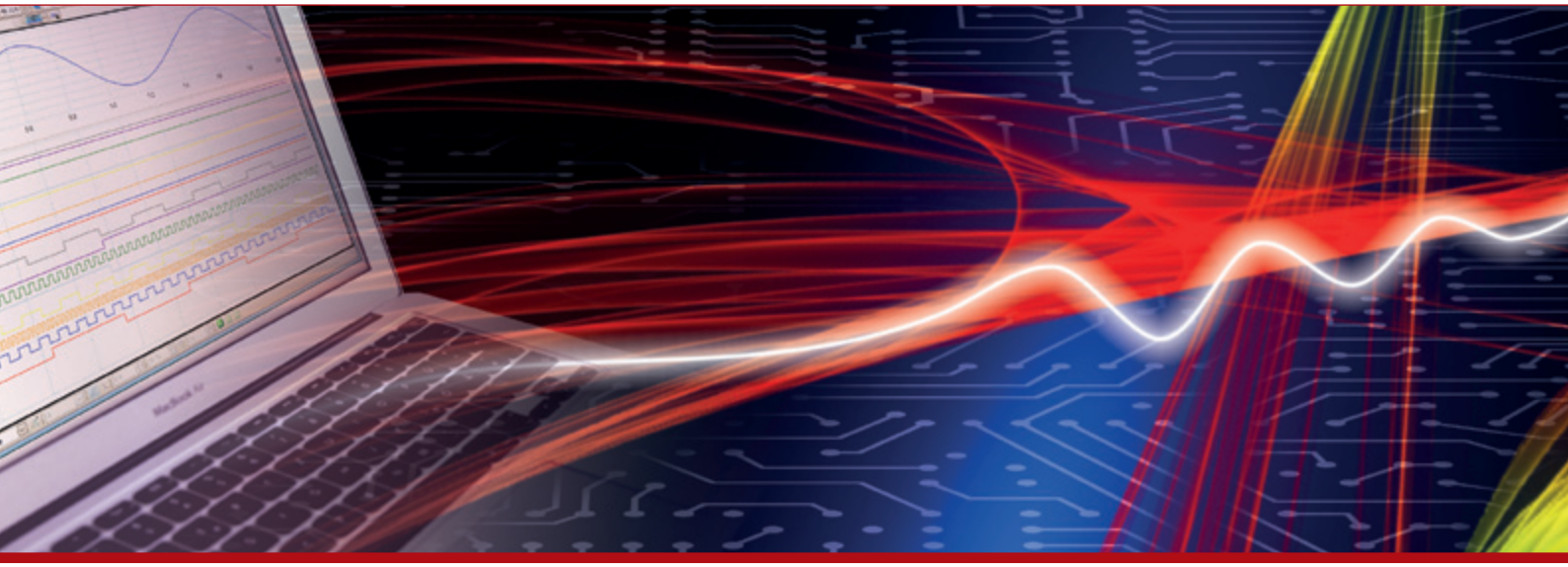
Product Datasheet - Technical Specifications



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Your contact

Technical and commercial sales, price information, quotations, demo/test equipment, consulting:

Tel.: **+49 - (0)81 41 - 52 71-0**

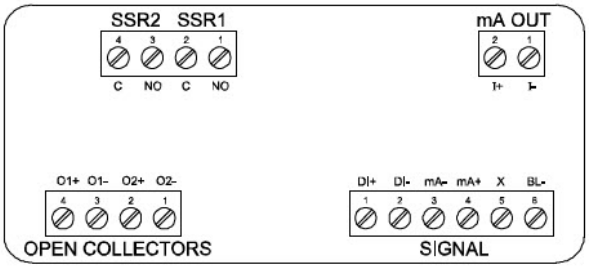
E-Mail: **sales@meilhaus.com**

Meilhaus Electronic GmbH
Am Sonnenlicht 2
82239 Alling/Germany
Tel. **+49 - (0)81 41 - 52 71-0** E-Mail **sales@meilhaus.com**

www.meilhaus.com

Panel Meters: Vertu™ Series

VPM2000 Loop-powered Isolator/Alarm with Display



Loop-powered Process Meter ◆ 4-20mA input/output ◆ Solid-state Relays ◆ Non-incendive, Intrinsically Safe

Description

These loop-powered 1/8 DIN digital panel meters provide a convenient and informative display of any 4-20mA signal. A dual line display shows the process value on the top line and the units or a tag on the bottom line. Alternatively, you can display the input in one scale on the top line (e.g. height) and another scale on the bottom (e.g. volume). A bargraph option indicates the percentage the value represents.

