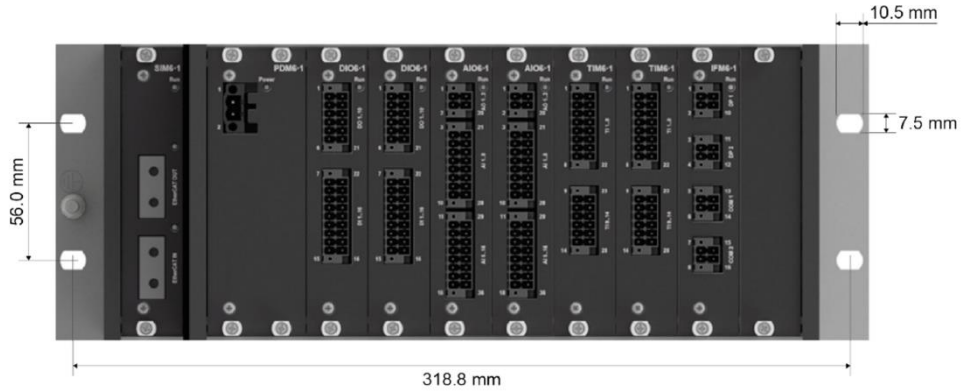


3.1.3 Interference isolation

Where the controller AWP100 and other strong electromagnetic interference devices are placed in the same cabinet, it is recommended to keep a distance of at least 100mm from the AWP100 module.

3.1.4 Rack installation

The size of the rack installation hole is 7.5 × 10.5 mm. The installation dimensions of Rack6.10 is detailed in the diagram below. Stainless steel M6 screws/bolts and flat washers conforming to A2-70 ISO 3506 or better should be used and tightened with a torque of 5Nm.



3.1.5 Rack grounding

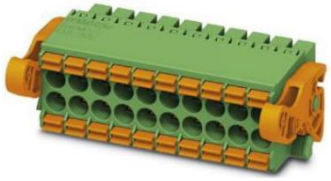
When installing the rack, it is necessary to ensure that there is a solid electrical connection between the metal part of the rack grounding bolt and the cabinet grounding. The diameter of the rack grounding bolt is 5mm.

3.2 Connector

Snap-fit removable spring connector controller should be used for connector AWP100.

Connecting conductor should be solid/flexible conductor, with cross-section of: 0.2 - 1.5 mm^2/AWG2 to AWG16.

Rated voltage/current: 160V / 8A.



3.3 Environmental parameters

Category	Specifications
Operating temperature	-40 to 70℃ (PCM6.1: -40 to 60℃)

Storage temperature	-40 to 85℃
Reference temperature	15 to 30℃
Altitude	Up-to 4000 m without de-rating
Climate	With protective coating, it can adapt to humid, moldy, dusty, corrosive and other environments
	55℃ at 97% relative humidity, condensing

3.4 Safety protection

Category	Specifications
Safety	Installation (overvoltage) category III, 600 V, pollution degree 2
Protection	IP30
Material	Aluminum case and cover plate, all plastic parts are self-extinguishing

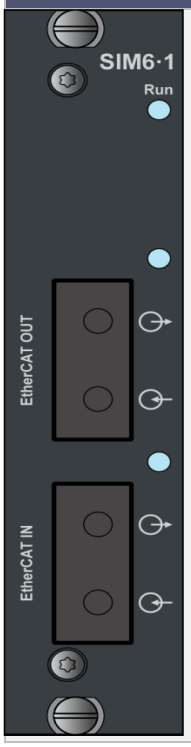
3.5 Approvals

These approvals apply to the controller rack (with all the modules properly installed).

Standard
CE

4 Extension Module

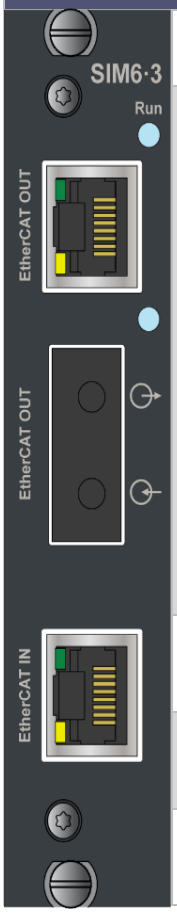
4.1 SIM6.1 module

SIM6.1 - Station Interface Module		
	Power supply	Backplane power supply
	Interface	1 x EtherCAT IN Optical fiber: 100BASE-FX, SC connector, multimode fiber 62.5µm, OM1
		1 x EtherCAT OUT Optical fiber: 100BASE-FX, SC connector, multimode fiber 62.5µm, OM1
	Dimensions	117 x 73 x 25.4 mm (H×D×L)
	Weight	83 g
	Power consumption	Max. 3.5 W

4.2 SIM6.2 module

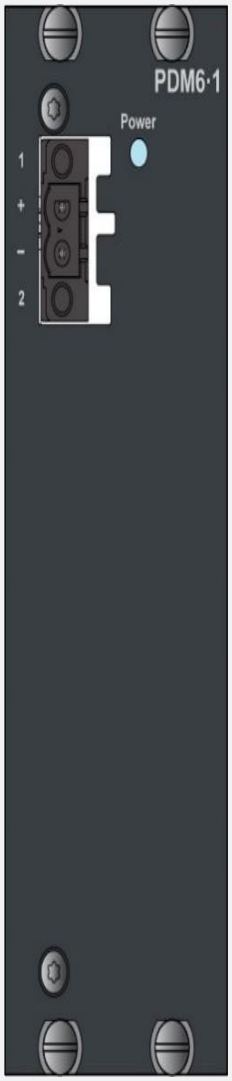
SIM6.2 - Station Interface Module		
	Power supply	Backplane power supply
	Interface	1 x EtherCAT OUT Cable: 100BASE-TX, 8P8C ("RJ45") Shielded CAT5, >0.76µm gold plating
		1 x EtherCAT OUT Optical fiber: 100BASE-FX, SC connector, multimode fiber 62.5µm, OM1
	Dimensions	117 x 73 x 25.4 mm (H×D×L)
	Weight	83 g
	Power consumption	Max. 2.5 W

