Operating Manual

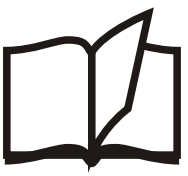
Programmable Current Transducer

Theta 20A

2-60-006-00-00537 Rev. A - 25/01/15

Read & understand this manual before using the Instrument

The proper and safe operation of the device assumes that the Operating Instructions are read and the safety warnings given in the various sections Mounting,Electrical Connections, Commissioning are observed.



All operations concerning installation, electrical connection & commissioning must be carried out by qualified, skilled personal & national regulations for the preventions of accidents must be observed.

If the equipment is used in used in a manner not specified by the manufacture, the protection provided by the equipment may be impaired.

Current Transducer

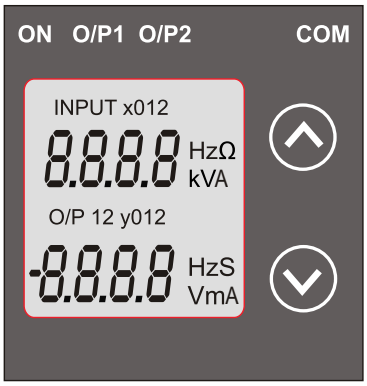
Programmable Current Transducer

Installation & Operating Instructions
SectionContents

1. Introduction

The Current Transducer is a DIN Rail/wall mounted 43.5 X 65.5mm Transducer.

The Current Transducer is used to measure and convert AC Current input into proportional DC current or voltage output signal. Output signal generated is proportional to the True RMS (upto 15th Harmonic) of the input Current. Input Current and Output Voltage / Current is displayed on LCD and indicated by LED's.



Current Transducer can be configured and programmed at site for the following CT Primary ,CT Secondary (1A to 5A) , Input Characteristics (i.e start, end and elbow value of Input) and Output parameters (i.e as Voltage or as Current and Characteristics of start, end and elbow value of outputs).

The front panel has two keys through which the user may scroll through the output screens and configure the product.

1.1 LED Indication

LED	LED Operating Condition	LED Operating Status
ON	Aux. Supply healthy Condition	Green LED Continuous ON
O/P 1	Output1 Voltage	Green LED Continuous ON
	Output1 Current	Red LED Continuous ON
O/P 2	Output2 Voltage	Green LED Continuous ON
	Output2 Current	Red LED Continuous ON

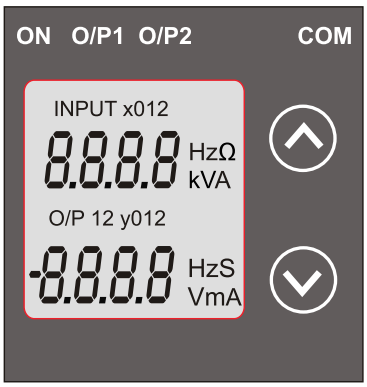
Table 1: Measured parameters

Measured parameters	Unit of Measurement
Current	A

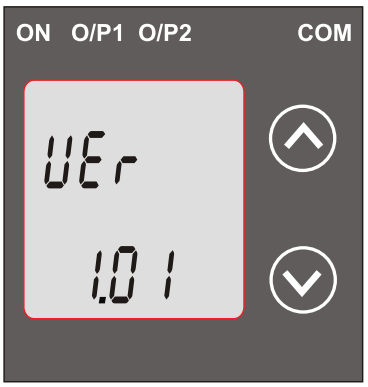
2. Input and Output screens

In normal operation the user is presented with display test screen followed by version screen to one of the output screen. These screens may be scrolled through one at a time Output 1 or Output 2 by pressing the " ^ Up key" or "v Down key".

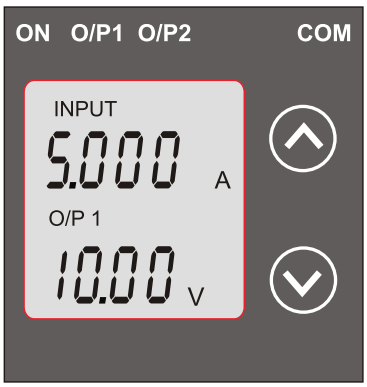
screen 1 : Display Test



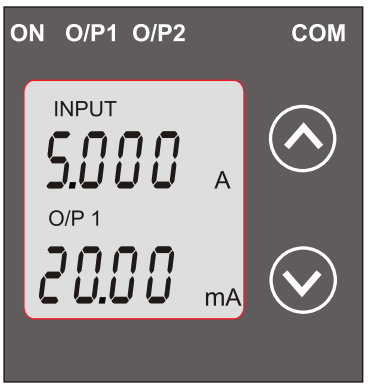
Screen 2 : Version Screen



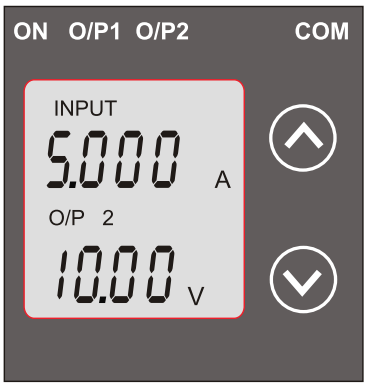
Screen 3 : Current Input and Output 1 as Voltage



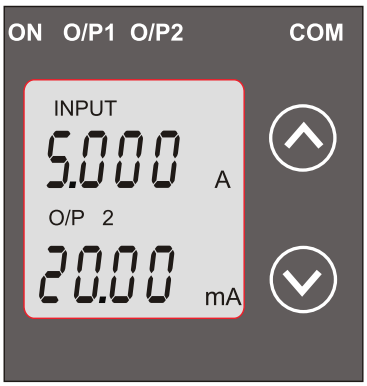
Screen 4 : Current Input and Output 1 as Current



Screen 5 : Current Input and Output 2 as Voltage



Screen 6 : Current Input & Output 2 as Current



3. Programming

Programming of transducer can be done in three ways :

3.1. Programming Via Front LCD & two keys.

3.2. Programming Via Programming port available at front of Current transducer using option PRKAB60 Adapter.

3.3. Programming Via optional RS485(MODBUS) communication port.

3.1 Programming via Front LCD & Two keys

The following sections comprise step by step procedures for configuring the Current Transducer for individual user requirements.

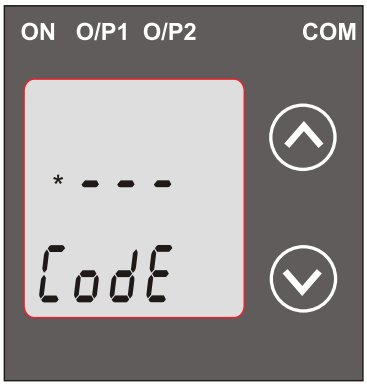
To access the set-up screens press & hold the" ⌄ down" & " ⌃ up" keys simultaneously for 5 seconds. This will take the User into the Password Protection Entry Stage .

3.1.1. Password Protection

3.1.1.1 Password verification

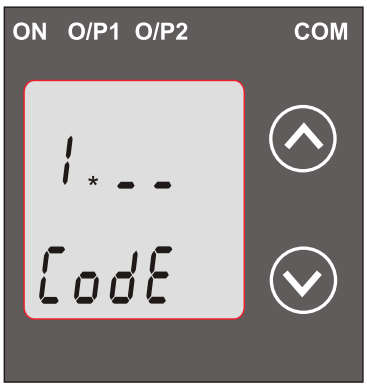
Password protection can be enabled to prevent unauthorised access to set-up screens, by default password protection is not enabled.

Password protection is enabled by selecting a four digit number other than 0000, setting a password of 0000 disables the password protection.



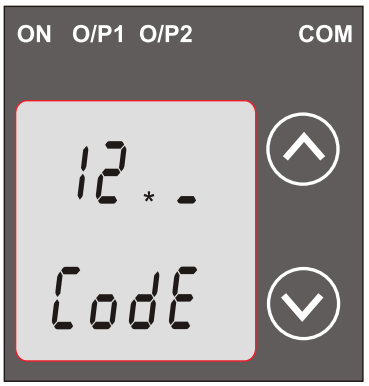
Enter Password, prompt for first digit. (*Denotes that digit will be flashing).Pressing the "⌄ Down" key will scroll the value of the first digit from 0 through to 9, the value will wrap from 9 round to 0.
Pressing the "⌃ Up" key will advance the operation to the next digit and set the first digit.

In the special case where the Password is "0000"pressing the "A Up" key when advance to password set or confirm screen.



Enter Password, first digit entered, prompt for second digit. (*Denotes that digit will be flashing).
Pressing the "⌄ Down key will scroll the value of the second digit from 0 through to 9, the value will wrap from 9 round to 0.

Pressing the "⌃ Up" key will advance the operation to the next digit and set the second digit. In this case to "2".



Enter Password, second digit entered, prompt for third digit. (*Denotes that digit will be flashing).

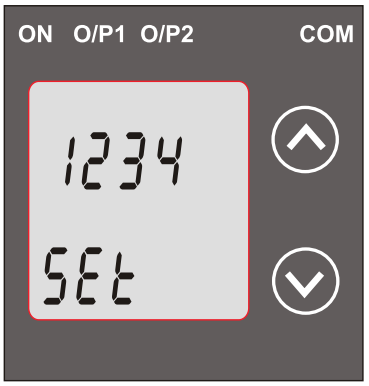
Pressing the "Down" key will scroll the value of the third digit from 0 through to 9, the value will wrap from 9 round to 0.

Pressing the "Up" key will advance the operation to the next digit and set the third digit. In this case to "3".

Enter Password, third digit entered, prompt for fourth digit. (*Denotes that digit will be flashing).

Pressing the " Down" key will scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0.

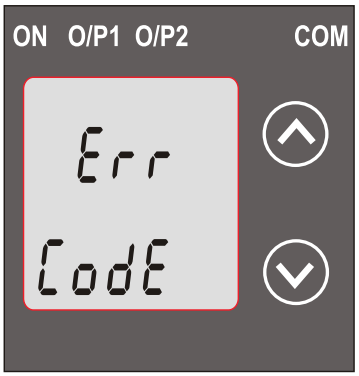
Pressing the " Up" key will advance the operation to the "Password Set / Confirmed" and set the fourth digit. In this case to "4".



Password Set/Confirmed.

Pressing " Down" key will to the "New /change Password" entry stage.(section 3.1.1.2)

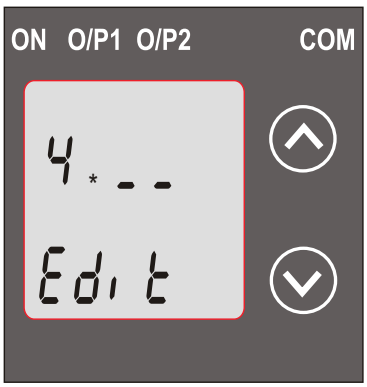
Pressing the " Up" key will confirm New password and advance to current Transformer parameter setting (section 3.1.2).



