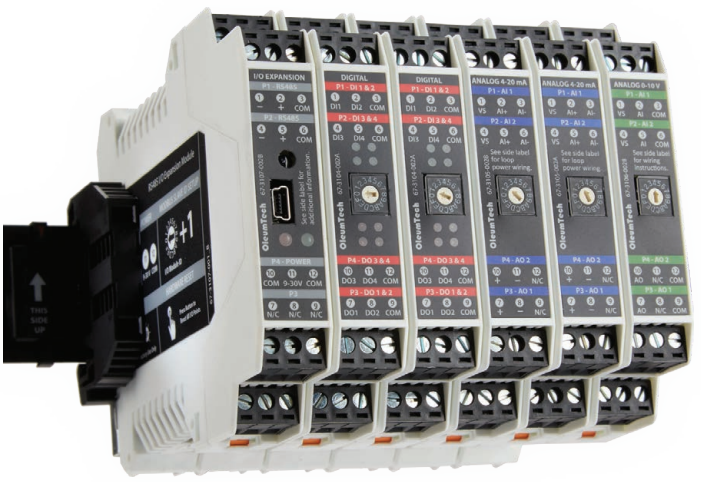
DATASHEET

PM1K



I/O Modules not included

Highlights

- Fast-commissioning I/O system
- Serial RS485 connectivity
- Works with a Modbus master device
- Fully customizable modular I/O solution
- Add 0-10 Vdc, 4-20 mA, and or Digital I/O
- No software, no programming involved
- Easily mounts onto a 35 mm DIN rail
- -40 ˚C to 80 ˚C
- Class I, Division 2 (Zone 2) certified

Cost-Effective, Easy to Use Local I/O Expansion Solution

Quick and Easy Way to Add I/O

The OleumTech® Modular I/O Expansion System enables you to instantly add I/O capabilities to any Modbus master device using serial RS485 connectivity.

The RS485 I/O Expansion System does not require any software or programming, making it one the of the easiest and quickest local I/O expansion solutions available.

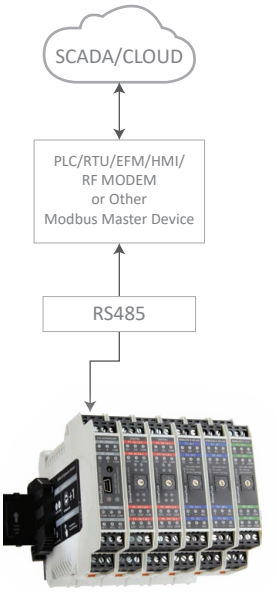
Just Add I/O Modules

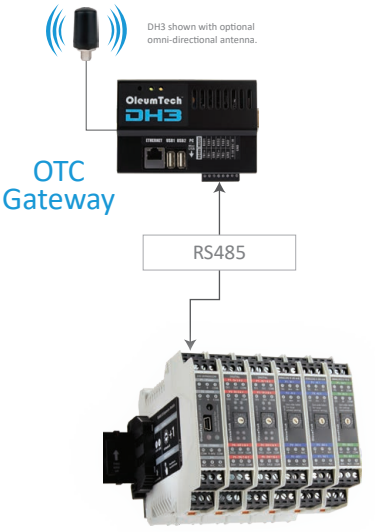
Constructing an I/O Expansion System begins with a RS485 Power Module, which is available as a kit. The kit includes the mounting hardware required for installation onto a 35 mm DIN rail. Then, you simply attach up to any five I/O Modules in any desired combination so you can get just the right amount of I/O mix and count. There are three available I/O Modules to choose from: Analog 4-20 mA, Analog 0-10 Vdc, and Digital.

