



## Femto D4 DC & Hall

Counter / analyzer of DC Energy



## Atto D4 DC & Hall

Transducer of DC Energy

**Femto D4 DC** is a counter / analyzer of DC Energy with backlight LCD graphic display, while the **Atto D4 DC** is a DC energy transducer. Both are equipped with an extremely accurate and versatile microprocessor designed to meet the most demanding applications of electrical parameters analyses and energy supply monitoring in the photovoltaic, telecommunication, battery systems, and more. Measures voltage, current, power and energy, max and min values of voltage and current. Input of 60mV or 100mV for shunt. The instruments can be integrated with other Electrex products in order to set up a monitoring system for energy or other parameters (temperature, humidity, luminosity, etc.), alarms even with remote access (via GSM / Internet). In this way it is possible to constantly monitor the status of the plant, check promptly and automatically possible malfunctions (e.g. a string of the photovoltaic plant that stops producing photovoltaic energy), any theft or tampering (e.g. solar panels) or access to restricted areas.

The **Femto D4 DC HALL** and **Atto D4 DC HALL** have the same features of the Femto D4 DC and Atto D4 DC but have been designed for the **CTS DC Hall** current transformers connected to the instruments through specific converters.

### Measurement system

All the readings are obtained with a continuous sampling of the voltage and current in order to ensure the maximum metering accuracy even for small loads.

### Simple to use

The **Femto D4 DC** are equipped with a graphic dot matrix LCD display with a LED backlight and adjustable contrast allows the simultaneous reading of 2 parameters and their symbols with high visibility digits. 3 keys make the instrument use simple and rational, while the page displayed when powering on the device is configurable by the user.



Through a simple keyboard set up is possible to set all the operative parameters like integration time (1-60 min), digital outputs and alarms (threshold, delay and hysteresis), digital input, RS485 address. The set-up is password protected. The **Atto D4 DC** are equipped with 2 LED on the frontal panel denoting the device's status and the functioning of the RS485 port.

### Serial communication

The **Femto D4 DC** and **Atto DC** are equipped, as standard feature on all types, with an optoinsulated and over-voltage protected RS485 serial communication port. The protocol is a full compliant Modbus- RTU suitable for communication with PLCs and with SCADA programs. The instrument data are read as numerical registers composed by mantissa and exponent in the IEEE format. A transmission speed of up to 38.400 bps, with maximum 125 registers (equivalent to 62 parameters) per query with no waiting time between queries, ensure an unrivalled communication speed and dialogue efficiency.

### Digital outputs

The **2DO** versions are equipped with two optically insulated transistor outputs rated 27 Vdc 27 mA per DIN 43864 standards. The two outputs are factory set to the transmission of pulses proportional to the imported and exported energy (pulse weight and length are user programmable). The outputs may be alternatively configured as outputs of the internal alarms (see Alarms) or as remote output devices controlled via serial line and Modbus commands.

### Digital input

The **1DI** versions are equipped with an optically insulated digital input complete with programmable filter for input glitches. The digital input is set to operate for external pulse count of, for example, water meters, gas meters (insulation to meet the ATEX requirements), quantity count, etc. Other user selectable operative modes are ON/OFF state input (example for reading the ON/OFF state of machines and switches) and tariff change input (example for day-night tariff changeover). The digital input requires an external 10-30Vdc power supply.

### Measures

Parameters	Type	Range
Voltage	U	10,0V...300V
	U <sub>MAX</sub> (1)	
	U <sub>MIN</sub> (1)	
Current	I	Through shunt of 60 or 100mV
	I <sub>MAX</sub> (1)	
	I <sub>AVG</sub> (2) I <sub>MD</sub> (2)	
Active Power	P	± 0,00...1999 MW
	P <sub>AVG</sub> (3) P <sub>MD</sub> (3)	
Temperature	T (°C e F) (4)	-10...+50 °C
Time life	h (1/100 h)	0,01...99.999,99 hours
Active energy	E <sub>a</sub> IMP (5)	0,1 kWh...99.999,9 MWh
	E <sub>a</sub> EXP (5)	
Pulse counter	CNT (6)	

