Power Analyzer - GPA100

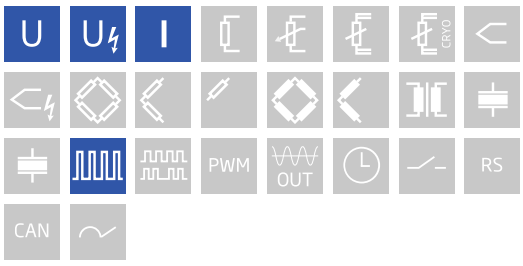
For precise measurement and analysis

The GPA100 Power Analyzer offers four high-voltage input channels that support up to +/-1500 VDC, four current transducer inputs, and four digital input channels for frequency measurements. The device is equipped with an integrated Q.station HP controller for advanced data acquisition, quick data logging, and efficient parallel communication using TCP/IP and EtherCAT protocols. Its capabilities make the GPA100 suitable for various applications, especially engine test benches



Key Features

- **Communication Interface**
  TCP/IP, EtherCAT (requires EtherCAT plugin)
- **4 high voltage input channels**
  Range: up to ± 1500 VDC
- **4 current input channels**
  For current transducers
  Range: ±1 A
- **4 digital input channels**
  For torque sensors and engine speed sensors
  Range: 0.1 Hz up to 1 MHz
- **Power quality analysis**
  4 MHz sample rate
  reactive, apparent, active power, Urms, Irms per phase and total, Power factor cos Phi, instantaneous power, voltage, current, Total harmonic distortion THDu and THDi, rotational speed and direction, torque, mechanical power, power efficiency





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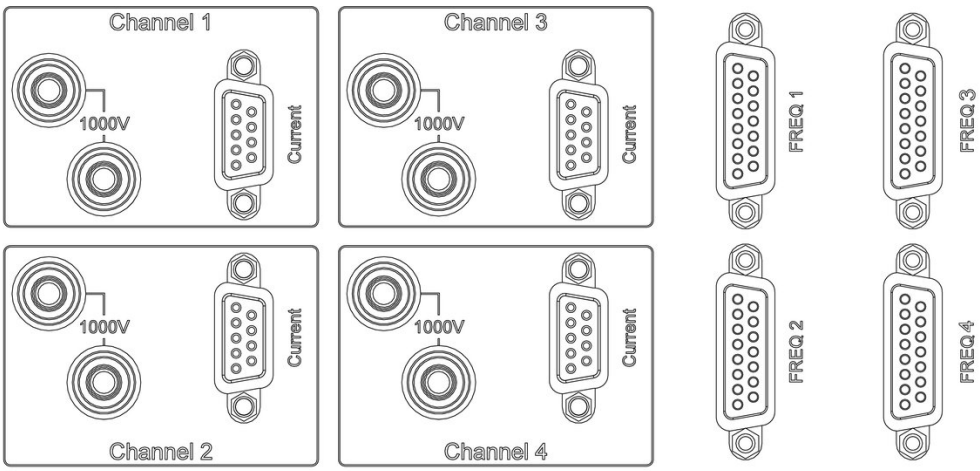
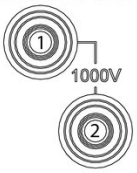
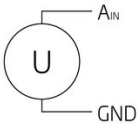
Technical Data

Terminal assignment

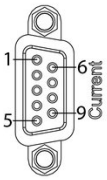


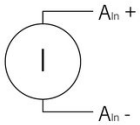
1	A_{in}
2	GND



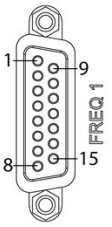


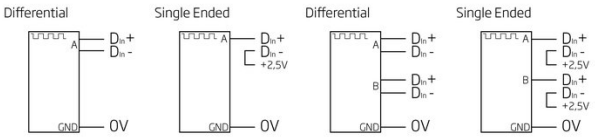
1	A_{in} -
3	State -
4	GND
5	-15V
6	A_{in} +
8	State +
9	+15V





