

# DATA SHEET

## CAL-PM-X

2025 CALMS inc.



## CAL-PM-X device

Device CAL-PM-X is for permanent monitoring and PLC control system for compressed air applications. It covers all fields such as remote energy management system, data logger and compressed air control system. System is doing real time access to data from any web browser for end users and their service partner.

### Key features and benefits

- > An advanced and integrated system for remote monitoring, auditing, alarming, reporting and PLC control in compressed air applications.
- > System customizable according to the customer`s needs;
- > Save on energy costs and improve your energy efficiency;
- > Improve the reliability of your equipment;
- > Improve your environmental image;
- > Industrial and robust design;

### Specifications

CAL-PM-X represents a hardware that connects compressed air system to web based application for energy management and optimization:

#### **CAL-PM-X DEVICE**



*PLC with digital input and output terminals, analog input terminals and other additional terminals*

#### **CAL-C-IM**



*Interface module for ON/OFF & VSD compressors*

CAL-PM-X DEVICE				
Specification	CAL-PM-2	CAL-PM-4	CAL-PM-8	CAL-PM-16
<b>S-PLC Controller</b>	Processor	Processor	Processor	Processor
	Arm® Cortex®-A53,	Arm® Cortex®-A53,	Arm® Cortex®-A53,	Arm® Cortex®-A53,
	1.2 GHz micro SD	1.2 GHz micro SD	1.2 GHz micro SD	1.2 GHz micro SD
	16GB,	16GB,	16GB,	16GB,
	internal memory	internal memory	internal memory	internal memory
	1GB LPDDR4 RAM6	1GB LPDDR4 RAM6	1GB LPDDR4 RAM6	1GB LPDDR4 RAM6
<b>Analog inputs</b>	4 (4-20mA)	8 (4-20mA)	8 (4-20mA)	8 (4-20mA)
<b>Digital inputs</b>	8 (24VDC)	8 (24VDC)	8 (24VDC)	8 (24VDC)
<b>Digital outputs</b>	4 (relay output terminal, 125VAC/30VDC, 0.5A AC/2A DC)	4 (relay output terminal, 125VAC/30VDC, 0.5A AC/2A DC)	4 (relay output terminal, 125VAC/30VDC, 0.5A AC/2A DC)	4 (relay output terminal, 125VAC/30VDC, 0.5A AC/2A DC)
<b>Analog outputs</b>	-	-	-	-
<b>Communication Protocol</b>	Modbus TCP	Modbus TCP	Modbus TCP	Modbus TCP
<b>Interfaces</b>	3x Ethernet	3x Ethernet	3x Ethernet	3x Ethernet
	10/100Mbit/s (2x network adapter)	10/100Mbit/s (2x network adapter)	10/100Mbit/s (2x network adapter)	10/100Mbit/s (2x network adapter)
<b>UPS</b>	1-second UPS (for 1 MB persistent data)	1-second UPS (for 1 MB persistent data )	1-second UPS (for 1 MB persistent data )	1-second UPS (for 1 MB persistent data )
<b>Max. number of compressors</b>	2	4	8	16
<b>WEB Management</b>	Yes	Yes	Yes	Yes
<b>EMCS, CFC</b>	Yes (optional)	Yes (optional)	Yes (optional)	Yes (optional)
<b>Visualization</b>	10" Touch HMI	10" Touch HMI	10" Touch HMI	10" Touch HMI
<b>Logging interval</b>	5sec (configurable)	5sec (configurable)	5sec (configurable)	5sec (configurable)
<b>CALMS upload interval</b>	5min (configurable)	5min (configurable)	5min (configurable)	5min (configurable)
<b>Cloud connection</b>	3G/4G or LAN (optional)	3G/4G or LAN (optional)	3G/4G or LAN (optional)	3G/4G or LAN (optional)
<b>Operating range</b>	0-50°C	0-50°C	0-50°C	0-50°C
	32-131F	32-131F	32-131F	32-131F
<b>Power supply</b>	100 - 240VAC	100 - 240VAC	100 - 240VAC	100 - 240VAC
	50-60Hz	50-60Hz	50-60Hz	50-60Hz
<b>Size</b>	H210 x W500 x L500	H210 x W500 x L500	H210 x W500 x L500	H210 x W500 x L500
	[mm]	[mm]	[mm]	[mm]
	H8,26 x W19,69 x L19,69	H8,26 x W19,69 x L19,69	H8,26 x W19,69 x L19,69	H8,26 x W19,69 x L19,69
<b>Materials</b>	[inches]	[inches]	[inches]	[inches]
	Enclosure:	Enclosure:	Enclosure:	Enclosure:
	Steel cabinet,	Steel cabinet,	Steel cabinet,	Steel cabinet,
	Cable Entry ICOTEK	Cable Entry ICOTEK	Cable Entry ICOTEK	Cable Entry ICOTEK
<b>Approvals</b>	CE	CE	CE	CE
<b>Mounting</b>	Mast or wall mounting	Mast or wall mounting	Mast or wall mounting	Mast or wall mounting