- (1) Value at a time of 500ms.
- (2) Average value (rolling average) over the integration time (1.. 60 min. programmable).
- (3) Import /Export average value (rolling average) over the integration time (1.. 60 min. programmable).
- (4) Microprocessor internal temperature
- (5) Import/Export energies displayed as 9 digits in floating-point readings; internal energy metering performed with 0,1 Wh minimum resolution and 99.999.999,9999 kWh maximum energy count before rollover.
- (6) Total and partial (versions with digital inputs)

**Special versions on request**

Femto D4 DC and Atto DC in different hardware configurations are available on request. They include different power supply and Input/Output configurations.

**Allarmi**

The 2DO versions are equipped with 2 outputs programmable as alarms offering the maximum configuration flexibility for adapting to the most diverse requirements. Each alarm can be related to any one of the parameters available, for example, either as a minimum and/or as a maximum. Linking of both alarms to the same parameter is also possible for operating as dual threshold alarm. The alarms configuration includes the option of setting a delay time (1-99 sec), an hysteresis cycle (in % of threshold value) and the polarity of the output contacts (NO, NC). The alarms state information is always available on serial communication as Modbus "coils". Due to the numerous combinations available, only a part of them are programmable by keyboard while are entirely programmable via serial port with the Energy Brain software or via serial port by means of Modbus Holding registers.

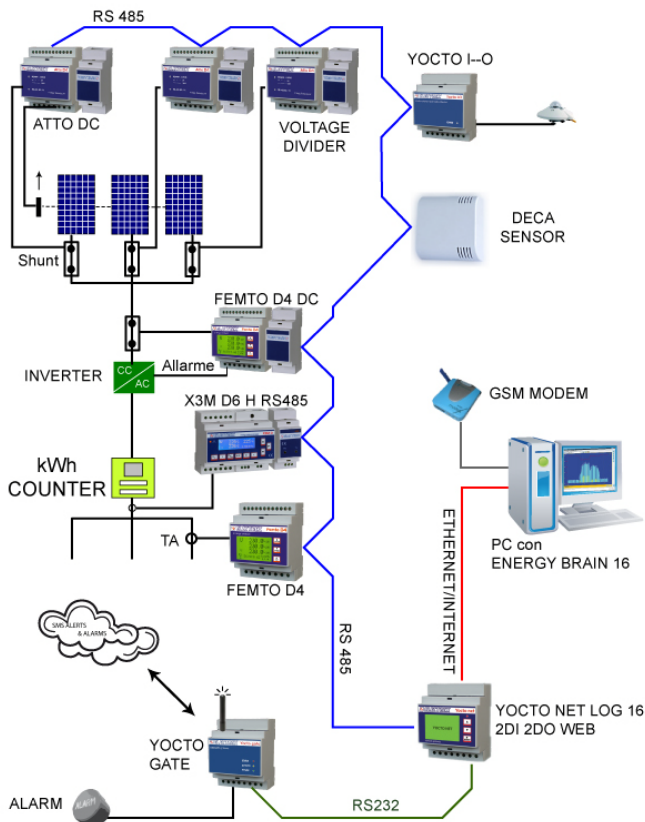
**Voltage Divider**

Femto D4 DC and Atto DC can measure directly up to 300V. For voltages up to 900V it is necessary the use of a voltage divider with a 3/1 ratio (e.g. 900V in input correspond to 300V in output). The divider size is 2 DIN Rail modules.