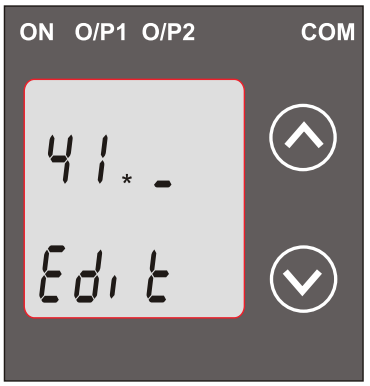
Password Incorrect.
This screen is displayed when the unit has not accepted the Password entered.
Pressing the " ⌄Down" key will re-enter to the “Enter Password” entry stage.
Pressing the “ ⌃ Up” key will exit the setup menu.

3.1.1.2 Editing Existing Password

New / Change Password
(*Denotes that digit will be flashing).
Pressing the “ ⌄Down” key will scroll the value of the first digit from 0 through to 9, the value will wrap from 9 round to 0.
Pressing the “ ⌃ Up” key will advance the operation to the next digit and set the first digit, in this case to “4”.



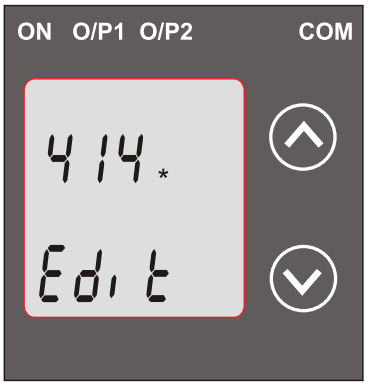
Enter New Password, first digit entered, prompting for second digit. (*Denotes that digit will be flashing).
Pressing the “ ⌄Down” key will scroll the value of the second digit from 0 through to 9, the value will wrap from 9 round to 0.
Pressing the “ ⌃ Up” key will advance the operation to the next digit and set the second digit, in this case to “1”.



Enter New Password, second digit entered, prompting for third digit. (*Denotes that digit will be flashing).

Pressing the " ⌄ Down" key will scroll the value of the third digit from 0 through to 9, the value will wrap from 9 round to 0.

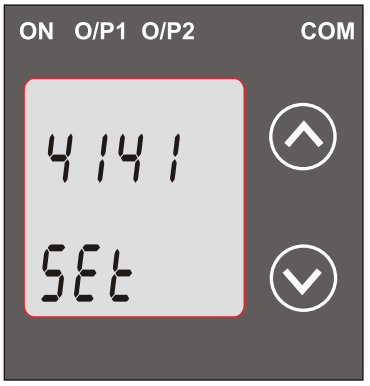
Pressing the " ⌃ Up" key will advance the operation to the next digit and set the third digit, in this case to " 4"



Enter New Password, third digit entered, prompting for fourth digit. (*denotes that digit will be flashing).

Pressing the " ⌄ Down" key will scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0.

Pressing the " ⌃ Up" key will advance the operation to the "New Password Confirmed" and set the fourth digit, in this case to "1".



New/changed Password confirmed.

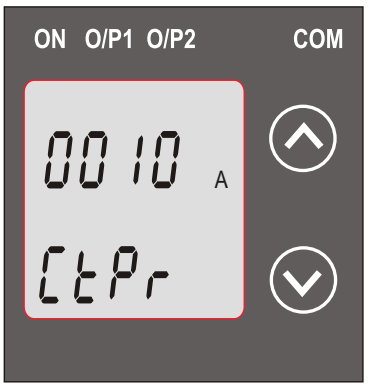
Pressing the " ⌄ Down" key will re-enter to the "New Password"entry stage.

Pressing the " ⌃ Up" key will confirm new password and advance to the Current Transformer parameter Setting (section 3.1.2).

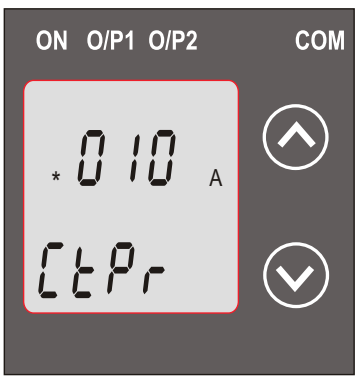
3.1.2. Current Transformer Parameter Setting

3.1.2.1 Current Transformer primary value

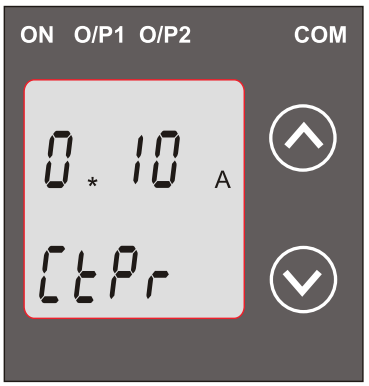
This screen allows the user to set the CT Primary value from 1 to 9999 A.



Pressing the " ⌄ Down" key will enter the "New/Change CT Primary value edit" mode.
Pressing " ⌃ Up" key will confirm the present value as CT Primary and advance to the CT secondary setting (section 3.1.2.2).

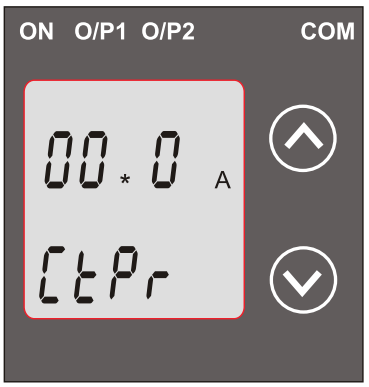


New / Change CT Primary value
(*Denotes that digit will be flashing).
Pressing the " ⌄ Down" key will scroll the value of the first digit from 0 through to 9, the value will wrap from 9 round to 0
Pressing the " ⌃ Up" key will advance the operation to the next digit and set the first digit, in this case to "0"



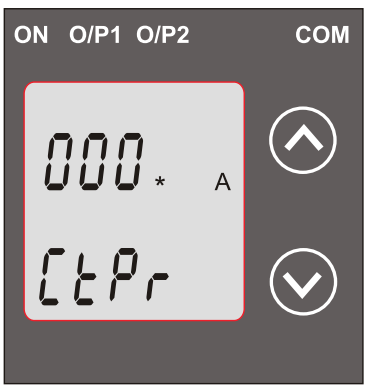
Enter New / Change CT Primary value, first digit entered, prompting for second digit. (*Denotes that digit will be flashing).
Pressing the " ⌄ Down" key will scroll the value of the second digit from 0 through to 9, the value will wrap from 9 round to 0.

Pressing the " ^ Up" key will advance the operation to the next digit and set the second digit, in this case to "0".

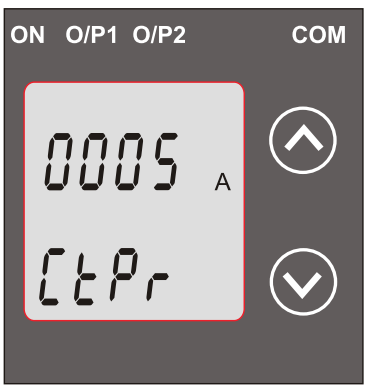


Enter New / Change CT Primary value, second digit entered, prompting for third digit. (*Denotes that digit will be flashing).
Pressing the " v Down" key will scroll the value of the third digit from 0 through to 9, the value will wrap from 9 round to 0.

Pressing the " ^ Up" key will advance operation to the next digit and set the third digit, in this case to "0".



Enter / New CT primary value third digit entered, prompt for fourth digit (* Denotes that digit will be flashing).
Pressing the " v Down" key will scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0.
Pressing the "^ Up" key will advance the operation to the "New / Changed CT Primary value confirmation" and set the fourth digit, in this case to "5".

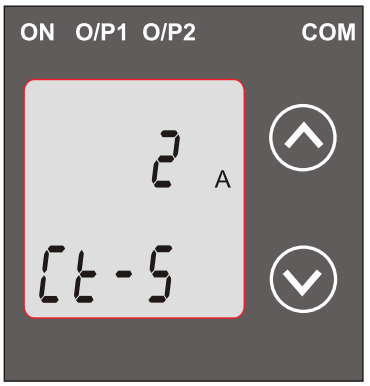


New/changed CT Primary value confirmed.

Pressing the " v down" key will re-enter to the "New / Change CT

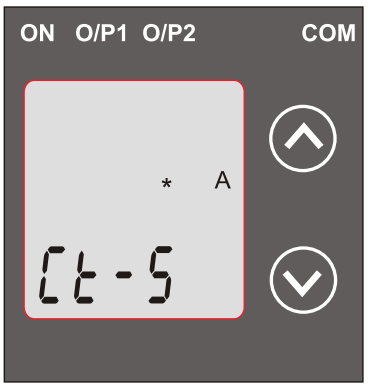
Primary value.
Pressing the "^Up" key will confirm New CT Primary value & advance to the CT secondary setting (section 3.1.2.2).

3.1.2.2 Current Transformer secondary value

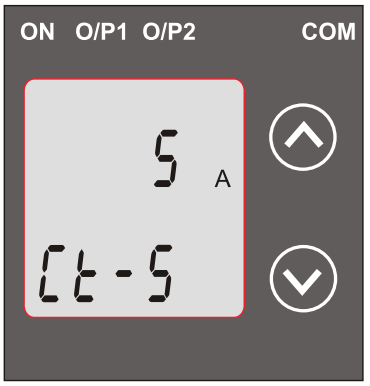


This screen allows the user to set the CT Secondary value.
Pressing the "v Down" key will enter the "New/Change CT Secondary value edit" mode .
Pressing the "^ Up" key will confirm the present value as CT Secondary and advance to the Communication parameter Setting (section 3.1.3).

New / Change CT Secondary value



(* Denotes that digit will be flashing).
Pressing the " v Down" key will scrollthe value of the fourth digit from 1 through to 5, the value will wrap from 5 round to 1.
Pressing the "^ Up" key will advance the operation to the "New / Changed CT Secondary value confirmation" and sets the fourth digit, in this case to "5".



