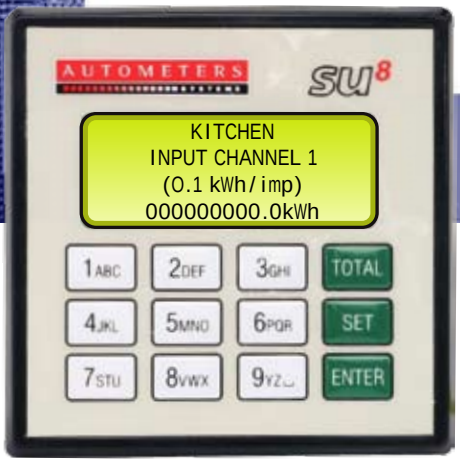
INSTALLATION & OPERATING MANUAL



OVERVIEW OF THE METER

The SU8 is the latest meter in the range of the IC 900 series of information centres from Autometers Systems Ltd. With new advances in micro processors and the new added features, the meters are user friendler,easy to install and simple to programme.

The SU8 is an electronic meter and great care has been taken to ensure that it meets the stringent requirement of all the potential users and specifiers of the product, from the buyer who wants a competertively priced product, the installer who wants simple fitting with good connection terminals to the end user who wants a quick and easy means of obtaining information. The SU8 meets all of these requirements.

The SU8 has been designed to communicate with Autometers Horizon range of data collection units, this enabling complete measurement and data collection systems to be built up.

The SU8 is manufactured in two models SU8/PULSE andSU8 with RS 485 MODBUS.

The SU8/Pulse meter works by reciving pulses from upto eight external electricity meters. Each external meter sends a known value pulse to one of the eight input channels and this can be displayed by pressing numbers "1-8 "on the front of the meter. Each channel is internaly summated and can be displayed by pressing the " Total" key on the front of the meter.

Also on the meter is a volt free pulse output representing the sumated value of all channels this output is set to 10 kWh per pulse.

The SU8 with RS 485 MODBUS

The SU8/Comms meter works by reading the register of each individual meter and then displaying this information on separate registers on the SU8. Each individual channel is then summated internally and can be displayed by pressingg the "TOTAL" key on the front of the meter. The benefits of this meter are two fold one is that it can read more individual meters up to 127 in total and the second is that you can loop the RS485 cable at each meter saving wiring from each meter back to the SU8. **SEE DIAGRAM 13, Page 11**.

The SU8 fitted with RS 485 MODBUS module will only work if the external meters also have RS485 MODBUS and the protocol is compatible.

Also available on the meter is a volt free pulse output (terminal 9 & 10) representing the sumated value of all channels this output is set to 10 kWh per pulse.

Autometers Systems produce a range of meters with Optically isolated volt free pulse outputs and with RS485 Modbus Protocol.

INSTALLATION OF THE METER

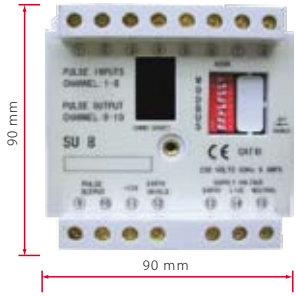
Location

The SU8 meter should be mounted in a dry, dirt free enviroment away from heat sourcrs and very high electric fields. Tempretures should not exceed 70C or fall below -20C.

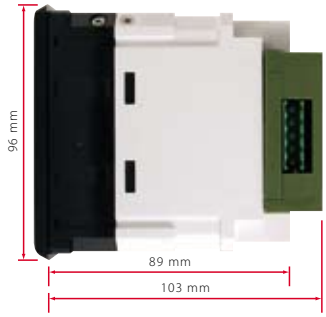
Installation

The SU8 should be installed by a competent qualified electrician. The SU8 meter is a panel mounted meter and therefore must be fitted into a panel where all the terminals are concealed. A typical panel would be a switchgear cabinet door where access to the terminals can only be gained by the use of a tool.

SU8 showing position of red Dill Switches



SU8 with RS485 Communications Module Fitted



PERFORAMANCE AND DATA.

Technical Parameters.