4.3 SIM6.3 module

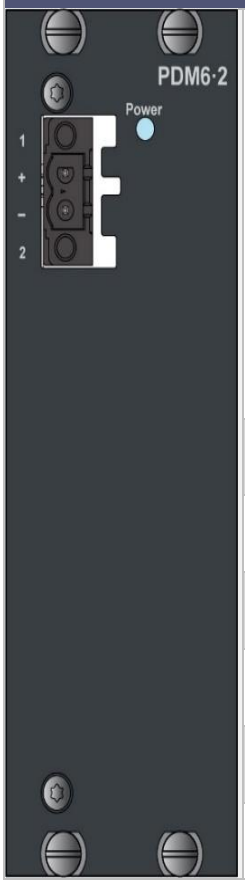
SIM6.3 - Station Interface Module		
	Power supply	Backplane power supply
	Interface	1 x EtherCAT IN Cable: 100BASE-TX, 8P8C ("RJ45") Shielded CAT5, >0.76µm gold plating
		1 x EtherCAT OUT Optical fiber: 100BASE-FX, SC connector, multimode fiber
		1 x EtherCAT OUT Cable: 100BASE-TX, 8P8C ("RJ45") Shielded CAT5, >0.76µm gold plating
	Dimensions	117 x 73 x 25.4 mm (H×D×L)
	Weight	83 g
	Power consumption	Max. 2.5 W

5 Power Supply Module

5.1 PDM6.1 module

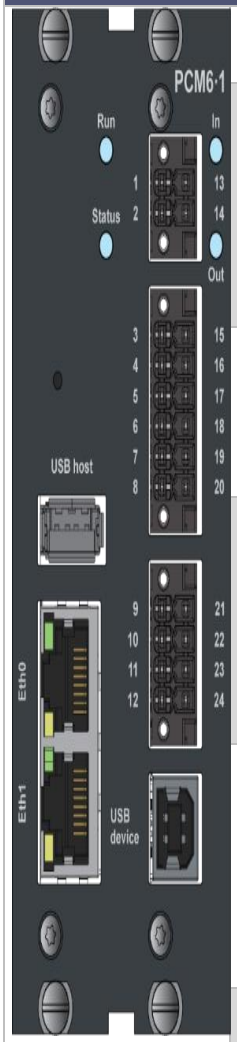
PDM6.1 - Power Distributed Module		
	Power supply	28 W power supply Input level: 24 VDC (18 to 32 VDC) Reverse power protection Supply power to the backplane
	Isolation	Isolated from other potentials, 550 V/50 Hz/1 minute
	Dimensions	117 x 110 x 40.64 mm (H×D×L)
	Weight	201 g
	Power consumption	1.25 W
	Interface 1 +	Power supply input 24 V
	Interface 2 -	Power supply input 0 V

5.2 PDM6.2 module

PDM6.2 - Power Distributed Module		
	Power supply	30 W power supply Input level: 24 VDC (18 to 32 VDC) Power-down data hold time 300 ms Reverse power protection Supply power to the backplane Reverse wiring protection
	Isolation	Isolated from other potentials, 550 V/50 Hz/1 minute
	Dimensions	117 x 110 x 40.64 mm (H×D×L)
	Weight	250 g
	Power consumption	1.25 W
	Interface 1 +	Power supply input 24 V
	Interface 2 -	Power supply input 0 V

6 Controller Module

6.1 PCM6.1 module

PCM6.1 - Power and Control Module		
	Power supply	Backplane power supply
	Digital input (In)	High: 13 to 30 V Low: -30 to 5 V Isolated from other potentials, 550 V/50 Hz
	Digital output (Out)	Solid state relay with external watchdog, 24 V, 1A max.
	Ethernet	2 x Ethernet (Eth0, Eth1) 1000BASE-T, 8P8C ("RJ45") Shielded Cat 5e, >0.76µm gold plating
	CAN	2 x CAN (CAN 1, CAN 2) ISO 11898, shielded twisted pair, 50 to 1000 kbit/s Termination resistor software configuration
	UART	2 x RS-422/485 (COM1, COM2) ANSI/TIA/EIA-422-B, TIA/EIA-485 Shielded twisted pair, 4.8 to 921.6 kbit/s (full duplex) Termination and bias resistor software configuration
	Processor	1.2 GHz dual-core industrial ARM Cortex-A7 32-bit processor ECC protection cache

	Operating system	FS/OS real time embedded operating system Safe remote software update, power loss safety protection Self-monitoring and error correcting file system (EXT-4)
	Runtime	CODESYS runtime
	Programming language	ANSI C/C++ via PCM6.1 SDK IEC 61131-3 via CODESYS IDE
	Memory	1 GB DDR3 RAM 64-bit, ECC protected Industrial grade
	Internal storage	Non-volatile data storage: 4 GB industrial grade flash (pseudo SLCmode) Optional up to 16G industrial grade flash memory
	RTC	Real time clock with replaceable lithium battery (replacement recommended every 5 years)
	USB host	Support USB 3.0 Mass Storage Class
	USB device	USB 2.0 console on virtual COM port, 115200 bit/s
	Dimensions	117 x 110 x 50.8 mm (H×D×L)
	Weight	292 g
	Power consumption	Max. 16.6 W

