

PD 3221B

- 4 Digital Source, Sink or push-pull I/O's
- Load current measurement
- 2 Digital Inputs
- 1 Analog Current Output
- 2 Analogue Inputs for voltage, current or Pt100/Pt1000 temperature input
- P-NET via RS485 cable
- Built-in input and output functions
- Overload protection and Alarming
- Advanced internal self-testing
- Programmable in COPP
- Wide Power Supply range
- High Temperature range
- Low Power Consumption

APPLICATION

The PD3221B module offers Digital and Analogue I/O channels as interface for various types of process signals, valves, pumps, level detectors, actuators etc. and push-pull outputs for direct motor control.

The module has four Digital I/O and two Digital Input channels. All Digital Outputs can work as source, sink or push-pull with current measurement. Three of the Outputs can additionally perform fast PWM output.

All Digital inputs can be configured as PNP or NPN. The inputs can perform Line Check functions.

This is useful with two-wire proximity switches. In case of error, the hardware will report either 'Line open' or 'Line short-circuited' respectively.

All Digital inputs can also measure analogue voltage 0-10 V.

The Digital Input channels 5 and 6 can additionally perform fast input functions.

The module has an analogue output current channel for 4-20 mA with source or sink.

The module has two analogue input channels for 4-20 mA current, 0-100 mV voltage or Pt100/Pt1000 temperature measurements.

All channels are overload and short-circuit protected. Notification can be enabled on any disconnection or process failure.

The device is programmable in COPP, which means that a part of, or a complete automation application can be downloaded and run in the module.

The program can make use of ready-made components to control and monitor any process or machine application, both locally in the device but also via the network interacting with other devices.

SPECIFICATIONS

Analogue Current Input

Signal range (source)	0 - 22 mA
Calibration error: @ Tamb. 20 °C	Max. +/- 0.1 % of full scale
Temperature coefficient Tc	Max. +/- 125 ppm / °C
Resolution	0.06 % of full scale
Voltage drop across input at 20mA	Nom. 0.8V (40 Ω)
Current limiter (Protection) typical	Typ. 25 mA

Analogue Voltage Input

Signal range	0-100 mV
Accuracy/Resolution	100 μV / 10 μV

Pt100/Pt1000 Temperature input

Accuracy (-200°C – 100°C)	+/- 0.20 °C
Accuracy (100°C - 600°C)	+/- 0.45 °C
Update interval	200 ms

Analogue Current output

Signal range (source)	0 - 22 mA
Calibration error @ Tamb. 20 °C	Max. +/- 0.1 % of full scale
Temperature coefficient Tc	Max. +/- 150 ppm / °C
Resolution	0.06 % of full scale
Digital Inputs (referenced to -24 Vin)	
Frequency	Max. 1 kHz @ 50% duty cycle
Input	On: Vin < 4.5 V, Off: Vin > 6.5 V
Hysteresis	Typ. 1 V

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Input	On: Vin < 4.5 V, Off: Vin > 6.5 V
Hysteresis	Typ. 1 V

Line check: (*)

Line open voltage	> 0.75 * Vin
Line short circuit voltage	< 2 V
Input pull down resistance	6.8 kΩ
Input active pull up (configurable)	3 mA

Fast Mode Digital Input (referenced to -24 Vin) (*)

Frequency	Max. 50 kHz @ 50 % duty cycle
Input voltage Off	2.5 V + Hys/2
Input voltage On	2.5 V - Hys/2
Hysteresis (Hys)	Typ. 1.0 V

Digital I/O Analogue Voltage Input

Signal range	0-10 V
Accuracy/Resolution	200 mV / 1 mV

...continues

Digital Outputs

Oneshot and Duty cycle time resolution 417 μ s
 Internal resistance Typ. 0.5 Ω
 Output start current (duration max 200 ms) Typ. 5 A
 Load current at ON (Source only) Max. 1.0 A
 Short circuit cutoff delay time (current > 5 A) 104 μ s
 Leak current at OFF Max. 500 μ A

Fast Mode Digital Output

Frequency max @ 0.5 % resolution 40 kHz
 Resolution increases at lower frequencies