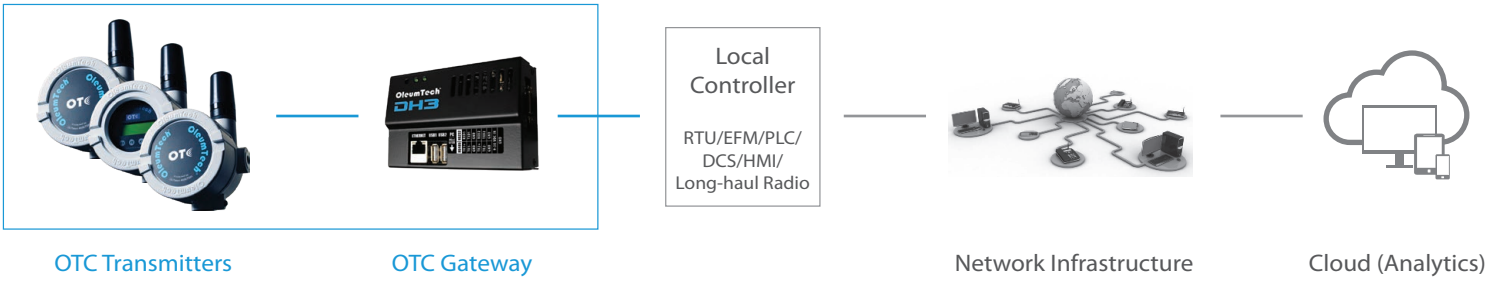
Technical Specifications

HARDWARE FEATURES	
Device Functionality	· Modbus RS485 Local I/O Expansion Solution (No Software Required)
Maximum I/O Module Capacity When Using More Than 5 Modules	· Max Capacity Depends on I/O Combination Impacting Power · Use Power Budget Calculator http://goo.gl/Z7xC5M
DIN Rail Mounting Compatibility	· 35 mm x 7.5 mm DIN Rail
DataRail® Included with PM1K	· 6.1" / 156 mm - Supports Up to Five (5) I/O Modules, Other DataRail Lengths Also Available
I/O Module Slave ID Selection	· 16-Position Rotary Switch
DataRail Mounting Hardware	· 4-Claw Attachment to 35 mm DIN Rail with End Terminal Bracket
Built-In Mounting Hardware	· Spring-Loaded Clip-On System
Wire Gauge	· Solid / Stranded (AWG) 28-12 Gauge
Wire Rating	· UL: 300 V RMS, 80 °C and 300 V, 105 °C / CSA: 300 V RMS, 105 °C
PM1K Package Dimensions (WxHxD)	· 5.5 x 10.1 x 2.8-in / 140 x 257 x 72 mm
PM1K Package Weight	· 0.8 lbs / 363 g
I/O Module Package Dimensions (WxHxD)	· 4.8 x 5.1 x 2.8-in / 123 x 129 x 72 mm
I/O Module Package Weight	· Single Pack: 0.5 lbs / 227 g; Dual Pack: 0.8 lbs / 363 g
Warranty	· 2-Year Limited
SAFETY & COMPLIANCE	
Operational Temperature	· -40 °C to 80 °C / -40 °F to 176 °F
Ambient Temperature	· -20 °C to 80 °C / -4 °F to 176 °F
Humidity	· 0 to 99 %, Non-condensing
Degree of Protection	· IP20 / Plastic
Safety	· Class I, Division 2, Groups A, B, C, D T4; Ex nA IIC T4 Gc · Class I Zone 2 AEx nA IIC T4 Gc · ATEX: Sira 15ATEX4134X; Ex nA IIC T4 Gc · IECEx: SIR 15.0055X; Ex nA IIC T4 Gc
RS485 EXPANSION I/O MODULE	
Baud Rate	· 9600 bits per second
Data Bits	· 8
Parity / Stop Bits	· None / 1
RS485 Modbus Slave Addressing	· Interface Supports up to 16 Addresses / I/O Modules*
Supply Voltage Range	· 9 - 30 Vdc (±5 %)
Reverse Polarity Protection	· Yes
Power Consumption	· Typical: 20 mA / Max: 24 mA @12 Vdc
ORDERING INFORMATION	
RS485 I/O Expansion Kit	· BM-1000-PM1K (I/O Modules not included)
0-10 V I/O Module	· BM-A010-122S (Single Pack) / BM-A010-122D (Dual Pack)
4-20 mA I/O Module	· BM-A420-122S (Single Pack) / BM-A420-122D (Dual Pack)
Digital I/O Module	· BM-D100-144S (Single Pack) / BM-D100-144D (Dual Pack)

Networking Diagram







Technical Specifications (I/O Modules)

ANALOG 0-10 V I/O MODULE	
Number of Inputs and Outputs	· 2x Inputs (24-bit Resolution) / 2x Outputs (16-bit Resolution)
Signal Range	· 0 Vdc to 10 Vdc (10.5 V Max)
Isolation Voltage	· 2500 V r.m.s.
Accuracy	· < 0.1 % of Full Scale
AI Input Impedance	· 40K ohm
AO Output Impedance	· 10 ohm
Power Consumption	· Typical: 40 mA / Max: 45 mA @12 Vdc

0-10 V I/O Module

ANALOG 4-20 mA I/O MODULE	
Number of Inputs and Outputs	· 2x Inputs (24-bit Resolution) / 2x Outputs (16-bit Resolution)
Signal Range	· 4 mA to 20 mA
Isolation Voltage	· 2500 V r.m.s.
Accuracy	· < 0.2 % of Full Scale
Internal Loop Power	· +13.5 Vdc
Maximum Current	· 84 mA @ 12 Vdc
AI Input Impedance (loop)	· 128 ohm
AO Terminal Voltage Range	· 10 Vdc Min. / 31.5 Vdc Max.
Power Consumption	· Typical: 50 mA / Max: 75 mA @12 Vdc

4-20 mA I/O Module

DIGITAL I/O MODULE	
Number of Inputs and Outputs	· 4x Inputs / 4x Outputs
Input Voltage Range	· 3-30 Vdc
Isolation Voltage	· 2500 V r.m.s.
Input Voltage Threshold	· Signal ("H"): > 2.3 Vdc / 0 Signal ("L"): < 1.1 Vdc
Output Rating	· 1 A Sink Current for Open-Drain Outputs / NPN
Green LEDs	· Line-Driven Input Indicators
Red LEDs	· Output Indicators
Power Consumption	· Typical: 18 mA / Max: 26 mA @12 Vdc

Digital I/O Module

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