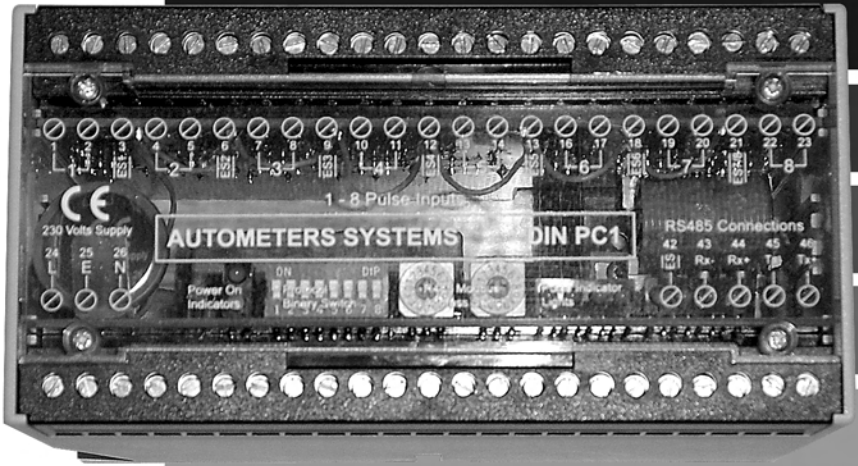


PC-01



installation and operating manual

AUTOMETERS
SYSTEMS

PC-01

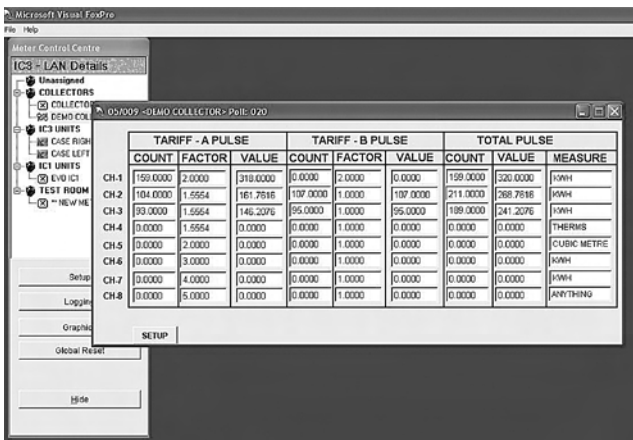
8 channel collector

The Autometers **PC-01** is an 8 Channel Pulse collector with full RS 485 Modbus Communication capability.

Volt free pulses can be accepted from external devices such as Electric, Gas, Steam and Water meters. Registers are stored for extraction via the communications network in a non-volatile RAM memory.

The Modbus communication is fully programmable via DIL switch for a variety of protocol requirements and each device also has a simple rotary selector for the Modbus node addresses.

To ensure simple connection of external devices each input is totally independent and can be programmed to accept variable Pulse Rates. Each input can then be designated with it's denomination to suit.



The screenshot shows the 'Meter Control Centre' software interface. A table displays pulse data for 8 channels (CH-1 to CH-8). The table is organized into three main sections: 'TARIFF - A PULSE', 'TARIFF - B PULSE', and 'TOTAL PULSE'. Each section has columns for 'COUNT', 'FACTOR', and 'VALUE'. The 'TOTAL PULSE' section has columns for 'COUNT', 'VALUE', and 'MEASURE'. The 'MEASURE' column contains units such as 'KWH', 'THERMS', 'CUBIC METRE', and 'ANYTHING'.

	TARIFF - A PULSE			TARIFF - B PULSE			TOTAL PULSE		
	COUNT	FACTOR	VALUE	COUNT	FACTOR	VALUE	COUNT	VALUE	MEASURE
CH-1	159.0000	2.0000	318.0000	0.0000	2.0000	0.0000	159.0000	320.0000	KWH
CH-2	104.0000	1.5554	161.7516	107.0000	1.0000	107.0000	211.0000	268.7516	KWH
CH-3	93.0000	1.5554	144.2076	95.0000	1.0000	95.0000	189.0000	241.2076	KWH
CH-4	0.0000	1.5554	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	THERMS
CH-5	0.0000	2.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	CUBIC METRE
CH-6	0.0000	3.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	KWH
CH-7	0.0000	4.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	KWH
CH-8	0.0000	5.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	ANYTHING

The **PC-01** is fitted with an internal battery back time clock that enables single pulses to be split into two separate registers for Day/Night or Shift Pattern Monitoring. Each input has its own independently programmable time fields to suit the application, thus enabling both single and two rate monitoring from one device.