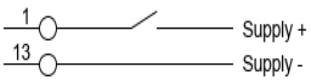
6.1.1 PCM6.1 indicator LED

LED name	Color	Description
Run	Off	INIT
	Flashing green (slow)	Pre-operational
	Flashing green (fast)	Safe-operational
	Green always on	Normal operational
	Off	Stop

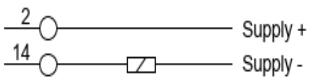
Status	Red always on	Error
	Flashing red	Boot loader
	Flashing orange	Initialization
	Orange always bright	Service
	Green always on	Runtime is running normally
In	Green always on	Digital input is activated
Out	Green always on	Digital output is activated

6.1.2 Schematic Wiring Diagram for PCM6.1

Schematic Circuit Diagram of Digital Input/Output

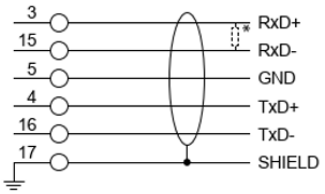


Digital in

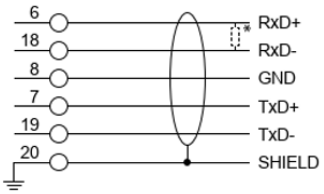


Digital out

RS-422 Schematic Circuit Diagram

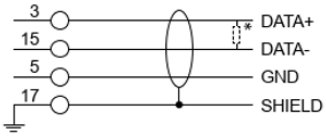


RS-422 port 1*

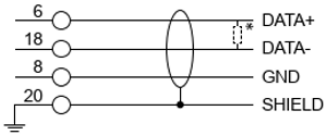


RS-422 port 2*

RS-485 Schematic Circuit Diagram

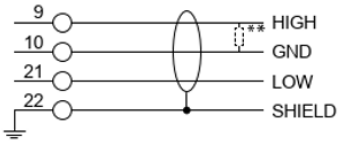


RS-485 port 1*

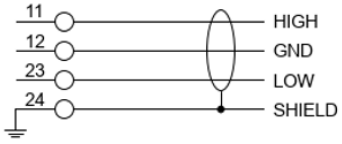


RS-485 port 2*

CAN Schematic Circuit Diagram



CAN port 1**



CAN port 2**

Notes:

* RS-422/485 SW configurable built-in termination resistor (120Ω). SW configurable built-in bias resistor (pull-up/pull-down 500Ω). GND decoupled to shield through 1.5 MΩ | | 1.5 nF.

** The CAN SW configurable built-in termination resistor (120 Ω). GND decoupled to shield through 1.5 MΩ | | 1.5 nF.

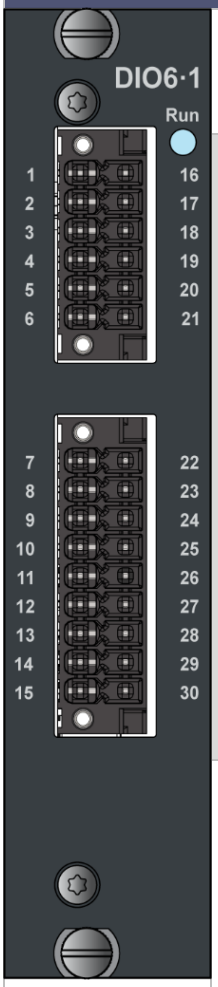
6.1.3 PCM6.1 interface parameters

Interface		Description
1	In +	Digital input "+" (for example, for safety chain feedback)
2	Out +	Digital output "+" solid state relay with watchdog (for example, for safety chain)
3	RS-422 1: RxD+ RS-485 1: Data+	Differential receive signal "+" Differential data signal "+"
4	RS-422 1: TxD+	Differential transmit signal "+"
5	RS-422 1: GND RS-485 1: GND	Ground
6	RS-422 2: RxD+ RS-485 2: Data+	Differential receive signal "+" Differential data signal "+"
7	RS-422 2: TxD+	Differential transmit signal "+"
8	RS-422 2: GND RS-485 2: GND	Ground
9	CAN 1 - High	Differential data signal "+"
10	CAN 1 - GND	Ground
11	CAN 2 - High	Differential data signal "+"
12	CAN 2 - GND	Ground
13	In -	Digital input "-" (such as safety chain feedback)
14	Out -	Digital output "-" solid state relay with watchdog (such as safety chain)