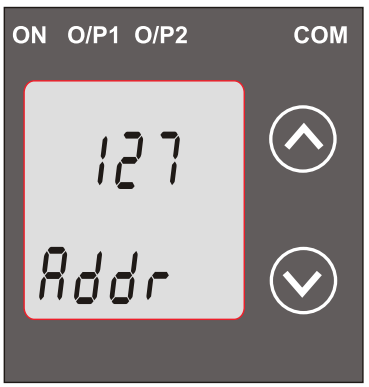
New/changed CT Secondary value confirmed.
Pressing the "v Down" key will return to the "New / Change CT

Secondary value edit" mode.
Pressing the " ^ Up" key will confirm the CT Secondary & advance to the Communication parameter Setting (section 3.1.3).

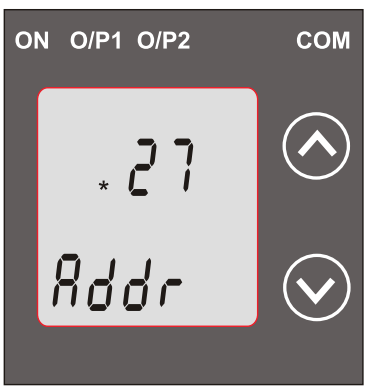
3.1.3. Communication Parameter Setting

3.1.3.1 Address Setting

This screen applies to the RS 485 output only.
This screen allows the user to set RS485 parameter for instruments. The range of allowable address is 1 to 247

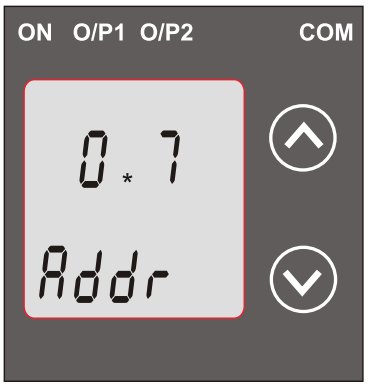


Pressing " v Down" key will advance to the "New/Change address value edit" mode.
Pressing the " ^ Up" key will confirm the present value as Address and advance to Baud Rate selection (3.1.3.2).

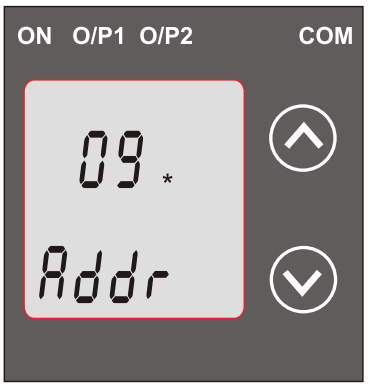


New/Change Address value
(*Denotes that digit will be flashing).
First digit is always blank.
Pressing the " v Down " key will scroll the value of the second digit from 0 through to 2, value will wrap from 2 round to 0.
Pressing the " ^ Up" key will advance the operation to the next digit and set the second digit, in this case to "0"

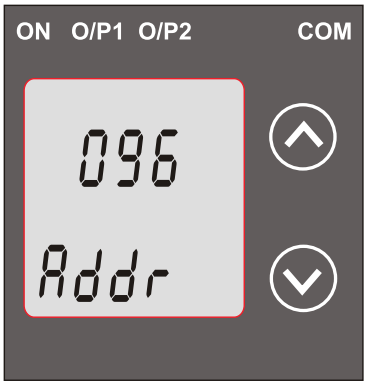
Enter New/change Address value, second digit entered, prompting for third digit. (*Denotes that digit will be flashing).
Pressing the " v Down" key will scroll the value of the third digit



from 0 through to 9, the value will wrap from 9 round to 0. Pressing the " ^ Up" key will advance the operation to the next digit and set the third digit, in this case to "9".



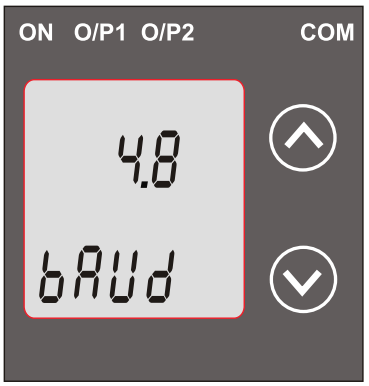
Enter New/Change Address value, third digit entered, prompting for fourth digit. (*denotes that digit will be flashing).
Pressing the " v Down" key will scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0.
Pressing the " ^ Up" key will advance the operation to the New/changed Address value confirmed' and set the fourth digit in this case to "6"



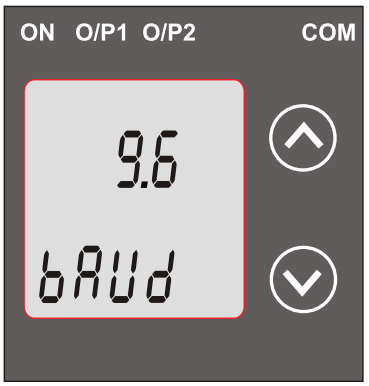
New/Changed Address value confirmed.
Pressing the " v Down" key will re-enter to the 'New/change Address value edit"mode. Pressing the"^Up key will confirm New Address value and advance to Baud Rate selection (section 3.1.3.2).

3.1.3.2 RS 485 Baud rate

This screen allows the user to set Baud Rate of RS 485 port .
The values displayed on screen are in kbaud Pressing the
" v Down" key will enter the 'baud Rate edit" mode and scroll the

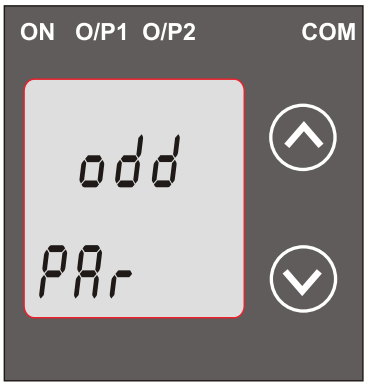


value through 2.4,4.8,9.6,19.2 and back to 2.4(values are flashing).
Pressing "^Up" key will confirm the present value as Baud rate and advance to the Parity Selection (section 3.1.3.3).



RS 485 Baud Rate confirmation
Pressing " v Down" key will be re-enter into the. "Baud Rate Edit" mode.
Pressing the "^Up" key will confirm the Baud rate value and advance to the Parity Selection (section 3.1.3.3).

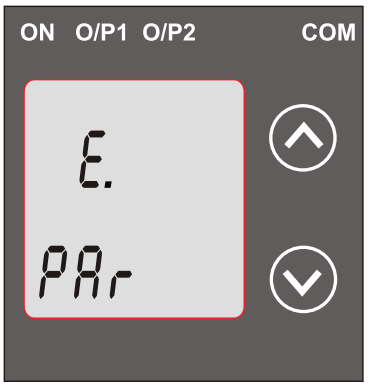
3.1.3.3 RS 485 Parity Selection



This screen allows the user to set Parity & number of stop bits of RS 485 port.
Pressing the " vDown" key will enter the "Parity & stop bit edit" mode and scroll the value through

E : even parity with one stop bit
odd : odd parity with one stop bit
no. 1S : no parity with one stop bit
no. 2S : no parity with two stop bit

Pressing " ^ Up" key accepts the present value and advance to the Output Type selection (section 3.1.4).



RS 485 Parity confirmation

Pressing " Down" key will be re-enter into Parity Edit mode.
Pressing the "Up" key will set the value and advance to the Output Type selection (section 3.1.4).

3.1.4. Output Type Selection

3.1.4.1 Output 1 Type selection

This screen allows the user to set the output 1 type as Voltage or Current.
Pressing the " Down" key will enter the "output 1 type edit" mode and scroll between voltage and current.
Pressing "Up" key will confirm the present type for Output 1 and advance to the Output 2 type selection (section 3.1.4.2).

Output 1 Type confirmation

Pressing " Down" key will re-enter into Output 1 type Edit mode.
Pressing the " Up" key will set the type and advance to the Output 2 type selection(section 3.1.4.2).

3.1.4.2 Output 2 Type Selection

This screen allows the user to set the output 2 type as a

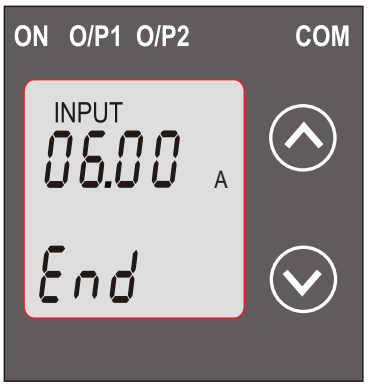
voltage or current.
Pressing the "Down" key will enter the "output 2 type edit" mode and scroll between voltage and current.
Pressing " Up" key accepts the present type for Output 2 and advance to the Input Characteristics setting (section 3.1.5).

Output 2 Type confirmation
Pressing " Down" key will re-enter into Output 2 type Edit mode.
Pressing the "Up" key will set the type and advance to the Input Characteristics setting (section 3.1.5).

Note: After Changing Output Type please insure to change DIP Switch setting (Refer Section 3.3.1). If DIP Switches are already change then switch ON/OFF Transducer.

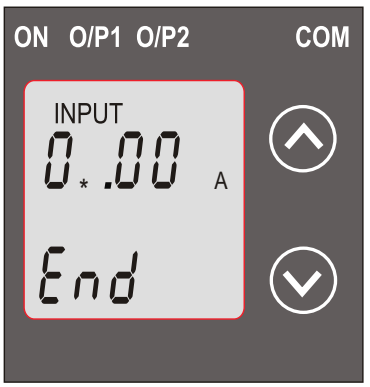
3.1.5. Input characteristics Setting

3.1.5.1 End value of Input



This screen allows the user to set the End value of Input. End value of Input can be set from 50% to 120% of set CT secondary value.
Pressing the " Down" key will enter the "New/Change End value of Input edit" mode.

Pressing " ^ Up" key will confirm the present value as End value of Input and advance to the Start value of Input setting (section 3.1.5.2).

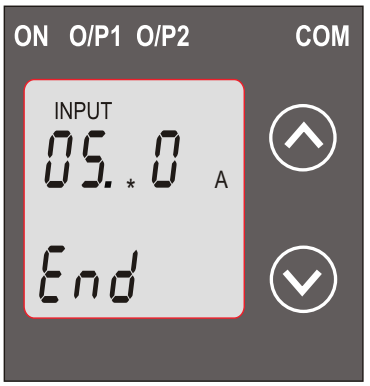


New / Change End value of Input

(*Denotes that digit will be flashing).

Pressing the " v Down" key will scroll the value of the second digit from 0(2) through to1(6), the value will wrap from 1(6) round to 0(2) for 1A(5A) CT secondary.