All models include a digital input and two open collector outputs. For signal isolator and alarm trip applications, model options add two solid state relays or 4-20mA analog output. The digital input enables remote reset or triggering of alarms. Open collector outputs are useful for alarm indication or pulse output. Relays support alarm activation, on/off control, and pump alternation functions.

Installation is greatly simplified as the meters acquire power from the 4-20mA loop and therefore require no separate power source. A low voltage drop adds very little burden to the loop. The NEMA 4X IP65 panel, conformal-coated PCBs, wide temperature operation, and a backlit LCD enable use in most environments. Intrinsically safe and non-incendive versions allow installation in hazardous areas.

Setup is fast and easy using the front panel buttons or the free configuration software. A micro USB cable connects the meter to the PC and provides power for software-based programming and saving the file. The pushbuttons also serve as programmable function keys to change displays, reset min/max readings, acknowledge alarms, and other uses.

Key Features & Benefits

- Loop-powered process meter
- 4-20mA input
- Two open collector outputs standard
- Optional loop-powered solid-state relays
- Optional 4-20mA analog output
- 1.5 volt drop (4.5 volt drop with backlight)
- Loop-powered backlight with red backlight for alarm conditions
- Free PC-based USB programming software
- 5-digit alphanumeric top line, 8-digit alphanumeric bottom line
- 20-segment bargraph with percent indication
- Relay pump alternation based on level and runtime
- Display relay runtime and cycle count
- UL/cUL 61010 listed for electrical safety
- UL/cUL listed as intrinsically safe and non-incendive
- -40 to 167°F (-40 to 75°C) safe area operating temperature range

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Panel Meters: Vertu™ Series

Performance Specifications

General

Except where noted all specs apply to operation at +25°C.

Temperature Range
Operating (safe area models): -40 to 75°C.
Operating (hazardous area models): -40 to 70°C.
Storage: -40 to 85°C.

Relative Humidity
0 to 90% non-condensing. PCBs conformal-coated.

Programming Method
Front panel & Free PC-based USB programming software.

Digital Input
2.1V DC on contact. No contacts across DI+ and DI-.
Logic High: 2.4 to 30V DC (max).
Logic Low: 0 to 0.9V DC.

Overall Dimensions
4.68" x 2.45" x 3.79" (119 x 62 x 96 mm) W x H x D.

Weight
8.7 oz (247g) with option board.

Warranty
3 years parts and labor.

UL/cUL Approvals
General purpose: UL 61010-1.
Hazardous area: Class 1, Div 1, Groups A, B, C, D and Class 1, Div 2, Groups A, B, C, D.

Input

Inputs
4 to 20mA.

Accuracy
±0.02% of span ±1 count.
Square root/ exponent: 10-100% FS.

Voltage Drop
Without Backlight: 1.5V max. With backlight: 4.5V max.

Function
PV1: Linear, square root, or programmable exponent.
PV2: Linear or round horizontal tank.

HART Transparency
Analog input will not interfere with existing HART communications on the wired 4-20 mA signal.

Display

Display
Dual-line LCD with backlight. Both lines 14-segment alphanumeric. Top: 0.7" (17.8 mm), Bottom: 0.4" (10.2 mm). Display may be programmed to turn red and flash a user-defined message on alarm condition.

Decimal Point & Commas
Top line: Up to four decimal places.
Bottom line: Up to seven decimal places and commas to indicate 1000s (e.g. 88,987,628).

Dual-Scale Feature
Input can display in different scales on top and bottom lines. Top line could display input in height and bottom line displays same input in volume.

DisplayWizard LP Programming Software

DisplayWizard LP System Requirements
Microsoft® Windows® 7 & 10.

Communications
USB 2.0 (Standard USB A to Micro USB B).

Common Open Collector & Relay (Alarm)

High or Low Alarm
User programmable for high or low alarm.

Alarm Deadband
0-100% FS, user programmable.
Pulse, alarm, timer, stopwatch on/off, or disable.

On & Off Time Delay
0 to 9,999 seconds.