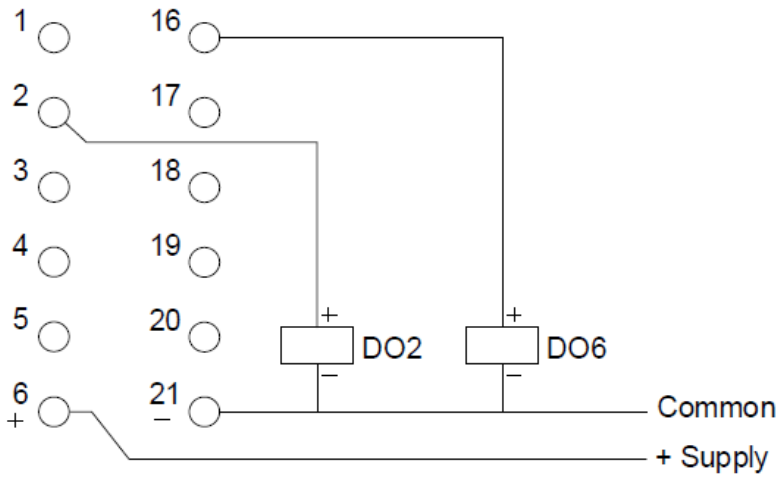
15	RS-422 1: RxD- RS-485 1: Data-	Differential receive signal "-" Differential data signal "-"
16	RS-422 1: TxD-	Differential transmit signal "-"
17	RS-422 1: SHIELD RS-485 1: SHIELD	Shield
18	RS-422 2: RxD- RS-485 2: Data-	Differential receive signal "-" Differential data signal "-"
19	RS-422 2: TxD-	Differential transmit signal "-"
20	RS-422 2: SHIELD RS-485 2: SHIELD	Shield
21	CAN 1 - Low	Differential data signal "-"
22	CAN 1 - SHIELD	Shield
23	CAN 2 - Low	Differential data signal "-"
24	CAN 2 - SHIELD	Shield
	Eth0, Eth1	Ethernet 0 and Ethernet 1
	USB host	USB Standard-A plug, MSC
	USB device	USB Standard-B plug, serial service console

7 Digital Module

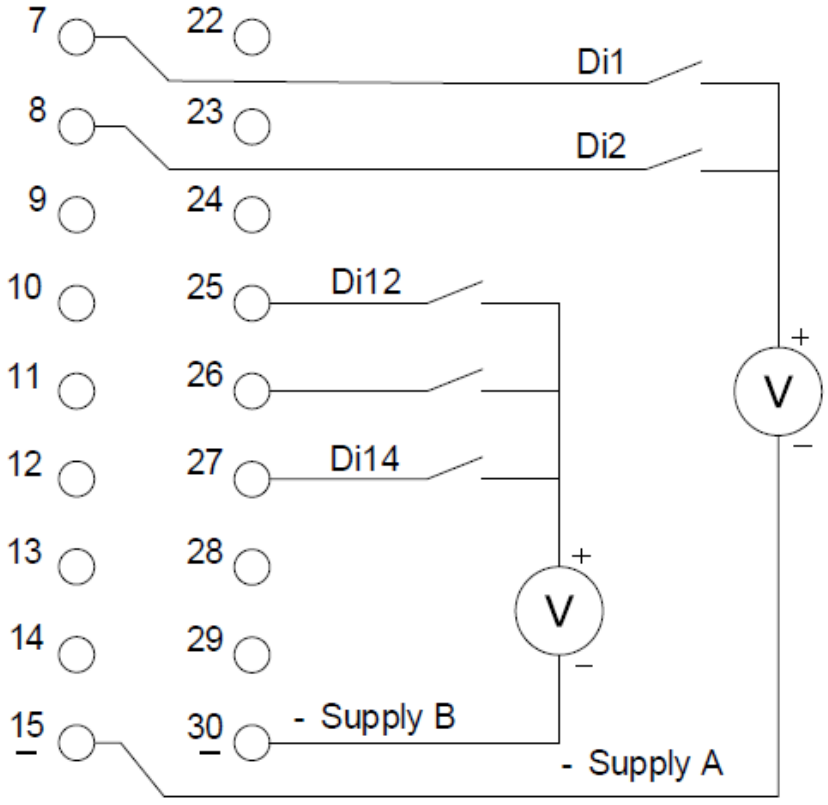
7.1 DIO6.1 module

DIO6.1 - Digital Input and Output Module			
	Power supply	Backplane power supply DO output external separate power supply	
	10 x DO Digital output	Power supply	External power supply 24 V (18 to 32 V)
		Type	Solid-state high side driver
		Voltage	High voltage > (power supply voltage - 1 V)
		Current	Rated for one channel: 0.3 A Maximum total for all outputs: 3 A
		Response time	1 ms
		Isolation	Isolated from other potentials, 550 V/50 Hz/1 minute
		Protection	Short circuit protection Inverse supply voltage protection
	16 x DI Digital input	Input	**High: 13 to 30 V** **Low: -30 to 5 V**
		Bandwidth	3 ms filter (200 Hz hardware low pass)
		Isolation	Isolated from other potentials, 550 V/50 Hz/1 minute
	Dimensions	117 x 110 x 25.4 mm (H×D×L)	
	Weight	91 g	
	Power consumption	0.75 W	

7.1.1 Schematic Wiring Diagram for DIO6.1



Digital outputs



Digital inputs

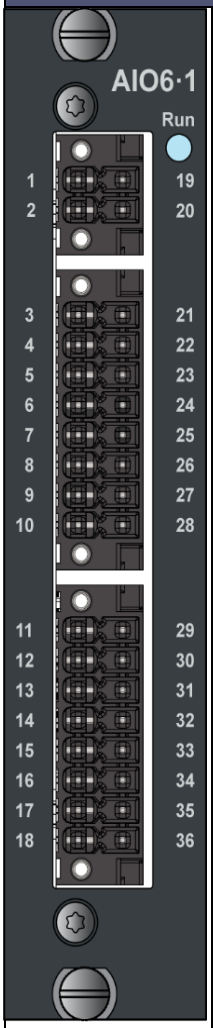
7.1.2 DIO6.1 interface parameters

Interface		Description
1	DO1	Digital output 1
2	DO2	Digital output 2
3	DO3	Digital output 3
4	DO4	Digital output 4
5	DO5	Digital output 5
6	DO SUP+	Digital output external power supply 24 V
7	DI1	Digital input 1
8	DI2	Digital input 2
9	DI3	Digital input 3
10	DI4	Digital input 4
11	DI5	Digital input 5
12	DI6	Digital input 6
13	DI7	Digital input 7
14	DI8	Digital input 8
15	DI SUP-	Digital common input reference supply (DI1-DI8)
16	DO6	Digital output 6
17	DO7	Digital output 7
18	DO8	Digital output 8
19	DO9	Digital output 9
20	DO10	Digital output 10
21	DO SUP-	Digital output external power supply 0 V
22	DI9	Digital input 9