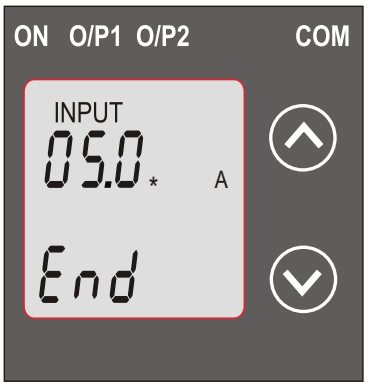
Pressing the " ^ Up" key will advance the operation to the next digit and set the second digit, in this case to "5".



Enter New / Change End value of Input, second digit entered, prompting for third digit. (*Denotes that digit will be flashing).

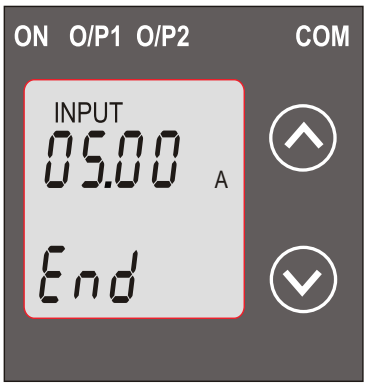
Pressing the " v Down" key will scroll the value of the third digit from 0 through to 9, the value will wrap from 9 round to 0.

Pressing the " ^ up" key will advance the operation to the next digit and set the third digit, in this case to "0".



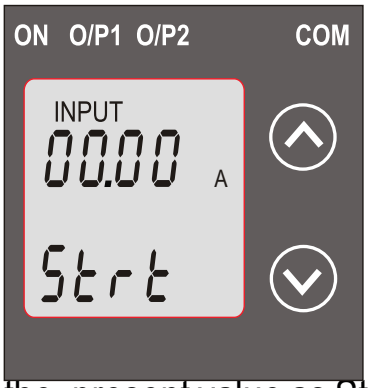
Enter New /Change End value of Input,third digit entered, prompting for fourth digit.

(*Denotes that digit will be flashing).
Pressing the " ⌄ Down" key will scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0.
Pressing the " ⌃ Up" key will advance to confirmation screen & set the fourth digit, in this case to "0".



New/changed End value of Input confirmed.
Pressing the "⌄ Down" key will re- enter to the "New / Change End value of Input edit" mode.
Pressing the " ⌃ Up" key will confirm New End value of Input and advance to the Start value of Input setting (section 3.1.5.2).

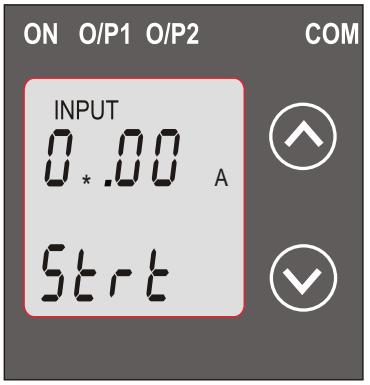
3.1.5.2 Start value of Input



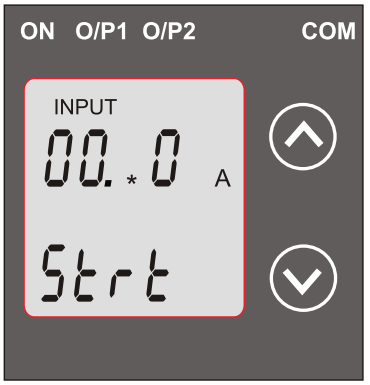
This screen allows the user to set the Start value of Input.
Start value of input can be set up to 80 % of end value of input.
Pressing the " ⌄ Down" key will enter New/Change Start value of Input edit" mode.
Pressing " ⌃ Up" key will confirm the present value as Start value of Input and advance to the Elbow function selection (section 3.1.5.3)

New / Change Start value of Input

(*Denotes that digit will be flashing).
Pressing the "⌄ Down" key will scroll the value of the second digit from 0 through to 4, the value will wrap from 4 round to 0



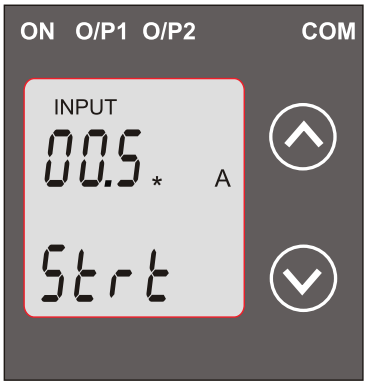
depending on set value of End value of Input. Pressing the“ ^ Up” key will advance the operation to the next digit and set the second digit, in this case to “0”



Enter New / Change Start value of Input, second digit entered, prompting for third digit. (*Denotes that digit will be flashing).

Pressing the “v Down” key will scroll the value of the third digit from 0 through to 9, the value will wrap from 9 round to 0 depending on set value of End value of Input.

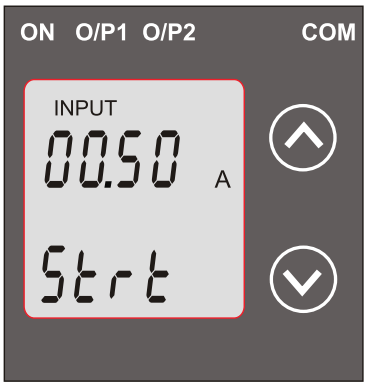
Pressing the “ ^ Up” key will advance the operation to the next digit and set the third digit, in this case to “5”.



Enter New / Change Start value of Input, third digit entered prompting for fourth digit. (* denotes that digit will be flashing).

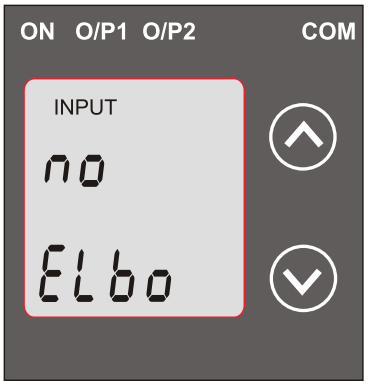
Pressing the “v Down” key will scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0 depending on set value of End value of Input. Pressing “^ Up” key will advance to confirmation screen & set 4th digit. In this case to “0”.

New/Changed Start value of Input confirmation

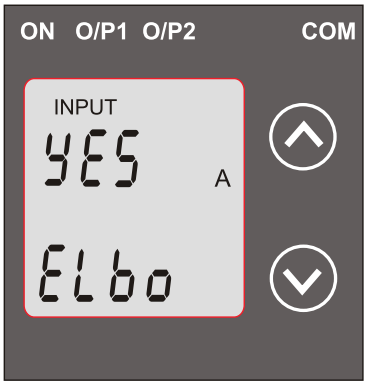


Pressing the "⌄ Down" key will re-enter to the "New/Changed Start value of Input edit" mode
Pressing the " ⌃ Up" key will confirm New Start value of Input and advance to the Elbow function Selection (section 3.1.5.3).

3.1.5.3 Elbow Function selection



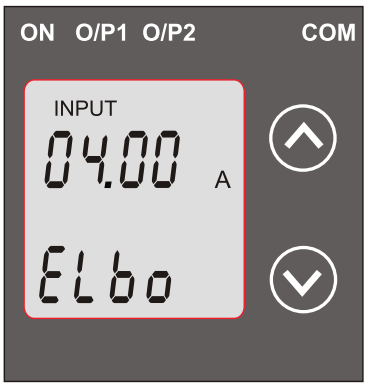
This screen allows the user to enable or disable Elbow function of input.
Pressing the "⌄ Down" key will enter the Section of Elbow function of Input edit mode and scroll the value between yes and no.
Yes : Elbow function is enabled. **No** : Elbow function is disabled.
Pressing "⌃ Up " key will accept the displayed condition & advance to the Elbow value of Input selection (section.3.5.4) or Output Characteristics setting (section 3.1.6).



Elbow Function of Input confirmation

Pressing "⌄ Down" key will re-enter into Elbow function of Input Edit mode.
Pressing "⌃ Up" key will confirm the displayed condition and advance to the Elbow value of

Input selection (Section 3.1.5.4) or Output Characteristics selection (Section 3.1.6.



3.1.5.4 Elbow value of Input

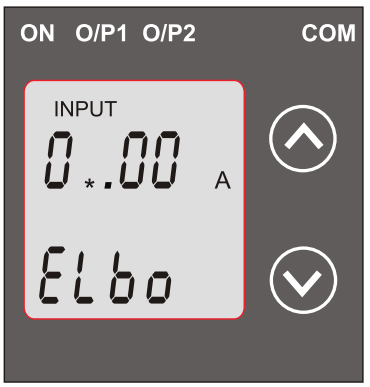
This screen appears only when Elbow function is enabled.

This screen allows the user to set the Elbow value of the Input.

The Elbow value of Input can be set between 1.5% of Set End value of Input.

Pressing the "^ Down" key will enter the "New/Change Elbow value of the Input edit" mode.

Pressing "v Up" key will confirm the present value as Elbow value of the Input and advance to be Output Characteristics selectin (Section 3.1.6).



New/Change Elbow value of the input

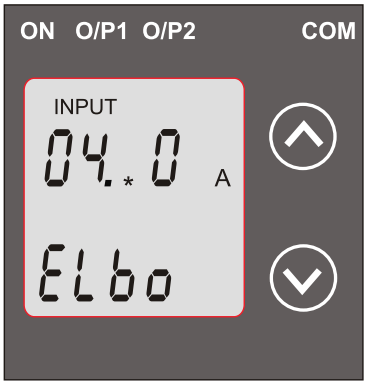
("Denotes that digit will be flashing).

Pressing the "^ Down" key will scroll the value of the second digit from 0 through to 5, the value will wrap from 5 round to 0 depending on set value of End value of Input.

Pressing the "^ Up Key will advance the operation to the next digit and set the second digit, in this case to "4"

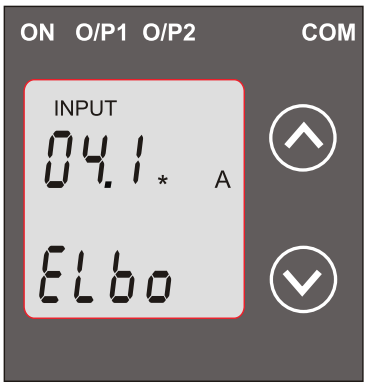
Enter New / Change Elbow value of the Input, second digit entered, prompting for third digit. (*Denotes that digit will be flashing).

Pressing the "v Down" key will scroll the value of the third digit from 0# rough to 9, the value will wrap from 9 round to 0



depending on set value of End value of Input.

Pressing the " ^ Up" key will advance the operation to the next digit and set the third digit, in this case to "1".