Load Current Measurements

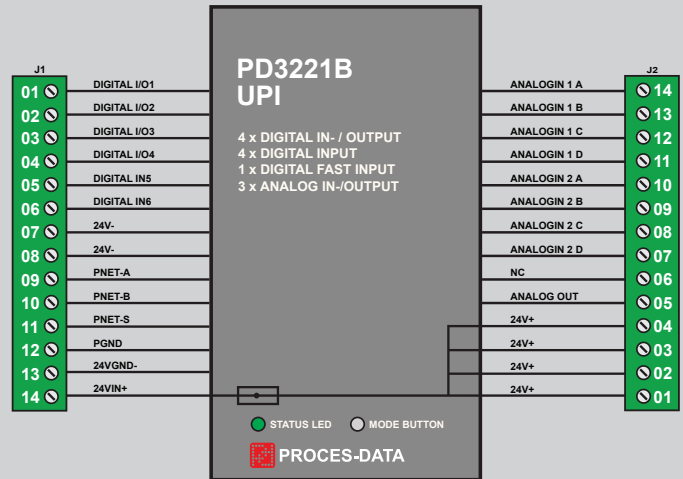
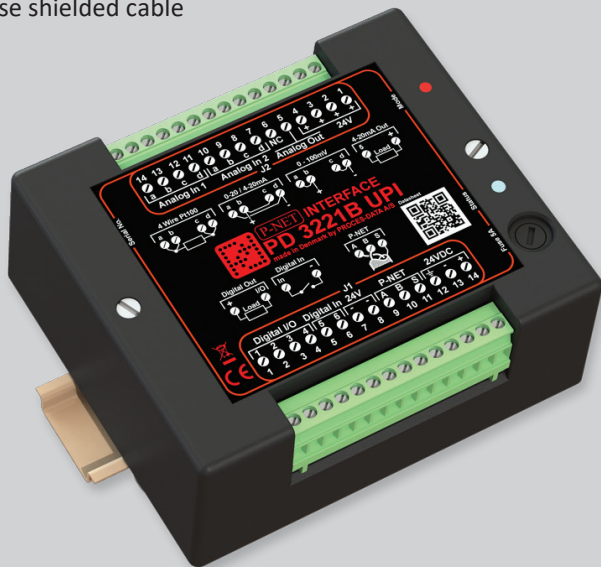
Range 10 A
 Accuracy Min. 2.5 %, +/-25 mA
 Resolution 5 mA
 Repeatability Min. 1 %, +/- 25 mA

Power Specifications

Supply voltage nominal 24 VDC
 Supply voltage 12-32 VDC
 Typ. internal power consumption (@ 24 VDC) 0.5 W
 Max. power consumption (@ 24 VDC) 2.5 W
 Fuse 5 x 20 mm 5 A time delay

Environmental Conditions

Operation temperature -25 $^{\circ}$ C to +70 $^{\circ}$ C
 Storage temperature -40 $^{\circ}$ C to +85 $^{\circ}$ C
 Relative humidity < 95 % RH (non-cond.)
 Protection class IP40
 (* Use shielded cable



MOUNTING AND CONNECTION

DIN rail mounting of the module is possible with the included mounting accessories.

The 5 A slow blow fuse protecting 24V+ outputs and the Digital outputs is replaceable from the front side of the module. Please use a screwdriver to unlock and lock the fuse holder.

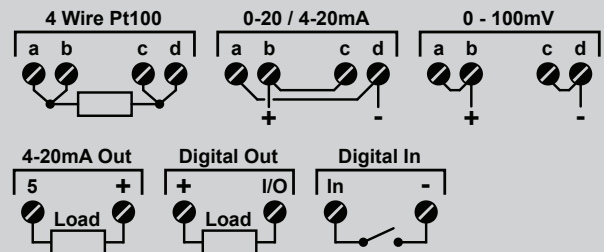
A mode pushbutton and a status information LED is located at the front side of the module.

The module has two detachable snap connectors with screw terminals for digital and analogue I/O connections, power supply and P-NET communication.

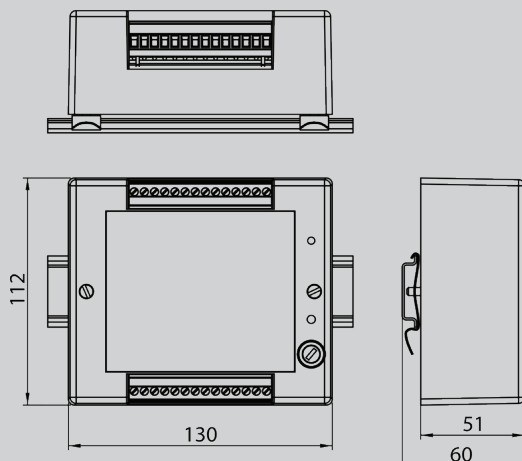
There are two 24V- terminals and four 24V+ terminals common for the I/O connections. Depending on the actual configuration of the module, it may be necessary to connect more than one wire per 24V+ or 24V- output terminal.

The front foil of the module contains information about the module, the connections, fuse, serial number and a QR code with a link to the product home page.

Examples of connections



MECHANICAL (mm)



Mechanical Specifications

Dimensions (HxWxD)..... 51 x 130 x 112 mm
 Weight approx.....360 g
 Vibration IEC 60068-2-6 : 2007