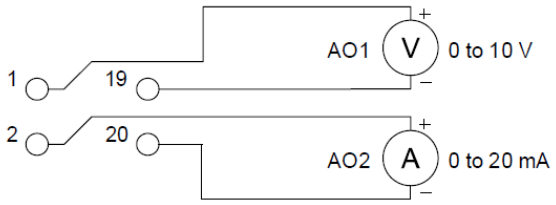
23	DI10	Digital input 10
24	DI11	Digital input 11
25	DI12	Digital input 12
26	DI13	Digital input 13
27	DI14	Digital input 14
28	DI15	Digital input 15
29	DI16	Digital input 16
30	DI SUP-	Digital common input reference supply (DI9-DI16)

8 Analog Quantity Module

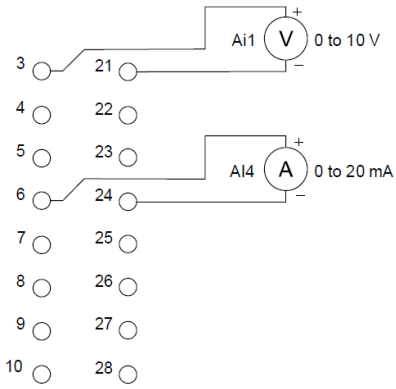
8.1 AIO6.1 module

AIO6.1 - Analogue Input and Output Module			
	Power supply	Backplane power supply	
	2 x AO Analogue output	Output type	0 to 20 mA / 4 to 20 mA / 0 to 10 V soft configuration
		Load	Current model $< 500\ \Omega$ Voltage model$\geq 1000\ \Omega$
		Resolution	16 bit
		Accuracy	0.2 % of full range output at reference temperature 0.4 % of full range output at operational temperature
		Isolation	Isolated from other potentials, 550 V/50 Hz
	16 x AI Analogue input	Input type	0 to 20 mA / 4 to 20 mA / 0 to 10 V soft configuration
		Impedance	Current mode, max. $50\ \Omega$ Voltage mode, min.10 $k\Omega$
		Filter	250 Hz hardware low pass filter
		Sampling	2 ms
		Resolution	16 bit
		Accuracy	0.2 % of full range input at reference temperature 0.4 % of full range input at operational temperature
		Isolation	Isolated from other potentials, 550 V/50 Hz/1 minute
	Dimensions	117 x 110 x 25.4 mm (H×D×L)	
	Weight	96 g	
	Power consumption	Max. 2.75 W	

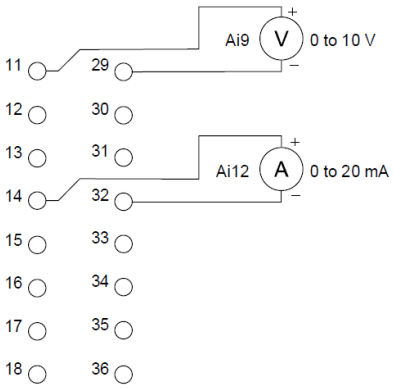
8.1.1 Schematic Wiring Diagram for AIO6.1



Analogue outputs



Analogue inputs 1 to 8



Analogue inputs 9 to 16

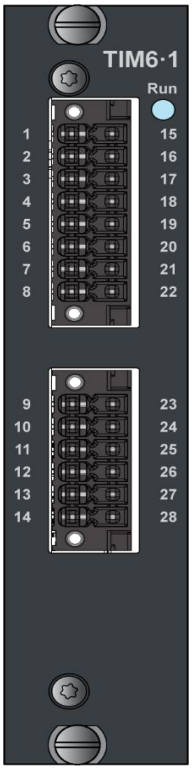
8.1.2 AIO6.1 interface parameters

Interface		Description
1 / 19	AO1	Analogue output 1
2 / 20	AO2	Analogue output 2
3 / 21	AI1	Analogue input 1
4 / 22	AI2	Analogue input 2
5 / 23	AI3	Analogue input 3
6 / 24	AI4	Analogue input 4
7 / 25	AI5	Analogue input 5
8 / 26	AI6	Analogue input 6
9 / 27	AI7	Analogue input 7
10 / 28	AI8	Analogue input 8
11 / 29	AI9	Analogue input 9

12 / 30	AI10	Analogue input 10
13 / 31	AI11	Analogue input 11
14 / 32	AI12	Analogue input 12
15 / 33	AI13	Analogue input 13
16 / 34	AI14	Analogue input 14
17 / 35	AI15	Analogue input 15
18 / 36	AI16	Analogue input 16