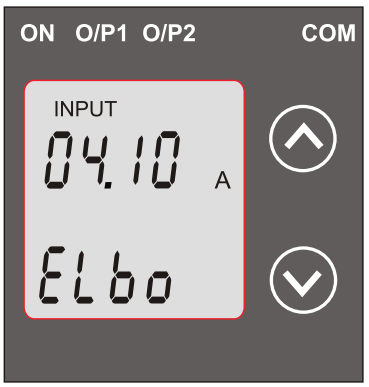


Enter New / Change Elbow value of the Input, third digit entered, prompting for fourth digit. (*denotes that digit will be flashing).

Pressing the " v Down" key will scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0 .

Pressing the "^Up" key will advance the operation to the "New / Changed Elbow value of the Input confirmation" and set the fourth digit, in this case to "0".

New/changed Elbow value of the Input confirmed.



Pressing the " v Down" key will re-enter to the "New / Change Elbow value of the Input".

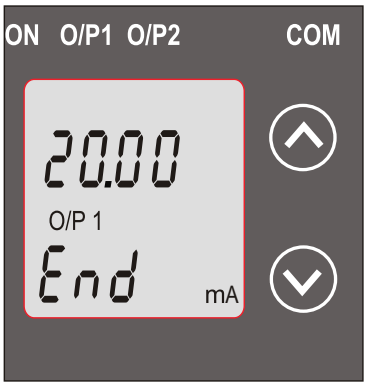
Pressing the "^ Up" key will confirm New Elbow value of the Input and advance to the Output Characteristics setting (section 3.1.6).

3.1.6 Output Characteristics Setting

3.1.6.1 Output 1 Characteristics Setting

3.1.6.1.1 End value of output 1

This screen allows the user to set the End value of Output 1, (considerd as DC Current).



The End value of Current Output is fixed at 20mA.
Pressing the "Down" key value remains constant because End value is fixed.
Pressing "Up" key will confirm the present value as End value of the Output 1 and advance to the Start value of Output 1 setting (section 3.1.6.1.2).

3.1.6.1.2 Start value of output 1

This screen allows the user to set the Start value of Output 1,(considerd as DC Current).
Start value of Output can be set up to 20% of End value of Output.
Pressing the " Down" key will enter the " New/Change Start value of the Output 1 edit" mode.
Pressing "Up" key will confirm the present value as Start value of the Output 1 and advance to the selection of Elbow value of Output1 (section 3.1.6.1.3) or Output 2 Characteristics setting (section 3.1.6.2)

New / Change Start value of the Output 1

(*Denotes that digit will be flashing).

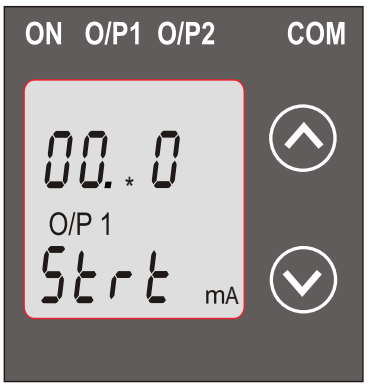
Pressing the " Down" key will not affect the first digit It always remains 0.

Pressing the " Up" key will advance the operation to the next digit and set the first digit in every case to '0'.

Enter New / Change Start value of the Output 1, first digit entered, prompting for second digit. (*Denotes that digit will be flashing).

Pressing the " Down" key will scroll the value of the second digit from 0 through to 4, the value will wrap from 4 round to 0 depending on the set End value of Output.

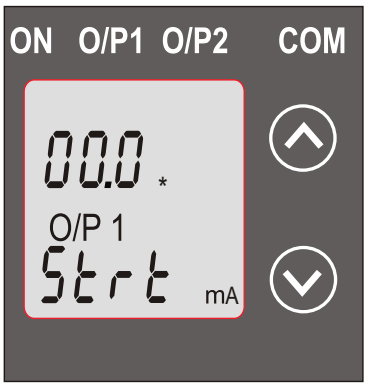
Pressing the " Up" key will advance the operation to the next digit and set the second digit, in this case to "0".



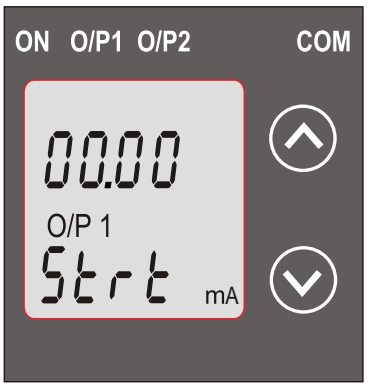
Enter New / Change Start value of the Output 1, second digit entered, prompting for third digit. (*Denotes that digit will be flashing).

Pressing the " Down" key will scroll the value of the third digit from 0 through to 9, the value will wrap from 9 round to 0 depending

on the set End value of Output.
Pressing the " ^ Up" key will advance the operation to the next digit and set the third digit, in this case to "0".



Enter New / Change Start value of the Output 1, third digit entered, prompting for fourth digit. (* denotes that digit will be flashing).
Pressing the " v Down" key will scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0 depending on the set End value of Output.
Pressing the " ^ Up" key will advance the operation to the "New / Changed Start value of the Output 1" confirmation and set the fourth digit, in this case to "0".



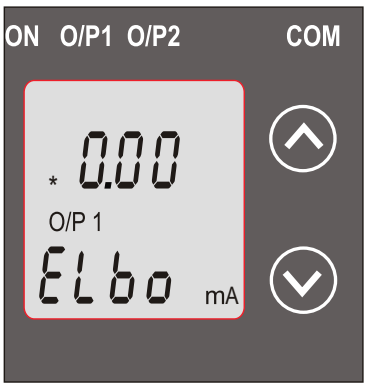
New/changed Start value of the Output 1 confirmed.
Pressing the " v Down" key will re-enter to the "New / Change Start value of the Output 1".
Pressing the " ^ Up" key will confirm New Start value of the Output 1 and advance to the selection of Elbow value of Output1(section 3.1.6.1.3) or Output 2 characteristics setting (section 3.1.6.2)

3.1.6.1.3 Elbow value of output 1

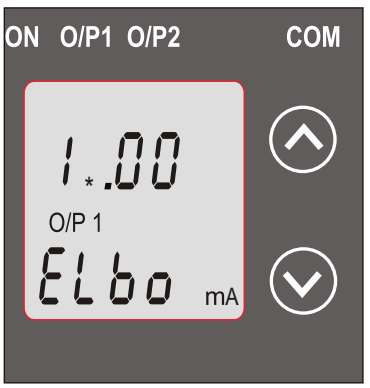
This screen appears only when Elbow function is enabled.
This screen allows the user to set the Elbow value of Output 1(considerd as DC Current).
The Elbow value can be set any value between set Start value of Output and End value of Output.

Pressing the " Down" key will enter the" New/Change Elbow value of the Output1 edit" mode.
Pressing "Up" key will set the present value as Elbow value of the Output 1 and advance to the Output 2 Characteristics setting (section 3.1.6.2).

New / Change Elbow value of the Output 1



(*Denotes that digit will be flashing)
Pressing the " Down" key will scroll value of the first digit from 0 through 2, value the value will wrap from 2 round to 0.
Pressing the " Up" key will advance the operation to the next digit and set the first digit, in this case to "1".

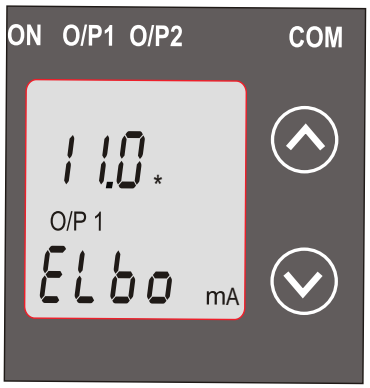


Enter New / Change Elbow value of the Output 1, first digit entered, prompting for second digit. (*Denotes that digit will be lashing).
Pressing the " Down" key will scroll the value of the second digit from 0 through to 9, the value will wrap from 9 round to 0 depending on the set End value of Output.
Pressing the " Up" key will advance operation to the next digit and set the second digit, in this case to "1".

Enter New / Change Elbow value of the Output 1, second digit entered, prompting for third digit. (*Denotes that digit will be flashing).

Pressing the " ⌄ Down" key will scroll the value of the third digit from 0 through to 9, the value willwrap from 9 round to 0 depending on the set End value of Output.

Pressing the " ⌃ Up" key will advance the operation to the next digit and set the third digit, in this case to "0".



Enter New / Change Elbow value of the Output 1, third digit entered, prompting for fourth digit. (* denotes that digit will be flashing).

Pressing the " ⌄ Down" key will scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0 depending on the set End value of Output.

Pressing the " ⌃ Up" key will advance the operation to the "New / Changed Elbow value of the Output 1 confirmation" and set the fourth digit, in this case to "0".

New/changed Elbow value of the Output 1 confirmed.

Pressing the "⌄Down" key will re-enter to the "New / Change Elbow value of the Output 1".

Pressing the " ^ Up" key will confirm New Elbow value of the Output 1 and advance to the Output 2 Characteristics setting (section 3.1.6.2).

3.1.6.2 Output 2 Characteristics selection

3.1.6.2.1 End value of output 2

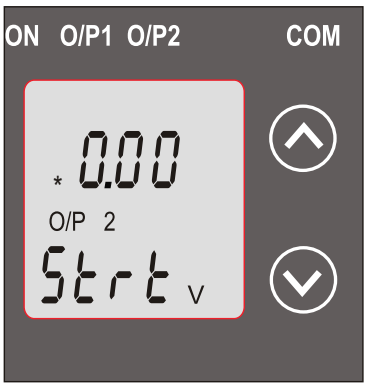
This screen allows the user to set the End value of Output 2, (considerd as DC Voltage).
The End value of Voltage Output is fixed at 10V.
Pressing the "v Down" key, value remains constant because end value is fixed.
Pressing " ^Up" key will set the present value as End value of the Output 2 and advance to the Start value of Output setting (section3.1.6.2.2).

3.1.6.2.2 Start value of output 2

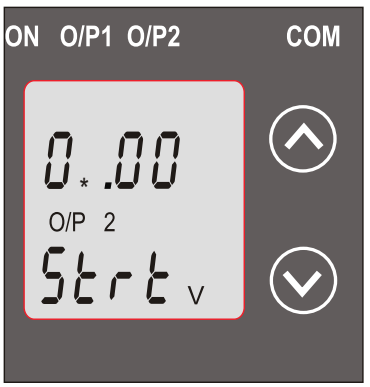
This screen allows the user to set the Start value of Output 2,(considerd as DC Voltage).
Start value of output can be set up to 20 % of End value of Output.