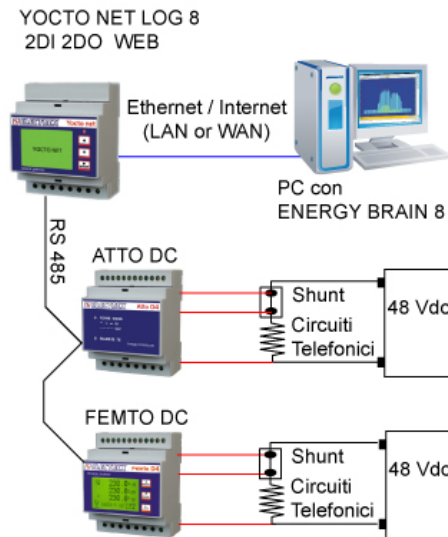


**Shunt**

Femto D4 DC and Atto DC can be used with DC shunt in class 0.5% with voltage drop 60mV or 100mV. Versions are available with flow from 10A and 25A based plastic support and 50A and 100A without support base. Other versions, from 1A to 15.000A, are available on request. All models are in accordance with the standards DIN43703.



Example of a monitoring system of a PV plant with remote management of measures and alarms.



Example of monitoring a DC load system in the telecommunication sector.

**Femto D4 DC E-Wi and Atto D4 DC E-Wi**

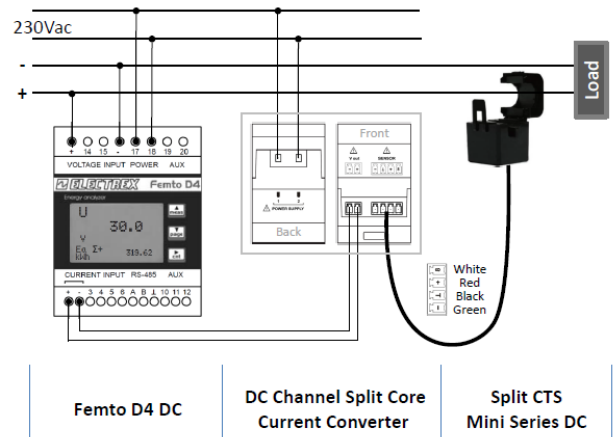
Have the same features of the Femto D4 DC and Atto D4 DC in the version without inputs and outputs and in addition transceive the data via radio waves (wireless), without any limitation, at 250kbps using a 2.4 GHz frequency, at a distance that, without signal boost, can reach the 800 m in open space.

The Femto D4 DC E-Wi and Atto D4 DC E-Wi use the E-Wi protocol based on the IEEE 802.15.4 standard and transmit to the Coordinator (see datasheet of Yocto E-Wi device on our website) in addition to the measurements also the signal intensity and quality of the signal in order to make easier the setting of the correct communication level.

**Femto D4 DC Hall and Atto D4 DC Hall**

**Femto D4 DC HALL** and **Atto D4 DC HALL** have the same features of the Femto D4 DC and Atto D4 DC but have been designed for the current transformers of the **CTS DC Hall Mini Series** which must be connected to the **DC Channel Split Core Current Converter** as shown in the diagram beside.

The DC Channels Split Core Current Converter are available in the versions with 1 or 3 channels and serve as interface between the measuring instrument and the Split CTS Mini Series DC which are powered by the converter through which the signal is conditioned and normalized for the reading by the measuring instrument.



**Technical Specifications**

**Measures**

- Voltage: .....  $U$
- Max: .....  $U_{MAX}$
- Min: .....  $U_{MIN}$
- Current: .....  $I$
- Max: .....  $I_{MAX}$
- Average (AVG): .....  $I_{AVG}$
- Peak (MD): .....  $I_{MD}$
- Active Power,  $IMPORT$ : .....  $P_{IMP}$
- $EXPORT$ : .....  $P_{EXP}$
- Average (AVG)  $IMPORT$ : .....  $P_{AVG IMP}$
- $EXPORT$ : .....  $P_{AVG EXP}$
- Peak (MD)  $IMPORT$ : .....  $P_{MD IMP}$
- $EXPORT$ : .....  $P_{MD EXP}$
- Active Energy;  $IMPORT$ : .....  $E_a IMP$
- $EXPORT$ : .....  $E_a EXP$
- Time life  $TOTAL$  and  $PARTIAL$ : ..... Hours, 1/100 hour
- Microprocessor internal temperature: ..... °C, °F
- Pulse counter (for each input): .....  $C_{NTT}$ ,  $C_{NT Part.}$