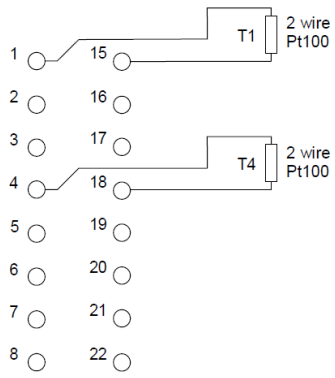
9 Temperature Module

9.1 TIM6.1 module

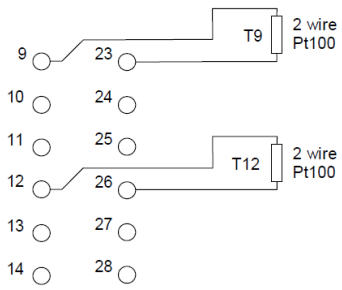
TIM6.1 - Temperature Input Module			
	Power supply	Backplane power supply	
	14 x TEMP Temperature input	Sensor type	Pt100
		Range	-50 to 200℃
		Wire system	2-wire system connection (3-wire system is optional)
		Sampling period	100 ms
		Cable inspection	Input open circuit and short circuit can be detected
		Resolution	0.1℃
		Accuracy	1℃ at reference temperature 2.5℃ at operational temperature 2-wire cables must be shorter than 1 m
		Isolation	Isolated from other potentials, 550 V/50 Hz/1 minute
	Dimensions	117 x 110 x 25.4 mm (H×D×L)	
	Weight	90 g	
	Power consumption	Max. 1 W	

9.1.1 Schematic Wiring Diagram for TIM6.1

Schematic Circuit Diagram of 2-wire Pt100:

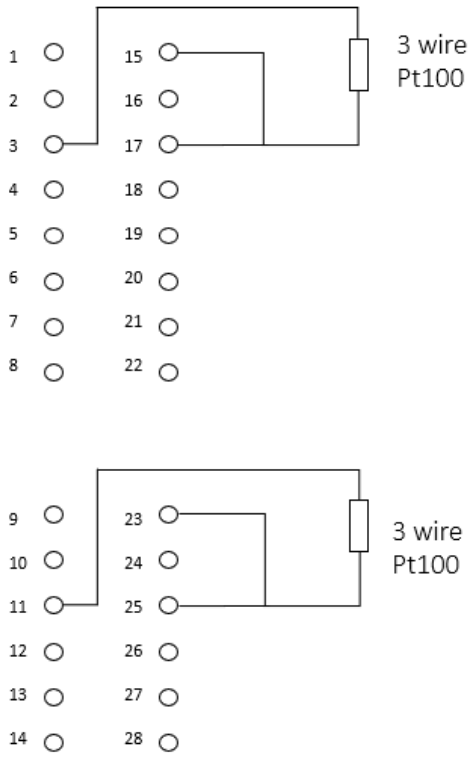


Temperature inputs 1 to 8 (Pt100)



Temperature inputs 9 to 14 (Pt100)

Schematic Circuit Diagram of 3-wire Pt100:



3-wire grouping:

1/15/3/17 in the same group, 1 idle

2/16/4/18 in the same group, 2 idle

5/19/7/21 in the same group, 5 idle

6/20/8/22 in the same group, 6 idle

9/23/11/25 in the same group, 9 idle

10/24/12/26 in the same group, 10 idle

Temperature input 3 wire Pt100

9.1.2 TIM6.1 interface parameters

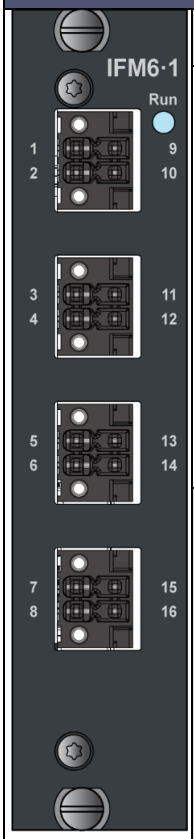
2-wire interface		Description
1 / 15	TEMP1	Temperature input 1
2 / 16	TEMP2	Temperature input 2
3 / 17	TEMP3	Temperature input 3
4 / 18	TEMP4	Temperature input 4
5 / 19	TEMP5	Temperature input 5
6 / 20	TEMP6	Temperature input 6
7 / 21	TEMP7	Temperature input 7
8 / 22	TEMP8	Temperature input 8
9 / 23	TEMP9	Temperature input 9

10 / 24	TEMP10	Temperature input 10
11 / 25	TEMP11	Temperature input 11
12 / 26	TEMP12	Temperature input 12
13 / 27	TEMP13	Temperature input 13
14 / 28	TEMP14	Temperature input 14

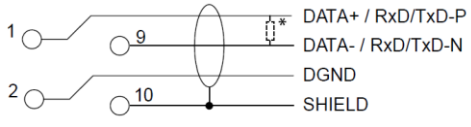
3-wire interface		Description
3 / 15 / 17	TEMP1	Temperature input 1
4 / 16 / 18	TEMP2	Temperature input 2
7 / 19 / 21	TEMP3	Temperature input 3
8 / 20 / 22	TEMP4	Temperature input 4
11 / 23 / 25	TEMP5	Temperature input 5
12 / 24 / 26	TEMP6	Temperature input 6

10 Communication Module

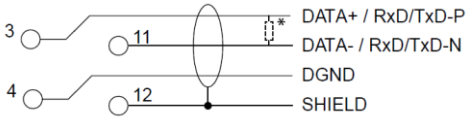
10.1 IFM6.1 module

IFM6.1 - Interface of Fieldbus Module			
	Power supply	Backplane power supply	
	2 x Profibus DP Master	Baud rate bit/s	9600, 19200, 45450, 93750, 187500, 500000, 1.5M, 3M, 6M
		Biasing terminal	Biasing termination resistor software configuration
		Standard	PROFIBUS DP-V0 (Cycle data and diagnostics)
		Slave station	Each Pofibus DP master station is connected to a maximum of 5 slave stations
	2 x RS-485	Standard	TIA/EIA-485 shielded stranded copper cable
		Baud rate bit/s	2400, 4800, 9600, 19200, 38400, 45450, 57600, 115200, 230400, 460800
		Word length	7 or 8 bits
		Verification	None, Odd, Even
		Stop bit	1 or 2
		Line	2-wire half-duplex
		Biasing terminal	Biasing termination resistor software configuration
	Isolation	Isolated from other potentials, 550 V/50 Hz/1 minute	
	Dimensions	117 x 110 x 25.4 mm (H×D×L)	
	Weight	90 g	
	Power consumption	Max. 1 W	