Pressing the " v Down" key will enter the "New/Change Start value of the Output 2 edit" mode.
Pressing " ^ Up" key will confirm the present value as Start value of the Output 2 and advance to the Elbow value of Output setting (section 3.1.6.2.3) or exit setup menu.

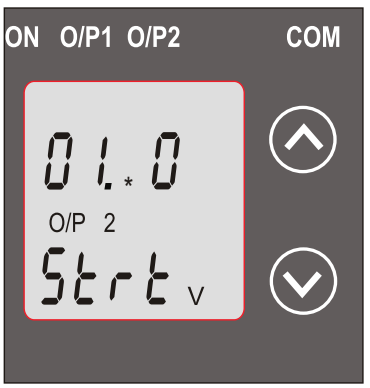
New / Change Start value of the Output 2



(*Denotes that digit will be flashing).Pressing the " ⌄ Down" key will not affect the value of first digit, it is always 0. Pressing the " ⌃ Up" key will advance the operation to the next digit and set the first digit, in every case to "0".



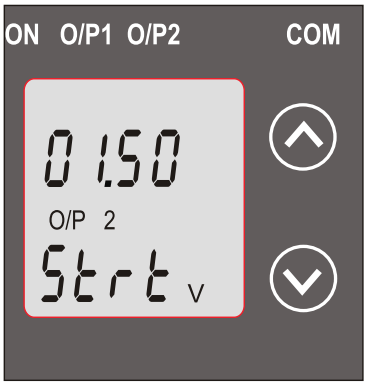
Enter New / Change Start value of the Output 2, first digit entered, prompting for second digit. (*Denotes that digit will be flashing).
Pressing the " ⌄Down" key will scroll the value of the second digit from 0 through to 2 the value will wrap from 2 round to 0.
Pressing the " ⌃ Up" key will advance the operation to the next digit and set the second digit, in this case to "1".



Enter New / Change Start value of the Output 2, second digit entered, prompting for third digit. (*Denotes that digit will be flashing).
Pressing the " ⌄ Down" key will scroll the value of the third digit from 0 through 9, the value will wrap from 9 round to 0.
Pressing the " ⌃ Up" key will advance the operation to the next digit and set the third digit, in this case to "5".

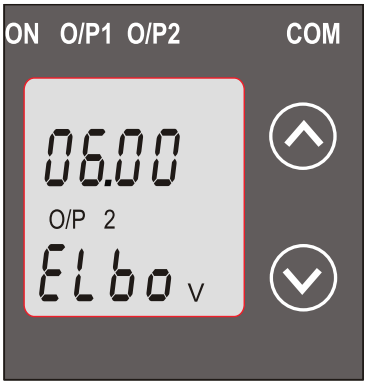
Enter New / Change Start value of the Output 2, third digit entered, prompting for fourth digit. (* denotes that digit will be flashing).
Pressing the " ⌄ Down" key will scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0.
Pressing the " ⌃ Up" key will advance the operation to the "New / Changed Elbow value of the Output 2 confirmation" and set the fourth digit, in this case to "0".

New/changed Start value of the Output 2 confirmed.



Pressing the " ⌄ Down" key will re-enter to the "New / Change Start value of the Output 2".
Pressing the " ⌃ Up" key will confirm New Start value of the Output 2 and advance to the Elbow value of Output setting (section 3.1.6.2.3) or exit setup menu, If elbow not enabled.

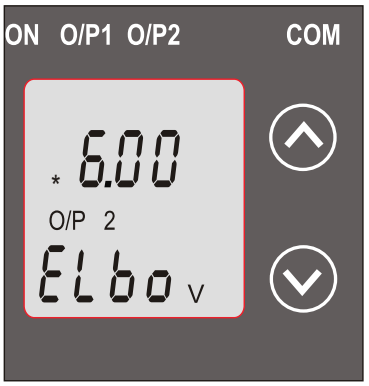
3.1.6.2.3 Elbow value of output 2



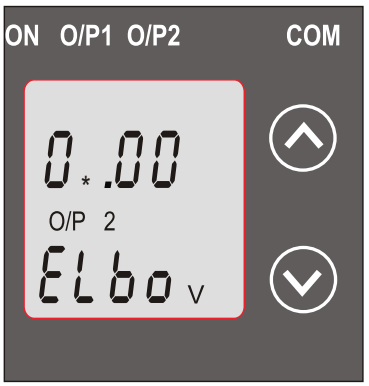
This screen appears only when Elbow function is enabled.
This screen allows the user to set the Elbow value of Output2 (considered as DC Voltage).
The Elbow value can be set any value between set Start value and End value of Output.

Pressing the " Down" key will enter the "New/Change Elbow value of the Output 2 edit" mode.
Pressing " Up" key will confirm the present value as Elbow value of the Output 2 and exit setup menu.

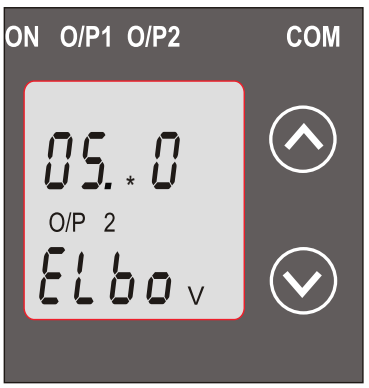
New / Change Elbow value of the Output 2



(*Denotes that digit will be flashing).
Pressing the "Down" key will scroll the value of the first digit from 0 through to 1, the value will wrap from 1 round to 0.
Pressing the " Up" key will advance the operation to the next digit and set the first digit, in this case to "0".



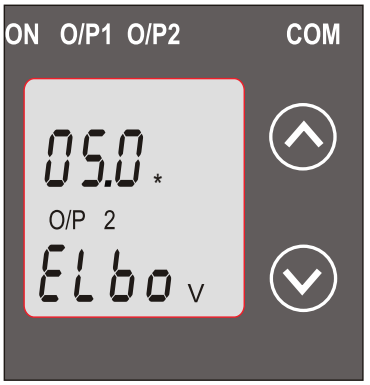
Enter New / Change Elbow value of the Output 2, first digit entered, prompting for second digit.
(*Denotes that digit will be flashing).
Pressing the " Down" key will scroll the value of the second digit from 0 through to 9, the value will wrap from 9 round to 0 depending the set End value of Output2.



Pressing the " Up" key will advance the operation to the next digit and set the second digit, in this case to "5".

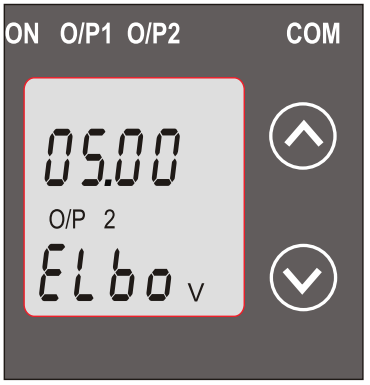
Enter New / Change Elbow value of the Output 2, second digit

entered, prompting for third digit. (*Denotes that digit will be flashing).
Pressing the " ⌄ Down" key will scroll the value of the third digit from 0 through to 9, the value will wrap from 9 round to 0 depending the set End value of Output.
Pressing the " ⌃ Up" key will advance the operation to the next digit and set the third digit, in this case to "0".



Enter New / Change Elbow value of theOutput 2, third digit entered, prompting for fourth digit. (*denotes that digit will be flashing).
Pressing the " ⌄ Down" key will scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0 depending the set End value of Output.
Pressing the " ⌃ Up" key will advance the operation to the "New / Changed Elbow value of the Output 2 confirmation" and set the fourth digit, in this case to "0".

New/changed Elbow value of the Output 2 confirmed.



Pressing the " ⌄ Down" key will enter to the "New / Change Elbow value of the Output 2".
Pressing the " ⌃ Up" key will confirm New Elbow value of the Output 2 and exit setup menu.

3.2 Programming Via Programming port available at front of Transducers using optional PRKAB60 Adapter

For programming of transducer, steps to be followed are

Step 1 : DIP Switch setting

DIP Switches should configure for desired Output type as per given in section 3.3.1

Step 2 : programming

A PC with RS 232 C interface along with the programming cable PRKAB60 and the configuration software are required to program the transducer.

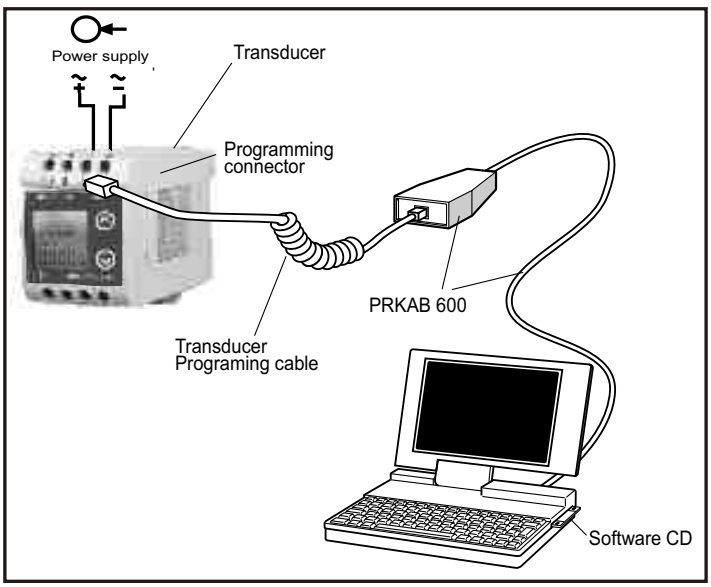
(Details of the programming cable and the software are to be found in the separate Data sheet: PRKAB 60 Le.)

The connections between "PC PRKAB 60 Transducer.

The power supply must be applied to before it can be programmed.

The Configuration software is supplied on a CD.

The programming cable PRKAB600 adjusts the signal level and provides the electrical insulation between the PC and Transducers.



3.3 Programming Via optional RS485 (MODBUS) communication port.

(Refer section 4 for programming through MODBUS)

3.3.1: DIP Switch Setting for Changing Output type

The Transducer output type can be changed from DC current to DC voltage depending upon user requirement on site. To change output type user has to set the transducer output type parameter either to voltage or current along with DIP switch setting.
The transducer output type parameters can be configured using one of the three below given methods.

A) PRKAB 601(optional) : Using PRKAB601 through Transducer programming port (COM) and using PC based configuration software.

B) Front display (optional): Using front display user can enter into programming mode and can change the output type.

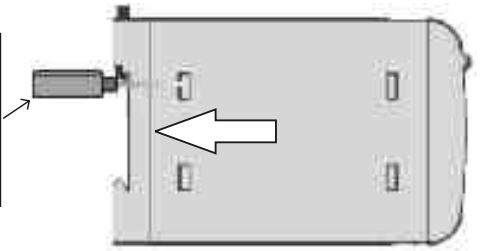
C) Modbus Rs485(optional): Using Modbus interface user can configure the output type refer Modbus Rs485 section.