1. Voltage range:	230 +_ 20%
2. Working Tempreture :	-10 + 50C
3. Storing tempreture :	- 10 + 60C
4. Humidity:	<95%
5. Power:	1.5 W
6. communication voltage:	12 V
7. Output relay:	400V, 100 Ma
8. Output relay:	100ms closure time

Display: 20 x 4 LCD characters. Black on green background with backlight.

MAINTENACE AND SERVICE

In the unlikely event that a unit should fail, it will generally be serviced by exchanging the unit for a replacement unit.

WIRING INFORMATION

Power Supply

The meter should be connected as per the connection diagram below and a suitable fuse should be inseted into the live conductor no greater than 5 amps.

Earth terminal: (13)
Live terminal: (14)
Neutral terminal: (15)

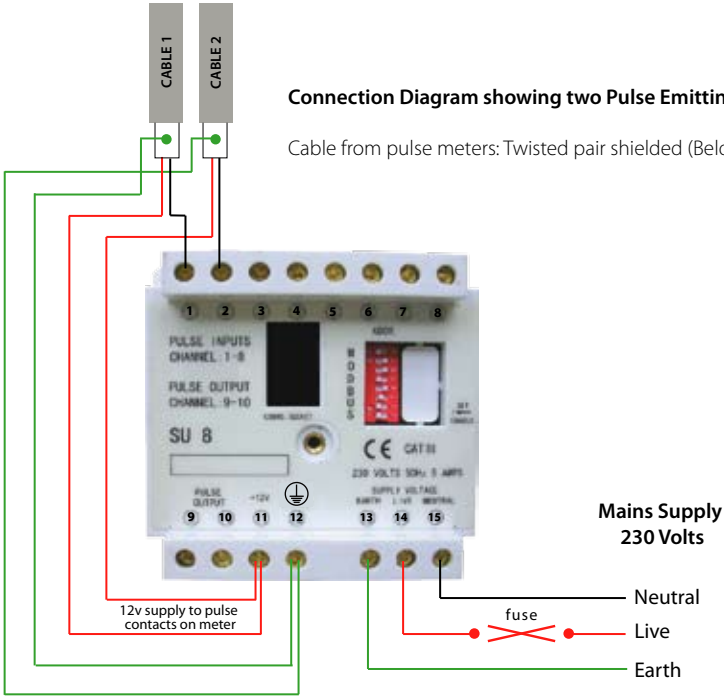
Wiring

Electrical connections and communication connections are made directly to the back of the meter. The main (230 v) connections are made to terminals 13,14, and 15, low voltage connections to terminals 1-12.

Electrical Connections

1mm 3 core flexible stranded cable is recommended for all main electrical connections, for the the low voltage communication connections we recommend a twisted shielded cable Belden 2 wire 9841.

CONNECTION DIAGRAM



Connection Diagram showing two Pulse Emitting meters connected.

Cable from pulse meters: Twisted pair shielded (Belden 9841)

THE SU8/PULSE METER

When you receive the SU8/pulse meter it might be necessary to program the input channels. This is the pulse input value per channel.

When you have fitted the meter and connected all the required terminals power up the meter and take a few minutes to familerise your self with the keypad and the display.
At the top of the meter you will see a four line information display, this is used for displaying the programming values you are setting and displaying the input channels. Lower down you will see twelve press keys, nine white with black writing on and three green with white writing on

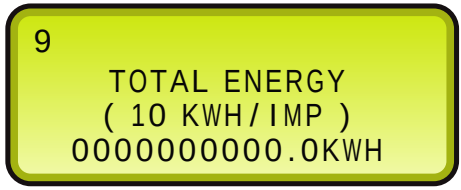
The display.

The first line is an editable field so here you can eneter a name to identfy the pulse inputs.
The second line is the desciptive channel e.g. "INPUT CHANNEL 1", or if you have pressed the green key marked "TOTAL" you will see "Total Energy"

Third line will indicate what you have set the input value at, this must match the external meter pulse input value.

The forth line indicates kWh units. (this is calculated on the acumalated pulses received against the value of the pulse set in the meter)

You will receive the meter in a set default mode and the display will show:



Default Display

If key number 1 is pressed, display will be as follows:

PROGRAMMING THE METER

You can programme the meter only when the dill switch (NUMBER 1, on the back) is set to the ON position.