1	D_{in} A +
2	0V
7	0V
8	D_{in} B +
9	D_{in} A -
10	+2,5V
14	+2,5V
15	D_{in} B -





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Q.station HP

General				
Type	Intel Core i5-1145GRE, Quad Core, 8M Cache, 1.5GHz (4.1GHz), 15W			
RAM	32 GByte			
Flash	128 GB			
Real Time Clock (RTC)	Battery buffered			
Watchdog	Programmable			
OS	Real-time Linux			
Ethernet Interface				
Channels	1x 1GB			
Baud rate	1 Gigabit/s (1 Gig-E)			
Protocols	HTTP, TCP/IP, High Speed Port			
USB Interface				
Channels	2			
Version	USB 3.0			
EtherCAT Interface				
Electrical standard	Ethernet			
Data rate	1024 Byte Data (253 variables read and 253 variables write)			
Baud rate	100 Mbps			
Cycle time	≥100 µs			
SSD Specification				
Storage capacity	1TB			
Interface	SATA 6 Gb/s (compatible with SATA 3 and SATA 1.5)			
SSD Technology	V-NAND			
Data rate	up to 52 MB/s write and 550 MB/s read			
Buffer size	78 GB			
TBW (Terabytes written)	600 TBW			

High Voltage Channels

Number of channels	4			
Connector	High voltage banana			
Range	± 1500 VDC			
Sample rate	4 MHz			
Quantization	24 bits			
Galvanic isolation	± 2500 VDC			
Input voltage impedance	1 MΩ_50 pF, [10 MΩ_5 pF at ± 1000 V]			
Dynamic range	Range	Bandwidth		
		5 kHz	50 kHz	1MHz
	± 1500 V	110 dB	104 dB	94 dB
ENOB (THD + Noise) effective number of bits	Range	effective bits	dB @ 125 kHz sample rate	
	± 1500 V	typ 15.3 Bit	- 95 dB	
Crosstalk	< -120 dB (DC - 200 kHz)			
Input protection	± 2000 V @ range ± 1500 V			

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Current Channels (for current tranducer)

Number of channels	4
Connector	DSub-9 female
Range	± 1 A
Accuracy	
Resolution	24 Bit
Offset temperature influence	Typ. 10 ppm/K
Temperature influence	0.025% / 10 K
Input impedance	1 Ω
Sensor supply	
Input voltage	± 15 V
Accuracy	0.2 V
Max. current	1.2 A
Noise	10 mV RMS
Temperature influence	20 mV / 10 K

⚠ Only use galvanically isolated current transducers

Digital Channels (for torque sensors and engine speed sensors)

Channels	4
Connector	DSub 15 female
Frequency measurement	
Method	Moving Average (optional with recognition of direction of rotation)
Frequency range	0.1 Hz to 1 MHz
Moving average lengh	1 to 4095 pulses
Reference frequency	48 MHz (optional 832 MHz)
Accuracy	0.01% at average > 1ms
Pulse counting	
Counter depth	32-bit (±31-bit)
Counter frequency	1 MHz
Min. high time	100 ns
Min. low time	100 ns
Up/down counter	optional
Time measurement	
Function	Measuring of time between two edges
Time range	1 µs to 32 s
Resolution	21 ns

Power Supply

Input voltage	90 ~ 264 VAC
Frequency range	47 ~ 63 Hz
Power consumption	Typ. 80 W Max. 230 W
Connector	Cold appliance plug

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Mechanical Information

Material	Aluminium
Measurements (W x H x D)	483 x 180 x 235 mm
Weight	12 kg
Ventilation	forced air ventilated

Environmental

Operating temperature	0 °C to +40 °C
Storage temperature	-40°C to +85°C
Relative humidity	5 % to 90 % at 50°C, non-condensing

Remarks

Warm-up time	Are subject to a warm-up period of at least 45 minutes
	Specifications subject to change without notice

High Voltage Warnings



- Attention! High voltage device! - Danger to life and health in case of non regular use.
- Only special and sufficient educated persons are permitted to handle this device only.
- All metal housing parts must be safe and permanently connected to protected earth PE.
- Only plugs and cables with contact protection may be used. Components require an approved voltage in accordance with the rated data 1500 VDC.
- During installation, the whole system must be without voltage and safely be disconnected from the mains.
- All relevant safety regulations must be considered.
- Do not operate with damaged casing.

Base is the european standard EN61010-1

Ordering Information

Article number	824426

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