Specification	CAL-C-IM
Digital inputs	4 (24VDC, filter 3.0 ms, type 3)
Digital outputs	4 (relay output terminal, 125VAC/30VDC; 0.5A AC/2A DC, potential-free make contacts)
Analog inputs	2 (configurable, 4-20mA, 0-10V)
Analog outputs	2 (for VSD compressor regulation, configurable, 4-20mA, 0-10V)
Protocol	EtherCAT (to base station)
Bus Interface	2x RJ 45 switched EtherCAT module
Mounted in	ON/OFF & VSD compressors
Power supply	24VDC, 1A, 24W
Size	H10 x W8 x L15 [cm] H3.9 x W3.1 x L5.8 [inches]
Weight	0.3 kg (0.6 lbs)
Materials	Enclosure: PBT Polycarbonate, ABS plastic
Mounting	DIN Rail mounting in compressor cabinet
EMC	EN IEC 61326-1
Approvals	CE
Power analyzer	3-phase power measurement terminal, max. 690VAC 3~, max. 5A, with 3x measuring current transformers xA/5A Accuracy: ANSI 12.20, 1% accuracy, IEC 62053-22 Class 1S Compatible with CT's from 5 to 32000A, UL listed, CE, ANSI C12.20 3x split core current transformer coils 500A / 5A cl:1

Accessories	Description
<b>CAL-SIM</b>	SIM LTE (3G/4G) subscription per audit device – charged annually
<b>CAL-OPT</b>	Fiber optic converter kit with SC duplex connection (1310 nm) for 100Base-TX to multimode fiber optics, DIN rail mountable, <b>without fiber optic cable!</b>
<b>CAL-485-PM</b>	2 port RS422-RS485 expansion for MODBUS RTU communication (First port for 5 slave devices -> up to 10 measurements per slave (if more additional programming needed), second port for external master communication)
<b>CAL-485-IM</b>	1 port RS422-RS485 Expansion for MODBUS RTU communication with compressor controller
<b>CAL-AI4</b>	4 (4...20mA, 12 bit, 4 x 2-wire system)
<b>CAL-AI8</b>	8 (4...20mA, 12 bit, 8 x 2-wire system)
<b>CAL-DI8</b>	8 (24VDC, filter 3.0ms, 2-wire system)
<b>CAL-DOR4</b>	4 (relay output terminal, 4-20mA, 125VAC/30VDC, 0.5A AC/2A DC, potential-free make contacts)
<b>CAL-AO4</b>	4 (4...20mA, 12 bit, 4 x 2-wire system)
<b>CAL-PROFIBUS</b>	PROFIBUS Master/Slave Expansion (without programming labour)
<b>CAL-PROFINET</b>	PROFINET Master/Slave Expansion (without programming labour)
<b>CAL-OPCUA-GW</b>	OPC UA Gateway, installed in CAL-PM-X cabinet (without programming labour)
<b>CAL-PM-LAN</b>	Router to establish internet communication to CALMS cloud via customer's LAN network
<b>CAL-PM-SCADA</b>	SCADA – Local HMI simple system visualization (ON REQUEST)

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