The **PC-01** can be factory programmed prior to despatch or independently programmed via the EVO-Soft monitoring Software. When using the EVO Soft package each device can be read on a single display with stored data extraction to excel as standard.

The **PC-01** is powered from a 230 Volt 3 Amp Auxiliary supply and is fitted with 8 LED's to enable the pulse inputs to be visually monitored. Mounting is simple with both Surface mounting and DIN Rail options as standard.

The PC-01 is designed to be installed in a suitable enclosure which must comply to the strict regulations concerning different environments.

Autometers Systems operate an open protocol policy. The full protocol documents are available on request or can be downloaded directly from the Technical Pages on our website:

www.autometers.co.uk

PC-01

communication connections

RS485 connection

This connection should be made using the appropriate screened twisted pair cable (22 gauge Belden 8761 or equivalent). It is imperative that the terminals are wired as per the diagrams below.

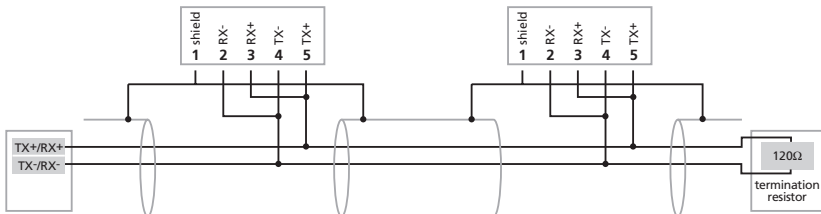
PC-01 2 wire modbus wiring

In **2 wire** mode all node transmitters are connected together and linked to the host transmitter port and all node receivers are connected together and linked to the host receiver port.

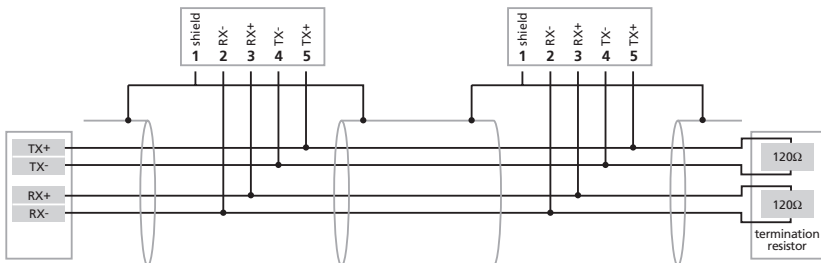
PC-01 4 wire modbus wiring

In **4 wire** mode all node receivers are connected together and linked to the host transmitter port and all node transmitters are connected together and linked to the host receiver port.

PC-01 2 wire modbus wiring diagram



PC-01 4 wire modbus wiring diagram



- 22 SWG shielded BELDEN 8761 or equivalent
- Maximum 128 nodes per network
- Total length of connecting cable not to exceed 1000 metres

caution

It is important that the shield **must** be earthed at **one end only**.

PC-01

protocol set up

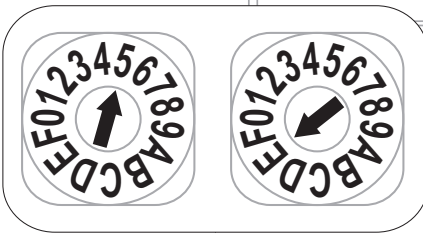
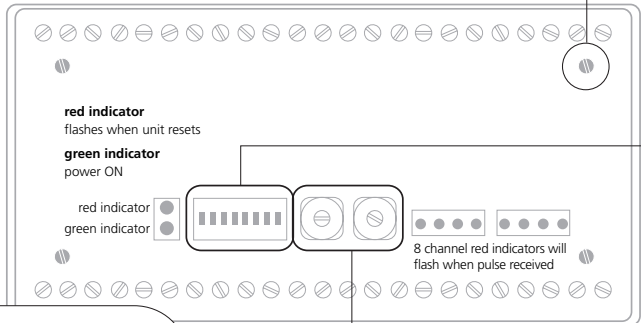
removing the cover to alter protocol settings

Remove screws. Lift from the bottom of the cover and slide upward to remove cover.



RS485 modbus address

The position for the modbus address switches are shown below. These switches allow the meter to have a unique number up to 128.