**Functional Characteristics**

- Measurement system:
  - Energy counter on 2 quadrant (programmable)
  - 12 bit A/D converter (2 channels)
  - Continuous sampling of voltage and current
  - Automatic offset compensation
  - AVG values, peak, max and min stored in a non-volatile memory
- Communication port RS-485:
  - Galvanically insulated
  - Baud rate from 2400 to 38400 bps
  - Over voltage protected
  - Protocol Modbus-RTU, full compliant
- 1 digital input
  - Galvanically insulated
  - Programmable functionality: external pulse count, ON/OFF state detection, tariff changeover (max 2 tariffs).
  - Programmable 10/100 Hz filter for input glitches suppression
- 2 digital output:
  - Galvanically insulated
  - DIN 43864 (27Vdc, 27mA)
  - Programmable functionality: pulse output, alarm contact, remote control

**Front Panel: Femto D4 DC**

- Display: . LCD graphic LCD with adjustable contrast 100x64 points
- Visible area .....43x25mm
- Backlight: ..... yellow/green Led
- Display update interval: ..... 1s
- Keyboard: ..... 3 keys

**Front Panel: Atto D4 DC**

- LED..... 1 for the Status and 1 for the RS485 port

**Electrical Characteristics**

**Voltage input:**

Direct input: ..... 300 Vdc (max 360)  
With voltage divider: ..... 900 Vdc

**Current Input**

With external shunt:

Primary: ..... programmable (max. 10 kA)  
Secondary: ..... 60 - 100 mV

**Current Input (versions for CTS DC Hall)**

The DC Channel Converter must be used between:

CTS DC Hall mini ..... 50 / 100 / 250 / 500A  
Measures up to 150% of the nominal value

**Digital Inputs (depending on type):**

Power supply (external): ..... 10 to 30 Vdc  
Absorbed current: ..... 2 to 10mA  
Max counting frequency: ..... 10 or 100Hz (programmable)

**Digital Outputs (depending on type)**

Type: .... open collector (NPN) – compliant with DIN 43864  
Max voltage: ..... 27 Vdc  
Max current: ..... 27mA

**Power supply (separate from voltage inputs):**

standard type: ..... 230/240Vac +/- 10% 50/60Hz  
on request: ..... 115/120Vac +/- 10% 50/60Hz  
400Vac +/- 10% 50/60Hz  
15÷36Vac 50/60Hz, 18÷60Vdc  
9÷24Vac 50/60Hz, 9÷36Vdc

Self consumption: ..... < 3VA

**Galvanic insulation:**

Power supply (separate): ..... 4 kV  
RS485 serial port: ..... 1,5 kV  
Digital Input & Outputs: ..... 1,5 kV

**Working Conditions**

Working temperature: ..... -10°C/+50°C, 14,00°F/+122,00°F  
Storage temperature: ..... -15°C/+60°C, 5,00°F/+140,00°F  
Max relative humidity: ..... 95% without condensation

**Mechanical Characteristics**

Case: ..... self extinguish plastic V0 class  
Protection degree: ..... IP40 on frontal panel  
..... IP20 on terminal side  
Size: ..... 70 x 90 x 58 mm (4 DIN modules)  
Mount: ..... DIN rail