Stage 1.
Press the "SET" key to enter the setup menu

Display will show:

Diagram 1

Select one of the three options above in diagram 1..
e.g. 1. Channel Name

Stage 2
Press key marked "1" and then press green key marked **"ENTER"**

(If you get a "SETTING INVALID MESSAGE" check that the **dill switch 1** is in the on position) and repeat stage 1 above.

Display will show:

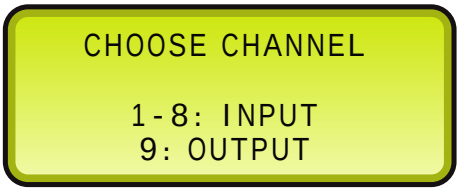


Diagram 2

Stage 3
Select the channel you now want to edit.
Eg channel "1"

Press key marked "1" now press green key marked **"ENTER"**

Diagram 3

The curser is now at position where the minus sign is in the display.

Here you can now enter a desciptive name for the Channel.

e.g. KITCHEN.

1. Press the key marked with the "K" on it.
2. The display will show number 4
3. Press the key again the 4 will change to "J",
4. Press the key again the J will change to "K"

Diagram 4

When the character you have chosen is on the display press the " **TOTAL**" key.

The curser will now move to the right.
Repeat the above steps until you have completed your name.

Press the green key marked **"ENTER"**.
This will send you back to "**CHOOSE CHANNEL**" menu repeat above steps until all channels are namedready for you to name your second channel.

When you have finished naming all your channels, press "**ENTER**", this returns you to the "**SETTING MENU**".

SETTING THE PULSE INPUT VALUE ON EACH CHANNEL

Repeat **Stage 1, Page 5.**

Stage 2: press number "2" on the menu list "PULSE VALUE" press **"ENTER".**
Select the channel you want programme by pressing the keys numbered 1-9.

Stage 3
The display will change to:

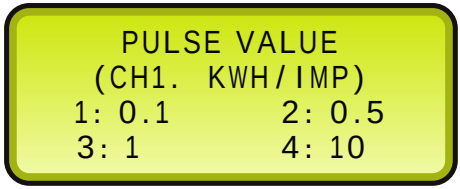


Diagram 5

Check that the pulse value on the display matches your external meter pulse output.

E.g. If the meter has an external pulse output of (0.5kwh/imp), press the number **2** on the keypad then press **"Enter"**.

This takes you back to **Stage 2 Diagram 2 Page 5**.
Repeat untill all your channels have been allocated a pulse value.

When completed **press "ENTER"** this takes you back to **Stage 1 Page 5**.

SETTING THE CONTRAST

To alter the contrast of the display press key "3" then press "ENTER"

Stage 1
The display will change to:

Diagram 6

To increase or decrease the contrast **press the keys marked "2" or "8"**

When complete **press "ENTER"** this will take you back to stage 1. **Press "ENTER"** again and this will take you back to the default display.

RESETTING THE REGISTERS TO ZERO

Stage 5
Repeat **Stage 1 Diagram 1**.

Press the "TOTAL" and the display will change to:

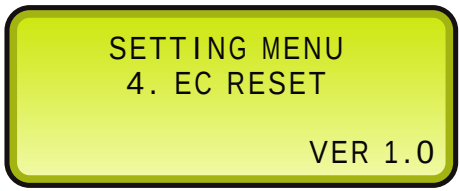


Diagram 7

PRESS KEY "4" then **press "ENTER"**

The display will change to:

Diagram 8

Press "set key", this will reset all registers back to ZERO and will return you back to the default display.

THE RS 485 MODBUS MODULE

Setting the address

On the back of the meter there is a line of red swiches (Binary) numbered 1-8.

Number 8 is used for the programming of the meter details and should be in the **ON** position at this time.

1=1 2 = 2 3=4 4=8
5 = 16 6 = 32 7 = 64

Diagram 9

To set the modbus address is by means of switching the individual red switches to the "ON" position starting at number 1 through to numner 7.

e.g. by moving the number 1 switch to the on position sets the modbus address to number 1. by switching numbers 2 and 5 to the on position this then becomes number 18. The highest address posible with switches 1-7 in the on position is 127.

To return to the default display **press "TOTAL" key.**

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IMPORTANT

The power must be switched off when fitting a communication module to the meter.