Using the key below adjust the two rotary hexi-decimal switches. *eg. a meter which requires a number setting of 94 will require the left switch to be set to 5 and the right switch to E (SE)*

left switch key

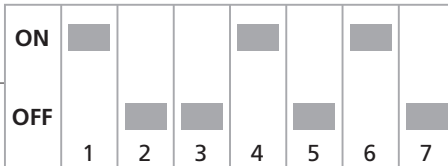
1 = 16	4 = 64	7 = 112	A = n/a	D = n/a
2 = 32	5 = 80	8 = n/a	B = n/a	E = n/a
3 = 48	6 = 96	9 = n/a	C = n/a	F = n/a

right switch key

1 = 1	4 = 4	7 = 7	A = 10	D = 13
2 = 2	5 = 5	8 = 8	B = 11	E = 14
3 = 3	6 = 6	9 = 9	C = 12	F = 15

PC-01

protocol set up



binary switch

When using the 485 communication connection it is essential that the protocol binary switch and the modbus address switches are set correctly. This is done by first removing the clear cover and then setting the switches. See *diagram*.

example of setting above

switch no		on/off	
1 & 2	baud rate	(1) on / (2) off	19200
3	wire mode	off	2 wire
4	modbus type	on	RTU
5	4 wire parity	off	even
6	format mode	on	floating point
7	floating point	off	FP low word first

switch settings (options available)

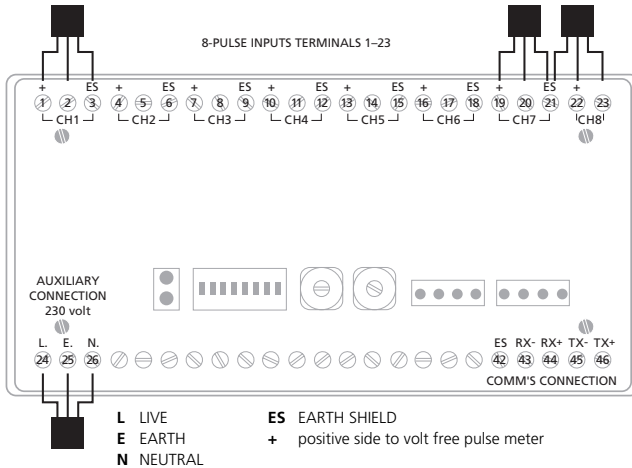
switch no		on/off	
1 & 2	baud rate	(1) off / (2) off	9600
		(1) on / (2) off	19200
		(1) off / (2) on	38400
		(1) on / (2) on	-
3	wire mode	off	2 wire
		on	4 wire
4	modbus type	off	ASCII
		on	RTU
5	4 wire parity	off	even
		on	odd
6	format mode	off	ASCII string
		on	floating point
7	floating point word format	off	FP low word first
		on	FP high word first

For all switch setting options available please refer to the table on the left.

PC-01

wiring information

The diagram below indicates the standard connection configuration for 8 volt free inputs. Please note it is important that the + side of the terminal is connected to the + side of the pulse output of the meter.



wiring

Electrical connections are made directly to the back of the Pulse Collector Unit.

electrical connections

It is important to use the correct type of cable when connecting from the volt free pulse of the meters to the pulse collector.

We recommend an earth screened twisted pair cable Belden or equivalent.

This also applies for the RS 485 communication connections for terminals 42-46.

technical specification

input terminals

8 x 3 sets

burden

less than 1 Va

aux. burden

less than 10 Va

aux. supply

230V AC +/- 10% 110V AC +/- 10%

operating frequency

45-65 Hz

temperatures

operating temperature -20°C to +70°C

storage temperature -30°C to +80°C

humidity 20-90% RH
non condensing

communication output 485

type Raicon 5 way plug and socket
material polyimide 66, flame resistant
& self-extinguishing

protocol and baud rate settings

8 position binary switch
series 90HB SPST low profile

standards – EMC testing for emissions and immunity

Meets the specified requirements defined in BS EN 61326: 1997 Certificate on request.

material

display housing:
front/back cover & opening door – abs flame retardant
base unit housing: top/middle & terminal cover – clear polycarbonate
black base & fixing bracket
– abs flame retardant

Product development is continuous and Autometers Systems Ltd reserves the right to make alterations in specifications and manufacture without notice. Products as delivered may therefore differ from the description and illustrations in this publication.

AUTOMETERS

SYSTEMS

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