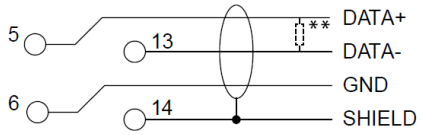
10.1.1 Schematic Wiring Diagram for IFM6.1



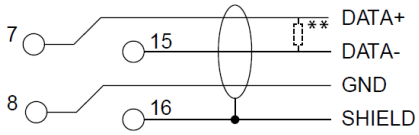
Profibus Master port 1



Profibus Master port 2



COM - RS-485 port 1



COM - RS-485 port 2

Notes:

* Profibus Master SW configurable built-in termination resistor (120Ω). SW configurable built-in bias resistor (pull-up/pull-down 500Ω). GND decoupled to shield through 1.5 MΩ | | 1.5 nF.

** RS-485 SW configurable built-in termination resistor (120Ω). SW configurable built-in bias resistor (pull-up/pull-down 500Ω). GND decoupled to shield through 1.5 MΩ | | 1.5 nF.

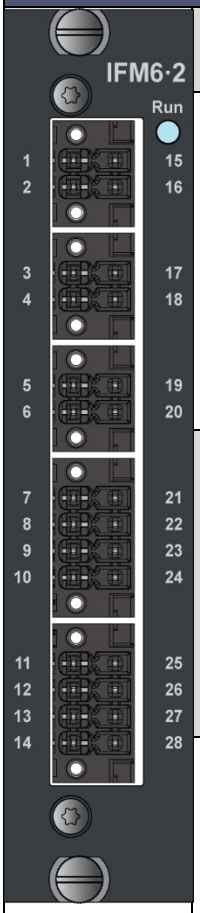
The standard PROFIBUS Cable Type A (the purple cable) has typical characteristic impedance of 150 Ω (135 to 165 Ω). It is important to connect the cable screen to both GND and SHIELD of the IFM6·1 port to provide a Signal Ground for the A and B signals.

10.1.2 IFM6.1 interface parameters

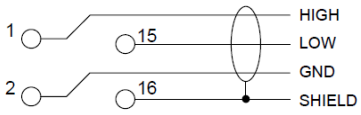
Interface		Description
1	DATA+	Profibus DP 1 differential data signal "+"
2	GND	Profibus DP 1 reference potential
3	DATA+	Profibus DP 2 differential data signal "+"
4	GND	Profibus DP 2 reference potential
5	DATA+	RS-485 1 differential data signal "+"
6	GND	RS-485 1 reference potential
7	DATA+	RS-485 2 differential data signal "+"
8	GND	RS-485 2 reference potential
9	DATA-	Profibus DP 1 differential data signal "-"
10	Shield	Profibus DP 1 shield
11	DATA-	Profibus DP 2 differential data signal "-"
12	Shield	Profibus DP 2 shield

13	DATA-	RS-485 1 differential data signal "-"
14	Shield	RS-485 1 shield
15	DATA-	RS-485 2 differential data signal "-"
16	Shield	RS-485 2 shield

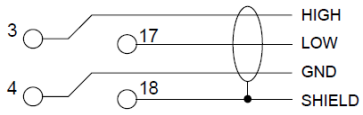
10.2 IFM6.2 module

IFM6.2 - Interface of Fieldbus Module			
	Power supply	Backplane power supply	
	2 x CAN	Standard	ISO 11898
		Baud rate kbit/s	20, 50, 100, 125, 250, 500, 800, and 1000 Sampling points at 70 to 85%
		Isolation	Isolated from other potentials, 550 V/50 Hz
		Termination resistor	120 Ω software configuration
	2 x SSI	Standard	TIA/EIA-422 shielded stranded copper cable
		Baud rate	250 kbps and 1000 kbps
		Word length	16 to 32 bit (default 25 bit) Binary/Gray code software configuration
		Line	4-wire (clock and data)
		Isolation	Isolated from other potentials, 550 V/50 Hz
	2 x FI High frequency Digital Input	Input	High: 13 to 36 V Low: -30 to 5 V
		Bandwidth	125 kHz hardware low pass filter
		Isolation	Isolated from other potentials, 550 V/50 Hz
	Dimensions	117 x 110 x 25.4 mm (H×D×L)	
	Weight	92 g	
	Power consumption	3 W	