**How to order**

Type	Code
FEMTO D4 DC RS485 230-240V 1DI 2DO	..... PFA6471-12
FEMTO D4 DC RS485 18÷60VDC 1DI 2DO	..... PFA6471-18
FEMTO D4 DC E-WI HI 230-240V	..... PFA647H-02
ATTO D4 DC RS485 230-240V	..... PFA7471-02
ATTO D4 DC RS485 230-240V 1DI 2DO	..... PFA7471-12
ATTO D4 DC RS485 18÷60VDC 1DI 2DO	..... PFA7471-18
ATTO D4 DC E-WI HI 230-240V	..... PFA747H-02
SHUNT 10A 60mV WITH SOCKET	..... PFARQ70010
SHUNT 25A 60mV WITH SOCKET	..... PFARQ70025
SHUNT 50A 60mV	..... PFAR070050
SHUNT 100A 60mV	..... PFAR070100
SHUNT - other versions on request	
VOLTAGE DIVIDER D2 DC 900V/300V	..... PFAQ280-00
<b>Hall Effect versions:</b>	
FEMTO D4 DC HALL RS485 230-240V	..... PFA64B1-02
FEMTO D4 DC HALL 3I RS485 230-240V	..... PFA64C1-02
ATTO D4 DC HALL RS485 230-240V	..... PFA74B1-02
ATTO D4 DC HALL 3I RS485 230-240V	..... PFA74C1-02
DC D2 230V 1 CHANNEL CONVERTER	..... PFC0551-02
DC D2 230V 3 CHANNELS CONVERTER	..... PFC0561-02
CTS DC HALL 10-50 MINI	..... PFC0500
CTS DC HALL 16-100 MINI	..... PFC0501
CTS DC HALL 24-250 MINI	..... PFC0502
CTS DC HALL 36-500 MINI	..... PFC0503
VOLTAGE DIVIDER D2 DC 900V/300V	..... PFAQ280-00

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Datasheet Femto and Atto D4 DC, Hall and E-Wi 2015 02 24-ENG

Distributor





## Atto DC 31

### DC Transducer Energy Analyzer



## Atto EcoAlarm

### Voltage Divider with Alarms

**Atto DC 31** is a DC transducer – energy analyzer, equipped with an extremely versatile and accurate microprocessor. Designed to measure simultaneously three strings of a photovoltaic plant. Measures: voltage, current, powers and energies, max. and min. voltage, max. current. Three 60mV or 100mV inputs for shunt connection.

The Atto DC 31 can be easily integrated with other Electrex instruments and Electrex networks used in monitoring and managing energy, environmental parameters (luminosity, temperature, humidity, etc.) and alarms (also remotely through GSM / Internet). This makes possible to constantly monitor the status of the plant, quickly and automatically check any malfunction (e.g. a string of the photovoltaic plant stops producing energy).

While through the **Atto EcoAlarm**, a voltage divider equipped with an alarm system, we can be notified in case of theft or tampering of a solar panel.

### True-RMS

The constant sampling of voltage and currents, and a sophisticated digital measurement method with a compensation system of the internal amplifiers' offsets ensure the maximum metering accuracy and stability irrespective of the signal level and the environmental working conditions.

The 32 (or 64) bit resolution allows an high detail of the energy value useful especially with small loads (e.g. devices in stand-by).

### Versatile in application

**Atto DC 31** and **Atto EcoAlarm** are equipped with two Led indicators located on the front panel providing an indication of instrument's state and RS485 port operation.



### Digital Inputs

**Atto DC 31** can be equipped with one or more optically insulated digital inputs, with programmable filter for input glitches. The inputs are usually used for counting pulses generated externally. If configured in a proper way the inputs can serve as remote state indicators (e.g. ON/OFF machinery states, breakers, etc.) or (through an external pulse) for selecting different tariffs T1 or T2, for example day/night. The models with self powered inputs do not require an external power supply 10-30 VDC.

### Digital Outputs

**Atto DC 31** can also be equipped with one or more optically insulated transistor outputs rated 27Vdc and 27mA per DIN 43864 standards. While in the self powered model it can have two opto-mos rated 250V 100mA AC/DC.

The outputs are configured, by default, for transmitting pulses proportionally to the Energy (pulse weight and length are user programmable) but can be used also as outputs for the internal alarms (see the Alarms paragraph below) or as remote controlled outputs through a serial line or Modbus commands.