Note: If DIP switch setting is done first and then output type parameter is configured using either of the above three methods then switch OFF - ON the Transducer.
For changing DIP switches follow these steps

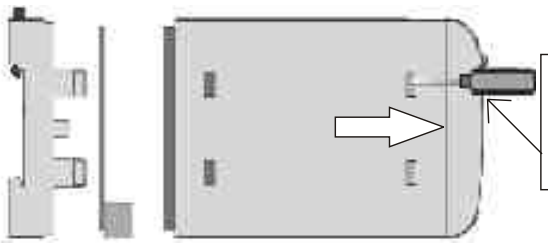
1) To change O/P switches from Current to Voltage or vice versa, ensure that transducer should be Electrically dead and all connection wires should be disconnected.

2) Remove the Back cover of transducer by using screw driver.

Insert screw driver in a snap fitting slot and press in direction of arrow, remove all snap fitting pillars of back cover.

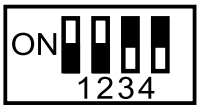


3) Remove the front cover and take the Output card out.



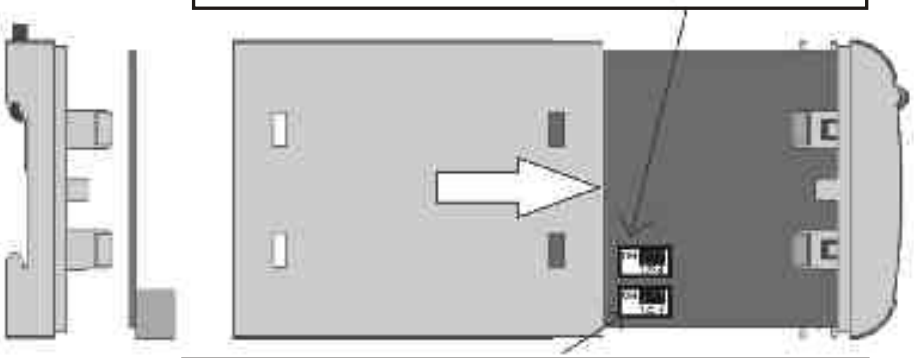
Insert screw driver in a snap fitting slot and press in direction of arrow, remove all snap fitting pillars of front cover.

4) Configure the switches for Voltage or Current as shown below.

DIP Switch Setting	Type of Output Signal
	load-independent current
	load-independent voltage

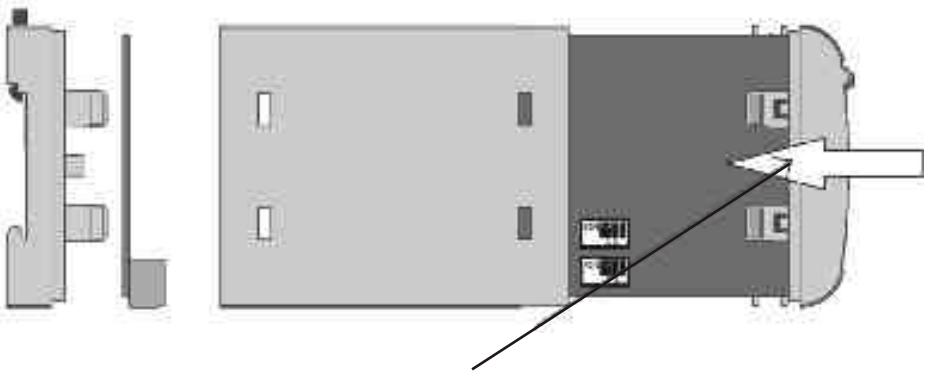
Note: Black portion in this diagram indicates switch position

Switches of Output 2,can be set for desired Output type Voltage or Current.



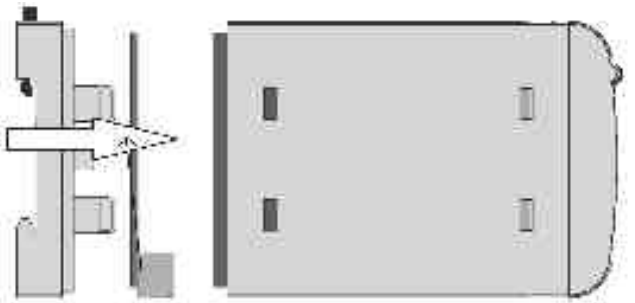
Switches of Output 1,can be set for desired Output type Voltage or Current.

5) After changing the switches for desired Output, Insert the front cover.



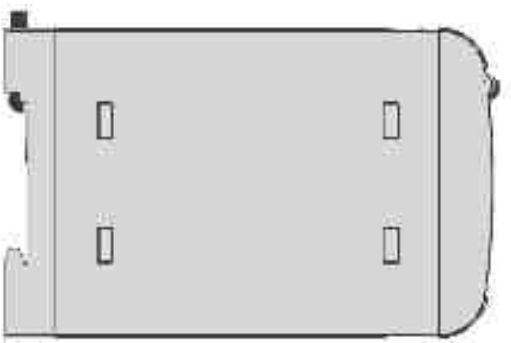
Insert the front cover, press in direction of arrow.

6) After inserting the front cover insert the Interface card PCB and back cover..



Insert the Interface card PCB and Back cover, press in direction of arrow.

7) After inserting the Back cover transducer, can be used for required application..



4. RS 485 (ModBus)

Current Transducer supports MODBUS (RS485) RTU protocol(2-wire)Connection should be made using twisted pair shielded cable. All "A" and "B" connections are daisy chained together. The screens should also be connected to the “Gnd” terminal. To avoid the possibility of loop currents, an Earth connection should be made at one point on the network. Loop (ring) topology does not require any termination load. Line topology may or may not require terminating loads depending on the type and length of cable used. The impedance of the termination load should match the impedance of the cable and be at both ends of the line. The cable should be terminated at each end with a 120 ohm (1/4 Watt min.) resistor.

RS 485 network supports maximum length of 1.2km. Including the Master, a maximum of 32 instruments can be connected in RS485 network. The permissible address range for Current Transducer is between 1 and 247 for 32 instruments. Broadcast Mode (address 0) is not allowed.

The maximum latency time of current transducer is 200ms i.e. this is the amount of time that can pass before the first response character is output.

After sending any query through software (of the Master) , it must allow 200 ms of time to elapse before assuming that the Current Transducer is not going to respond. If slave does not respond within 200 ms, Master can ignore the previous query and can issue fresh query to the slave.

The each byte in RTU mode has following format

	8-bit binary, hexadecimal 0-9, A-F 2 hexadecimal characters contained in each 8-bit field of the message
Format of Data Bytes	4 bytes (32 bits) per parameter. Floating point format (to IEEE 754) Most significant byte first (Alternative least significant byte first)
Error Checking Bytes	2 byte Cyclical Redundancy Check (CRC)
Byte format	1 start bit, 8 data bits, least significant bit sent first 1 bit for even/odd parity 1 stop bit if parity is used; 1 or 2 bits if no

Communication Baud Rate is user selectable from the front panel between 2400, 4800, 9600, 19200 bps.

Function code

03	Read Holding Registers	Read content of read /write location (4X)
04	Read input Registers	Read content of read only location (3X)
16	Presets Multiple Registers	Set the content of read / write locations (4X)

Exception Cases : An exception code will be generated when Current Transducer receives ModBus query with valid parity & error check but which contains some other error (e.g. Attempt to set floating point variable to an invalid value) The response generated will be “Function code” ORed with HEX (80H).The exception codes are listed below

01	Illegal function	The function code is not supported by Current Transducer.
02	Illegal Data Address	Attempt to access an invalid address or an attempt to read or write part of a floating point value
03	Illegal Data Values	Attempt to set a floating point variable to an invalid value

4.1 Accessing 3 X register for reading measured values

Two consecutive 16 bit registers represent one parameter. Refer table 2 for the addresses of 3X registers (Parameters measured by the instruments). Each parameter is held in the 3X registers. Modbus Code 04 is used to access all parameters.

Example

To read parameter ,
Current: Start address= 06(Hex)Number of registers=02

Note : Number of registers = Number of parameters x 2

Each Query for reading the data must be restricted to 20 parameters or less. Exceeding the 20 parameter limit will cause a ModBus exception code to be returned.

Query

01 (Hex)	04 (Hex)	00 (Hex)	06 (Hex)	00 (Hex)	02 (Hex)	91 (Hex)	CA (Hex)
Device Address	Function Code	Start Address High	Start Address Low	Number of Registers Hi	Number of Registers Lo	CRC Low	CRC High

Start Address High : Most significant 8 bits of starting address of the parameter requested.
Start Address low : Least significant 8 bits of starting address of the parameter requested
Number of register Hi: Most significant 8 bits of Number of registers requested.
Number of register Lo: Least significant 8 bits of Number of registers requested.
(Note : Two consecutive 16 bit register represent one parameter.)

Response: Current (5.0A)

01 (Hex)	04 (Hex)	04 (Hex)	40 (Hex)	A0 (Hex)	00 (Hex)	00 (Hex)	EE (Hex)	66 (Hex)
Device Address	Function Code	Byte Count	Data Register1 High Byte	Data Register1 Low Byte	Data Register2 High Byte	Data Register2 Low Byte	CRC Low	CRC High

Byte Count : Total number of data bytes received.
Data register 1 High Byte: Most significant 8 bits of Data register
1 of the parameter requested.
Data register 1 Low Byte: Least significant 8 bits of Data register
1 of the parameter requested.
Data register 2 High Byte : Most significant 8 bits of Data register
2 of the parameter requested.
Data register 2 Low Byte: Least significant 8 bits of Data register
2 of the parameter requested.
(Note : Two consecutive 16 bit register represent one parameter.)

Table 2 : 3 X register addresses (measured parameters)

Address (Register)	Parameter No.	Parameter	Modbus Start Address Hex	
			High Byte	Low Byte
30007	1	Current	00	06

4.2 Accessing 4 X register for Reading & Writing

Each setting is held in the 4X registers .ModBus code 03 is used to read the current setting and code 16 is used to write/change the setting. Refer **Table 3** for 4 X Register addresses.

Example : Reading Device address Device address : Start address = 0E (Hex) Number of registers = 02

Query

Device Address	01 (Hex)
Function Code	03 (Hex)
Start Address High	00 (Hex)
Start Address Low	0E(Hex)
Number of Registers Hi	00 (Hex)
Number of Registers Lo	02 (Hex)
CRC Low	A5 (Hex)
CRC High	C8 (Hex)

Start Address High : Most significant 8 bits of starting address of the parameter requested.