When you have selected your address turn number 1 swich to the off position.

To check the details of the meter modbus settings **press key number 9**.

Display will show:

Diagram 10

Press 9 Again:

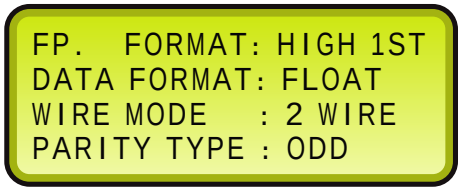


Diagram 11

Press 9 Again:

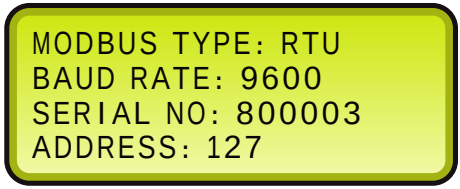


Diagram 12

Press any of the white keys to select a channel.

COMMUNICATION CONNECTIONS

RS 485 Connection

This connection should be made using the appropriate screened twisted pair cable 22 gauge Belden 9841.

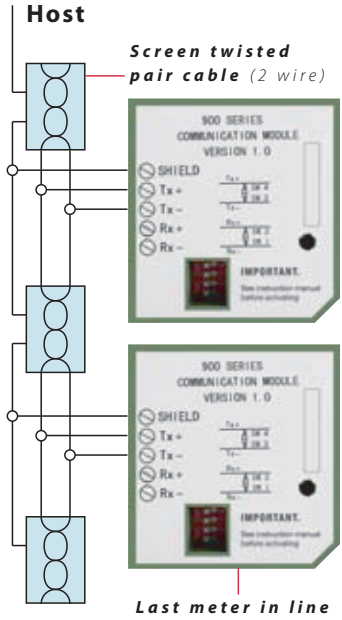
The su8 with IC900 communication module.

In two wire mode the TX+ must be connected to the meters TX + and TX- must be connected to the TX-. The earth shield must be linked acros to the other cables.

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

See diagram below.

Diagram 13



Caution:
It is important that the resistors 3 and 4 are switched to the on position at the end of the modbus lan.

AUTOMETERS SYSTEMS

DEDICATED CUSTOMER SERVICE

Customer care is the cornerstone of the company's success. A positive service policy is observed throughout every specialist area of operation.

The personal involvement of all the directors at every level, a highly trained and motivated staff, fully computerised systems and in depth stockholding combine to provide a level of service which has earned the appreciation of customers across the spectrum of the UK and overseas markets. Computerised distribution systems are geared to a consistent 24 hour despatch of products, with 20 minute despatch being possible in response to urgent demand for small orders.

DEFINITIONS

Measurement Category CATIII
Measurement category III is for measurements performed in the building installation. Note 2 examples are measurements on distribution boards, circuit breakers, wiring, including cables, bus-bars, junction boxes socket-outlets in the fixed installation, and equipment for industrial us and some other equipment, for example, stationary motors with permanent connection to the fixed installation.

Pollution degree (2). The SU8 has been designed to work in a normal environment < 2000m.

Earth Terminal

Table 1 symbol 11, IEC 60417-5172
Defined as: Insulation comprising both basic insulation and supplementary insulation.

CE Approval.
The SU8 has been fully examined and tested in accordance with the EMC, and Low Voltage Directive standards and meets the specified requirements defined in BS EN 61326.1997 (EMC) and IEC 61010-1 2001 (LVD).

Safety Standards: BS EN 61010-1:2001

Important.
The attention of the specifier, purchaser, installer or user is drawn to special measures and limitations to use which must be observed when these products are taken into service to maintain compliance with the CE directives. Details of these special measures and limitations of use are available from HMSO.
REF: IEC 1000-5-1(BS195/210788DC) IEC 1000-5-2 (BS 195/214642DC)
IEC 10000-5-6 (BS 195/210789DC).

WARNING DO NOT MEGGAR TEST

Autometers Systems Limited,
4B Albany Road,
Chorlton-cum-Hardy,
Manchester.
M21 0AW

Tel: +44 (0) 161 861 9056
Fax: +44 (0) 161 881 3745
www.autometers.co.uk
Email: sales@autometers.co.uk

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