### Measures (for the 3 strings simultaneously)

Parameter	Type	Range
Voltage	U	10,0V...300V
	U <sub>MAX</sub> (1)	
	U <sub>MIN</sub> (1)	
Currents	MAX (1)	Through Shunt 60 or 100mV
	AVG (2)	
	MD (2)	
Active Power	P	± 0,00...1999 MW
	P <sub>AVG</sub> (3)	
	P <sub>MD</sub> (3)	
Temperature	T (°C e F) (4)	
Life Time	h (1/100 h)	0,01...99.999,99 h
Energies	E <sub>TOT</sub> (5)	0,1 kWh...99.999,9 MWh
	E <sub>PART</sub> (5)	
Pulse Counter	CNT (6)	

- (1) Value on 500mS.
- (2) AVG Value over integration time (1.. 60 minutes programmable).
- (3) AVG Value (rolling AVG) sin Export and Import over integration time (1.. 60 minutes programmable).
- (4) Internal temperature of the microprocessor.
- (5) Imported and Exported Energies are displayed as floating point, 9 digits numbers. The internal counters are logged with a resolution of 64 bit which allows a minimum definition of 0,1 Wh on Modbus and 0,1kWh on the display. Max counting: 99.999.999,9999 kWh.
- (6) Total and partial (for instruments equipped with digital input)

### Relay output

**Atto DC 31** can be equipped also with a relay output rated max 230V 250mA (max 30V 2A) over resistive load. The relay is programmable as the output of the internal alarms(see the Alarms paragraph below) or as remote controlled outputs through a serial line or Modbus commands.

### Serial communication

**Atto DC 31** and **Atto EcoAlarm** are equipped with a RS485 port protected from over-voltages. The protocol used is the Modbus-RTU "full compliant" suitable for connections to PLC and SCADA. The data gathered from the instruments is read as a numeric register composed by a mantissa and exponent in the IEEE format. A transmission speed of up to 38.400 bps, with maximum 125 registers (equivalent to 62 parameters) per query with no waiting time between queries, ensure an unrivalled communication speed and dialogue efficiency.

**Alarms**

When present in the **Atto DC 3I** the outputs are programmable as alarms. Very flexible and customizable to different needs (e.g. for min and max values). The alarms can also refer to the same parameter for different thresholds. Their configuration includes the option of precise setting of a delay time (1-99 sec), an hysteresis cycle (in % of threshold value) and the polarity of the output contacts (NO, NC). The alarms state information is always available on serial communication as Modbus "coils". The alarms are entirely programmable via serial port with the Energy Brain software or via serial port by means of Modbus *Holding registers*.

**Versions of Atto DC 3I**

The **Atto DC 3I** can be produced, on request, with other hardware configurations and input and output combinations. Self powered inputs or transistor, opto-mos, relay outputs for example. The customization can be made also on the power supply.

**Voltage Divider**

**Atto DC 3I** measures directly the DC voltages up to 300 V. For higher voltages, up to 900 V, it is needed the voltage divider with a 3/1 ratio (e.g. 900 V input >> 300 V output). The voltage divider has a 2 DIN rail modules dimension.

**Atto EcoAlarm and Atto EcoAlarm 6I**

The **Atto EcoAlarm** adds a protecting system against the theft and tampering of the solar panels to the voltage divider function. It is used together with the Atto DC 3I (or Atto DC) and the Yocto net gateway-datalogger including the Mail Alarm option. **Attention:** the Atto EcoAlarm can be used only if present an Atto DC 3I (or Atto DC) monitoring single strings (using 5A or 10A Shunts) and not groups of strings (using 25A or higher Shunts). The Atto EcoAlarm is equipped with an RS485 port. Size: 4 DIN rail modules. The **Atto EcoAlarm 6I** has the same features of the Atto EcoAlarm but can be paired with 2 x Atto DC 3I monitoring up to 6 parallel strings.