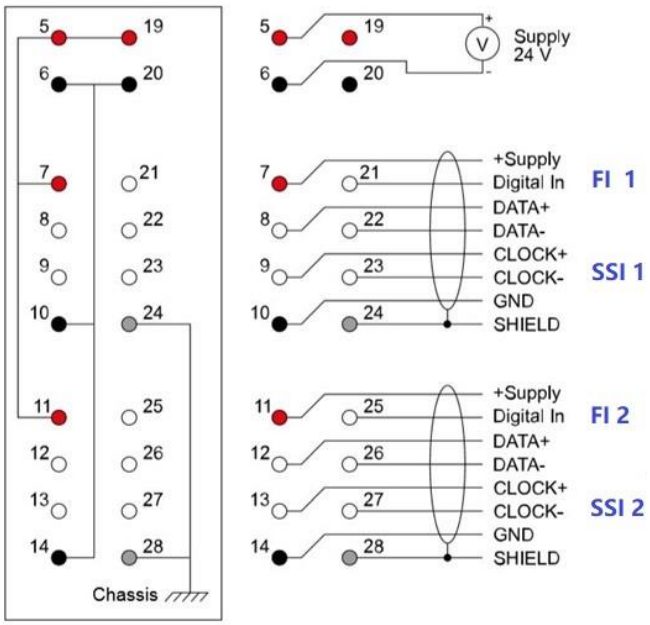
10.2.1 Schematic Wiring Diagram for IFM6.2



CAN port 1



CAN port 2



2 × SSI 2 × FI

10.2.2 IFM6.2 interface parameters

Interface		Description
1	CAN - H	CAN 1 high
2	GND	CAN 1 reference potential
3	CAN - H	CAN 2 high
4	GND	CAN 2 reference potential
5	24 V	SSI encoder power supply input 24 V
6	0 V	SSI encoder power supply input 0 V
7	24V	SSI encoder 1 24V power supply
8	DATA+	SSI encoder 1 differential data signal "+"
9	Clock+	SSI encoder 1 differential clock signal "+"

10	GND	SSI encoder 1 reference potential
11	24V	SSI encoder 2 24V power supply
12	DATA+	SSI encoder 2 differential data signal "+"
13	Clock+	SSI encoder 2 differential clock signal "+"
14	GND	SSI encoder 2 reference potential
15	CAN - L	CAN 1 low
16	Shield	CAN 1 shield
17	CAN - L	CAN 2 low
18	Shield	CAN 2 shield
19	24 V	SSI encoder power supply input 24 V
20	0 V	SSI encoder power supply input 0 V
21	Digital in	High frequency digital input 1
22	DATA-	SSI encoder 1 differential data signal "-"
23	Clock-	SSI encoder 1 differential clock signal "-"
24	Shield	SSI 1 shield
25	Digital in	High frequency digital input 2
26	DATA-	SSI encoder 2 differential data signal "-"
27	Clock-	SSI encoder 2 differential clock signal "-"
28	Shield	SSI 2 shield

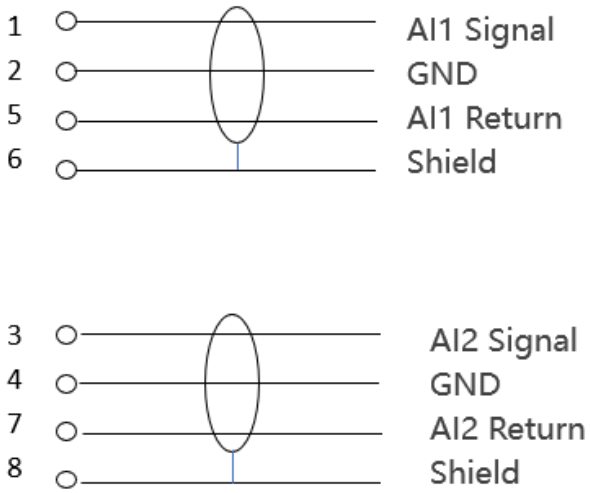
11 Condition Monitoring Module

11.1 CMM6.1 module

CMM6.1 - Condition Monitoring Module			
	Power supply	Backplane power supply	
	2-channel high frequency analogue input	Sensor type	IEPE or voltage input
		Excitation	Optional 0, 2, 4, and 6 mA Voltage: 24 V (min.)
		Input range	DC mode: -10 to 20, ±10 to ±5, 2.5, 1.25, 0.62, 0.31, 0.16, 0.08, 0.40, and 0.20 V IEPE (AC) mode: ±10, 5, 2.5, 1.25, 0.62, 0.31, 0.16, 0.08, 0.40, 0.20 V
		Impedance	300 kΩ
		Frequency range	DC mode: 0.05 to 20 Hz (3dB) anti-aliasing filter DC/AC mode: Low pass -3dB, 20kHz butterworth, 3rd order, stopband 77dB@>30 kHz IEPE (AC) mode: High pass 0.05 Hz
		Sample rate	Up to 57kHz, 2 channels simultaneous Software configuration sampling rate: 57594, 29297, 14648, and 7324 Hz Sampling options: 1:2, 1:5, 10, 25, 50, 100, 250, 500, 1000, 2500, and 5000
		Resolution	24 bit ΔΣ (including symbols) 300 nV (gain 1, Range ±2,5Vp) ENOB=19@OSR=256, 29297 sps
		SNR	> 100 dB @ Range ±2.5 Vp
		Accuracy	±0.5% DC full scale
		Diagnostic	Wire-break and short circuit
		Isolation	Isolated from other potentials, 550 V/50 Hz
	Dimensions	117 x 110 x 25.4 mm (H×D×L)	

	Weight	110 g
	Power consumption	Max. 4W

11.1.1 Schematic Wiring Diagram for CMM6.1



11.1.2 CMM6.1 interface parameters

Interface		Description
1	AI1 Signal	Analogue input 1 current output/signal input
2	GND	AI1 reference potential
3	AI2 Signal	Analogue input 2 current output/signal input
4	GND	AI2 reference potential
5	AI1 Return	Analogue input 1 Return
6	Shield	AI1 shield
7	AI2 Return	Analogue input 2 Return
8	Shield	AI2 shield