

ibaPADU-8-ICP/-M



In brief

- ibaPADU devices for fast data acquisition with sampling rate up to 25 kHz (40 μ s)
- 8 analog and 8 digital inputs
- Digital inputs for 18 V to 32 V, sampling synchronized with analog inputs
- Robust housing, easy mounting

ibaPADU-8-ICP

- 8 analog inputs with integrated ICP-interface for direct connection to ICP-sensors
- IMI ICP definition-compliant
- Detection of broken sensor or short-circuit on sensor
- Each analog input channel is equipped with a programmable amplifier and low-pass filter for optimization of signal dynamics

ibaPADU-8-M

- 8 galvanically isolated analog inputs for ± 10 V

Description

The devices ibaPADU-8-M and ibaPADU-8-ICP can be used for fast data acquisition due to their sampling rate of 25 kHz. The two device models can measure discrete analog signals of ± 10 V level or signals from ICP-sensors. The converted signal values are transmitted to an ibaPDA-V6 or ibaLogic-V3 system via fiber optic cable (FO-cable).

Fields of application

ibaPADU-8-ICP

ICP-vibration sensors are typically used to convert physical acceleration into measurable voltage. Thus they are the ideal tool for detection of resonance and for condition monitoring of machines and bearings.

Large scale installations for big plants can be realized without difficulty. Up to 96 devices can be connected in a ring topology by FO-cable. When using the multiplex mode (only possible with ibaLogic-V3) one device after the other is activated for a limited time by ibaLogic and its data are measured. Thousands of signals can be installed and connected in that way. The switching from one device to the next is done automatically. This method provides the benefit of reproducible measurements (trending).

The devices are connected with ibaFOB cards in a computer; e. g., ibaFOB-io, ibaFOB-4i/4o. These bi-directional communication cards are the interfaces to the application software like ibaPDA-V6 or ibaLogic. Up to 4 cards are supported per computer.

All optical connections are synchronized by hardware in order to ensure a proper signal correlation.

Signal capacity in multiplex mode:

4 (cards) x 4 (links) x 96 (devices) x 8 (analog inputs) result in a total of 12 288 analog plus 12 288 digital inputs.

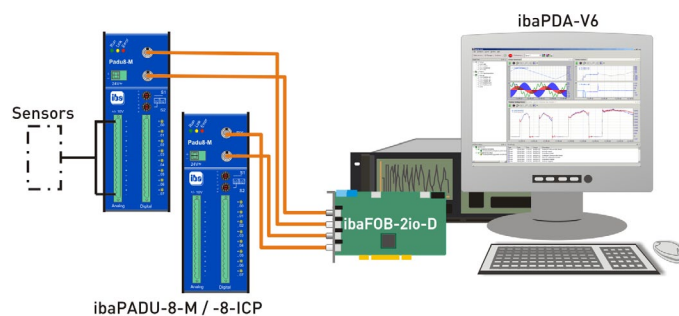
Signal capacity in continuous mode (with ibaPDA-V6):

4 (cards) x 4 (links) x 1 (device) x 8 (analog inputs) result in 128 analog plus 128 digital inputs.

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This device is mostly used for drive optimization and monitoring of power lines and static var compensation units.

Depending on the bandwidth and performance of the computer, currently up to 128 analog plus 128 digital inputs can be processed with maximum sampling rate. This corresponds to 4 FO-links (4 FOB-4i-D cards + 4 FOB-4o-D cards).



Configuration example for continuous process monitoring

Manufacturer	iba AG			
	Name	Order number	Name	Order number
	ibaPADU-8-ICP	10.120100	ibaPADU-8-M	10.120300

Analog inputs

Quantity	8, with 1 A/D converter per channel	
Resolution	14 Bit	
Dynamic	84 dB to 140 dB, depending on amplification	84 dB
Sampling rate	Max. 25 kHz, programmable	
Frequency range	0.1 Hz to 25,000 Hz/6 dB	0 Hz to 12.5 kHz/3 dB, 25 kHz/6 dB
Accuracy	0.1 % of total measured range	
Input signal	±5 V, ICP-compatible	±10 V
Maximum input voltage	0 V to 24 V	±60 V
Input impedance	4 mA current loop (max. 30 m to the sensor)	On: 100 kΩ, Off: 50 kΩ
Input low-pass filter	Programmable 75 Hz to 25,000 Hz	RC 12,500 Hz
Amplification	0 dB to 60 dB, programmable	0 dB
Protection	Short circuit proof with broken wire detection	–
Galvanic isolation	ICP-Device, potential separation 1.5 kV	Channel-Channel-Device, Potential separation 1.5 kV

Digital inputs

Quantity	8			
Input signal	log0: < ±9 V, log1: > ±10 V to 60 V			
Current consumption	Max. 1 mA			
Protection	PTC			
Galvanic isolation	Channel - Channel - Device: 1.5 kV	Channel - Channel - Device: 1.5 kV		

Supply, interfaces, operating and indicating elements

Analog inputs	2 x 12-pole spring terminal strip (Phoenix), 0.15 in (3.81 mm)	16-pole spring terminal strip (Phoenix), 0.2 in (5.08 mm)
Digital inputs	16-pole spring terminal strip (Phoenix), 0.2 in (5.08 mm)	
Power supply	DC 24 V, 0.4 A	
Fiber optic connector	2 x ST-lean	
Fiber optic cable	62.5/125 µm	
Current consumption	Typ. 300 mA, max. 400 mA (no load current), switch-on current approx. 1 A	
Indicators	3 LED device status	

Operating and environmental conditions

Mounting	Mounting rail clip
Cooling	Passive
Operating temperature	32 °F to 122 °F (0 °C to 50 °C)
Storage and transport temperature	-13 °F to 158 °F (-25 °C to 70 °C)
Humidity class (DIN 40040)	F, no condensation
Protection class	IP20
Certificates/standards	CE, DIN IEC 68-2-6, EN 55011 (Class A), EN 61000-4-6 (Class 3)
Mechanical test parameters	0.2 in (5.08 mm) displacement (p-p) @ 5 Hz to 14 Hz, 1 g rms @ 14 Hz to 200 Hz, 90 min each axis, 17 sweeps
Dimensions (B x H x D)	2.13 in x 7.64 in x 6.1 in (54 mm x 194 mm x 155 mm)
Weight (incl. box and documentation)	2.31 lb (1.05 kg)

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Measurement and Automation Systems