**Shunt**

**Atto DC 3I** measures the currents of 3 strings via 3 shunts, accuracy class 0.5%, 60mV or 100mV. The following versions are also available: 10A or 25A mounted on a plastic base, or 50A and 100A without the plastic base. While other shunt models of 1A or 15.000A are available on request. All the types are conform to the DIN43703 normative.



Atto DC 3I



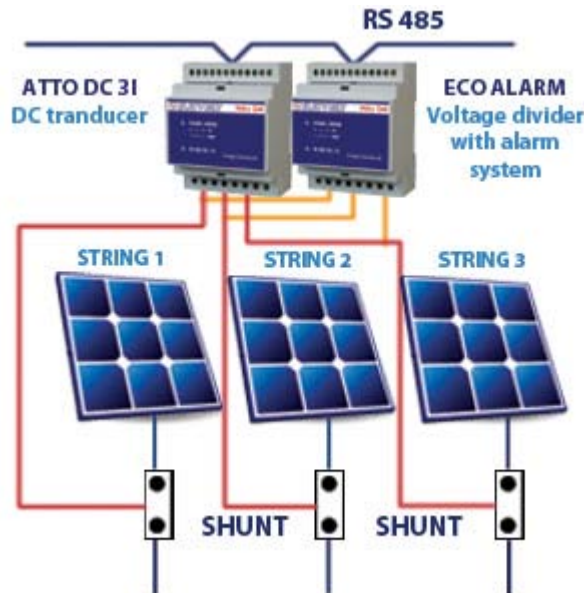
Voltage Divider



Atto EcoAlarm



Shunt 10A 60mV mounted on a plastic board



### Technical specifications

#### Functional characteristics Atto DC 3I

##### Measurement system:

- 2 quadrant measurement (programmable)
- 12bit A/D converter (6-channel)
- Automatic compensation of the offset
- Continuous sampling of voltage and current
- AVG values, peaks, max. and min. values are logged on a non-volatile memory

##### RS485 serial port:

- Galvanic insulation
- 2.400 to 38.400 bps programmable speed
- Built-in over-voltage protection
- Modbus-RTU protocol, full compliant

##### Digital outputs (if present):

- Galvanic insulation
- Compliant with DIN 43864 (27Vdc, 27mA) normative
- Opto-mos rated 250V 100mA AC/DC
- Programmable functions: weighted pulses outputs, alarms notification, remote controlled outputs.

##### Digital inputs (if present):

- Galvanic insulation
- Programmable functions: pulse counting, state notifications, tariff selection (max 2 tariffs)
- Programmable filter for input glitches suppression (max. counting frequency 10 or 100Hz)
- Available also on the self-powered

#### Electrical characteristics

##### Voltage inputs

Direct: ..... 300 Vdc (max 360)  
 With voltage divider or Atto EcoAlarm: ..... 900 Vdc

##### Current inputs

###### With a external shunt:

Primary: ..... programmable (max. 10 kA)  
 Secondary: ..... 60 - 100 mV

##### Digital inputs (depending on version)

Power supply (external): ..... from 10 to 30 Vdc  
 Absorbed current: ..... from 2 to 10mA  
 Max. counting frequency: ..... 10 o 100Hz (programmable)

##### Transistor digital outputs (depending on version)

Type: ..... open collector (NPN) – conform to DIN 43864  
 Max. applicable voltage: ..... 27 Vdc  
 Max. switchable current: ..... 27mA

##### Opto-mos digital outputs (depending on version)

Max. applicable voltage: ..... 250 V ac/dc  
 Max. switchable current: ..... 100mA ac/dc

##### Relay output (depending on version)

Max. voltage and current: ..... 230V – 250mA (30 V – 2A)