Fail-Safe Operation
Independent for each open collector and relay.
Fail-safe on: output is on under normal conditions.
Fail-safe off: output is on under alarm conditions.

Alarm Operation
Automatic, automatic with manual override, latching (manual reset anytime), latching with reset after cleared (manual reset only after alarm has cleared).

Under/Over Range
If input < 3.5 mA: 1.0, 3.5, 3.8 mA, or disabled.
If input > 20.5 mA: 20.5, 20.8, 23.0 mA, or disabled.

Open Collector Outputs

Rating
Isolated, sinking NPN, 5-30V DC @ 150mA max.

Solid State Relays

Rating: 250VAC/VDC @ 1A resistive.
75VA; 250VAC; 0.6A pilot duty (inductive) – UL Code D300.
25VA; 250VDC; 0.6A pilot duty (inductive) – UL Code R300.

Pump Alternation
Relays will alternate with each pump cycle and alternation can be based on elapsed time. Pump alternation time can be programed for: 0 to 999:59 (hrs:min).

4-20mA Transmitter Output

Accuracy
±0.05% FS ±0.001mA.

Scaling Range
1.00 to 23.0 mA.

Under/Over Range
If input < 3.5 mA: 1.0, 3.5, 3.8 mA, or disabled.
If input > 20.5 mA: 20.5, 20.8, 23.0 mA, or disabled.

Isolation
500 V input-to-output.

External Loop Power Supply
7.0 VDC to 30.0 VDC maximum.

Output Loop Resistance
10-750 Ω @ 24 VDC; 100-1100 Ω @ 30 VDC.

Ordering Information (click here to view online)

Model No.	Loop-powered	4-20mA Output	Dual Relays	Bargraph	General Purpose	Hazaradous Location
VPM2111	x				x	
VPM2112	x		x		x	
VPM2113	x	x			x	
VPM2114	x	x	x		x	
VPM2121	x			x	x	
VPM2122	x		x	x	x	
VPM2123	x	x		x	x	
VPM2124	x	x	x	x	x	
VPM2211	x					x
VPM2212	x		x			x
VPM2213	x	x				x
VPM2214	x	x	x			x
VPM2221	x			x		x
VPM2222	x		x	x		x
VPM2223	x	x		x		x
VPM2224	x	x	x	x		x

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Panel Meters: Vertu® Series

Serial Communication Converters & Adapters

APMA7232 RS-232 Serial Adapter

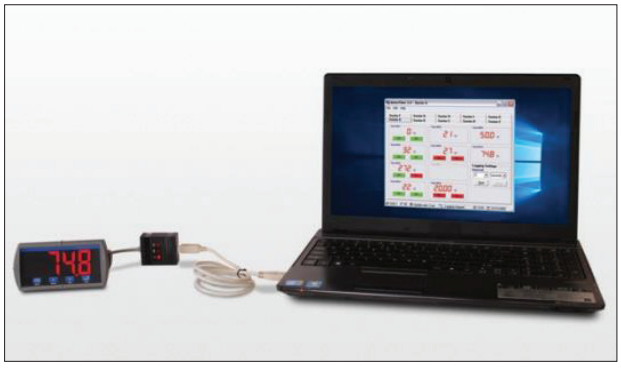
APMA7422 RS-485 Serial Adapter

ACC1001 RS-232 to RS-485 Isolated Converter

ACC1003 USB RS-485 Isolated Converter

ACC1000 USB Serial Adapter

ACC1002 USB to RS-232 Converter



Key Features & Benefits

- Provides a convenient way to bring data from meter into PC, PLC, etc.
- RS-232 and RS-485 adapters available
- USB to RS-485 and RS-232 converters avilable for APM765 and VPM3000 meters
- ACC1000 USB adapter is great for programming APM765 and VPM3000 meters

Ordering Information

APMA7232
APM765 and VPM3000 RS-232 adapter, APMA7420 included.

APMA7420
APM765 and VPM3000 meter copy cable 7 ft. (2.1m).

APMA7422
APM765 and VPM3000 RS-485 adapter, APMA7420 included.

ACC1001
RS-232 to RS-485 isolated converter.

ACC1000
APM765 and VPM3000 USB adapter for programming only.

ACC1002
USB to RS-232 non-isolated converter.

ACC1003
USB to RS-485 isolated converter.

DisplayWizard
DisplayWizard software for APM765 and VPM3000. Free download available at www.acromag.com.

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