##### Auxiliary power supply:

Standard versions: ..... 230/240Vac +/- 10% 50/60Hz  
 On request versions: ..... 15÷36Vac 50/60Hz, 18÷60Vdc  
 ..... 115/120Vac +/- 10% 50/60Hz  
 ..... 400Vac +/- 10% 50/60Hz  
 Self consumption: ..... < 3VA

##### Galvanic insulation:

Auxiliary power supply: ..... 4kV  
 RS-485 port: ..... 1,5kV  
 Digital inputs and outputs: ..... 1,5kV

#### Atto EcoAlarm characteristics

RS-485 port: ..... same as Atto DC 3I  
 Voltage input: ..... max 900Vdc  
 Ratio: ..... 3/1 (e.g. input. 900Vdc - output 300Vdc)  
 Alarms system against the theft and tampering of the solar panels  
 Auxiliary power supply: ..... 230/240Vac +/- 10% 50/60Hz

#### Atto D4 DC 3I, Atto EcoAlarm and EcoAlarm 6I

##### Front Panel

Led indicators: ..... 1 indicating instrument's state and 1 for the RS485 port operation

##### Mechanical characteristics

Enclosure ..... Self-extinguishing plastic material class V0  
 Protection degree: ..... IP40 Front panel  
 ..... IP20 Terminals side  
 Dimensions: ..... 70 x 90 x 58 mm  
 Mounting ..... on DIN rail

#### How to order

Type	Code
ATTO D4 DC 3I RS485 230-240V .....	PFA7481-02
ATTO D4 DC 3I RS485 230-240V 1DI 2DO .....	PFA7481-12
ATTO D4 DC 3I RS485 230-240V 2DI 1RO .....	PFA7481-22
ATTO D4 DC 3I RS485 230-240V 1DI 2DO	
SELF POWERED .....	PFA7481-E2
ATTO D4 DC 3I other versions available on request	
VOLTAGE DIVIDER D2 DC 900V/300V .....	PFAQ280-00
ATTO D4 DC ECOALARM RS485 900V/300V .....	PFAT401-02
SHUNT 10A 60mV WITH SOCKET .....	PFARQ70010
SHUNT 25A 60mV WITH SOCKET .....	PFARQ70025
SHUNT 50A 60mV .....	PFAR070050
SHUNT 100A 60mV .....	PFAR070100
SHUNT – other versions on request	

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# Shunt resistor

Electrex **Shunts** are ideal to be used with Electrex DC meters like Atto Dc and Femto DC (instruments with flexibility and accuracy designed to meet the most demanding applications of electrical parameters analyses and energy supply monitoring in the photovoltaic system, wireless telephonic system, batterized system, etc. The DC meters measure voltage, current, power and energy, max and min voltage, max current and use class 0.5% shunt with 60 mV or 100 mV voltage drop.

Electrex **Shunt**, with 60mV voltage drop, are available in versions of 10A and 25A with insulating plastic base while 50A and 100A are without the plastic base.  
All models are compliant with DIN43703 standard. On request models from 1A to 15.000A and 100mV voltage drop.



## Characteristics (10A and 25A)

- 0,5% accuracy class
- Compliant with DIN43703 standard
- 60mV voltage drop, maximum allowable current 10A and 25A
- Size mm 90 x 20 x 8
- Including 4 screws and washers
- Insulating plastic support as base
- Size plastic base mm 135 x 30 x 15

## Characteristics (50A and 100A)

- 0,5% accuracy class
- Compliant with DIN43703 standard
- 60mV voltage drop, maximum allowable current 50A and 100A
- Size shunt mm 100 x 20 x 8
- Including 4 screws, washers and nuts
- Without insulating plastic base.

## Product code

Type	Code
SHUNT 10A 60mV.....	PFARQ70010
SHUNT 25A 60mV.....	PFARQ70025
SHUNT 50A 60mV.....	PFARQ70050
SHUNT 100A 60mV.....	PFARQ70100
Other versions from 1A to 15.000A on request (100mV)	

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Data-sheet Shunt 2008 07 04 - ENG

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