Start Address low : Least significant 8 bits of starting address of the parameter requested.

Number of register Hi : Most significant 8 bits of Number of registers requested.
Number of register Lo : Least significant 8 bits of Number of registers requested.
(Note : Two consecutive 16 bit register represent one parameter.)

Response: Device address (1)

Device Address	01 (Hex)
Function Code	03 (Hex)
Byte Count	04 (Hex)
Data Register1 High Byte	3F (Hex)
Data Register1Low Byte	80 (Hex)
Data Register2 High Byte	00 (Hex)
Data Register2 Low Byte	00 (Hex)
CRC Low	F7 (Hex)
CRC High	CF(Hex)

Byte Count : Total number of data bytes received.
Data register 1 High Byte : Most significant 8 bits of Data register
1 of the parameter requested.
Data register 1 Low Byte : Least significant 8 bits of Data register
1 of the parameter requested.
Data register 2 High Byte : Most significant 8 bits of Data register
2 of the parameter requested.
Data register 2 Low Byte : Least significant 8 bits of Data register
2 of the parameter requested.

(Note : Two consecutive 16 bit register represent one parameter.)

Example : Writing Device address

Device address : Start address = 0E (Hex) Number of registers = 02

Query:(Change Device address to 2)

Device Address	01 (Hex)
Function Code	10 (Hex)
Starting Address High	00 (Hex)
Starting Address Low	0E(Hex)
Number of Registers Hi	00 (Hex)
Number of Registers Lo	02 (Hex)
Byte Count	04 (Hex)
Data Register-1 High Byte	40 (Hex)
Data Register-1Low Byte	00 (Hex)
Data Register-2 High Byte	00 (Hex)
Data Register-2 Low Byte	00 (Hex)
CRC Low	67 (Hex)
CRC High	E3(Hex)

Byte Count : Total number of data bytes received.

Data register 1 High Byte : Most significant 8 bits of Data register 1 of the parameter requested.

Data register 1 Low Byte : Least significant 8 bits of Data register 1 of the parameter requested.

Data register 2 High Byte : Most significant 8 bits of Data register 2 of the parameter requested.

Data register 2 Low Byte : Least significant 8 bits of Data register 2 of the parameter requested.

(Note: Two consecutive 16 bit register represent one parameter.)

Response

Device Address	01 (Hex)
Function Code	10 (Hex)
Start Address High	00 (Hex)
Start Address Low	0E (Hex)
Number of Registers Hi	00 (Hex)
Number of Registers Lo	02 (Hex)
CRC Low	20 (Hex)
CRC High	0B (Hex)

Start Address High : Most significant 8 bits of starting address of the parameter requested.

Start Address low : Least significant 8 bits of starting address of the parameter requested.

Number of register Hi: Most significant 8 bits of Number of registers requested.

Number of register Lo : Least significant 8 bits of Number of registers requested.

(Note : Two consecutive 16 bit register represent one parameter.)

Table 3 : 4 X register addresses

Address (Register)	Parameter No.	Parameter	Read / Write	Modbus Start Address Hex	
				High Byte	Low Byte
40001	1	-	-	-	-
40003	2	Mode selection	R/Wp	00	02
40005	3	-	-	-	-

Address (Register)	Para-meter No.	Parameter	Read / Write	Modbus Start Address Hex	
				High Byte	Low Byte
40007	4	-	-	-	-
40009	5	-	-	-	-
40011	6	CT Primary	R/Wp	00	0A
40013	7	CT Secondary	R/Wp	00	0C
40015	8	Device address	R/Wp	00	0E
40017	9	RS 485 Setup	R/Wp	00	10
40019	10	Password	R/Wp	00	12
40021	11	-	-	-	-
40023	12	-	-	-	-
40025	13	-	-	-	-
40027	14	Sim_Output A	Wp	00	1A
40029	15	Sim_Output B	Wp	00	1C
40031	16	Analog O/P Type 1	R/Wp	00	1E
40033	17	-	-	-	-
40035	18	Analog O/P Type 2	R/Wp	00	22
40037	19	-	-	-	-
40039	20	-	-	-	-

Explanation for 4 X register

40003	Mode Selection	This is used to select the Mode of operation.Normal mode = 1. Simulation mode = 2.
40011	CT Pimary	This address allows the user to set CT Primary value. The maximum settable value is 9999..
40013	CT Secondary	This address is used to read and write the CT secondary value in range between 1A to 5A.

40015	Device Adress	This address is used to set the Device Address between 1 to 247.
40017	RS 485 Setup	This address is used to set the Baud rate, Parity, No of Stop bits.
40019	Password	This address is used to set & reset the password. Valid Range of Password can be set is 0000 - 9999
40027	Sim_ Output A	This address is used to set the simulation Output A to 10% of Output by writing 1000 and 100% of Output by writing 10000 .
40029	Sim_ Output B	This address is used to set the simulation Output B to 10% of Output by writing 1000 and 100% of Output by writing 10000 .
40031	Analog O/P Type 1	This address is used to set the Analog O/P Type 1 as Voltage/Current. Voltage = 1 ,Current = 2.
40035	Analog O/P Type 2	This address is used to set the Analog O/P Type 2 as Voltage/Current. Voltage = 1 , Current = 2.

Note: After Changing Analog Output Type1/Type 2 please insure to change DIP Switch setting (Refer Section 3.3.1). If DIP Switches are already change then switch ON/OFF Transducer.

Table 4 : RS 485 Set-up Code

Baud Rate	Parity	Stop Bit	Decimal value
19200	NONE	01	12
19200	NONE	02	13
19200	EVEN	01	14
19200	ODD	01	15
9600	NONE	01	08

Baud Rate	Parity	Stop Bit	Decimal value
9600	NONE	02	09
9600	EVEN	01	10
9600	ODD	01	11
4800	NONE	01	04
4800	NONE	02	05
4800	EVEN	01	06
4800	ODD	01	07
2400	NONE	01	00
2400	NONE	02	01
2400	EVEN	01	02
2400	ODD	01	03

Note : Codes not listed in the table above may give rise to unpredictable results including loss of communication. Exercise caution when attempting to change mode via direct Modbus writes.

5. Installation

The Current Transducer can be mounted either on a top-hat rail or directly on to a wall or a mounting plate.
The front of the enclosure conforms to IP 40. The terminals of the product should be protected from liquids. The Current Transducer should be mounted in a reasonably stable ambient temperature and where the operating temperature is within the range 0 to 45 ^{0}C . Vibration should be kept to a minimum and the product should not be mounted where it will be subjected to excessive direct sunlight.

⚠ Caution

1. **In the interest of safety and functionality this product must be installed by a qualified engineer, abiding by any local regulations.**
2. **Voltages dangerous to human life are present at some of the terminal connections of this unit. Ensure that all supplies are de-energised before attempting any connection or disconnection.**
3. **These products do not have internal fuses therefore external fuses must be used to ensure safety under fault conditions.**

5.1 EMC Installation Requirements

This product has been designed to meet the certification of the EU directives when installed to a good code of practice for EMC in industrial environments,
e.g.

1. Screened output and low signal input leads or have provision for fitting RF suppression components, such as ferrite absorbers, line filters etc., in the event that RF fields cause problems.

Note: It is good practice to install sensitive electronic instruments that are performing critical functions, in EMC enclosures that protect against electrical interference which could cause a disturbance in function.

2. Avoid routing leads alongside cables and products that are, or could be, a source of interference.

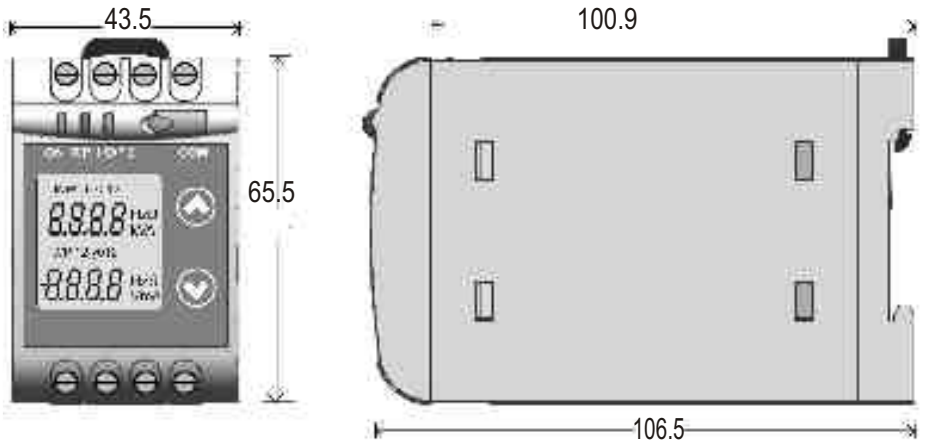
3. To protect the product against permanent damage, surge transients must be limited to 2kV pk. It is good EMC practice to suppress differential surges to 2kV at the source. The unit

has been designed to automatically recover in the event of a high level of transients. In extreme circumstances it may be necessary to temporarily disconnect the auxiliary supply for a period of greater than 5 seconds to restore correct operation.

The Current inputs of these products are designed for connection in to systems via Current Transformers only, where one side is grounded.

4. ESD precautions must be taken at all times when handling this product.

5.2 Case Dimensions



5.3 Wiring

Input connections are made directly to screw-type terminals with indirect wire pressure. Choice of cable should meet local regulations. Terminal for Current inputs will accept up to 2x 2.5mm² or 1x 4mm² cables.

5.4 Auxiliary Supply

Transducer should ideally be powered from a dedicated supply, however it may be powered from the signal source, provided the source remains within the limits of the chosen auxiliary voltage. A switch or circuit, may be used in close proximity to the equipment &

within easy reach of the OPERATOR & It shall be marked as the disconnecting device for the equipment.

5.5 Fusing

It is recommended that all voltage lines are fitted with 1 amp HRC fuses.

5.6 Earth/Ground Connections

For safety reasons, CT secondary connections should be grounded in accordance with local regulations.

5.7: Maintenance

No maintenance is required.

6. Specifications

Input

Nominal input Current I_N (AC RMS) (CT Secondary range)	1 A $\leq I_N \leq$ 5 A
CT Primary range	1 A to 9999 A
Nominal Frequency F_N	45 to 65 Hz
Input burden	< 0.2 VA at I_N
Overload Capacity:	1.2 * I_N continuously, 10 * I_N for 3 second, repeated 5 times at 5 minute intervals. 50 *I_N for 1 second, repeated 1 time at 1 hour interval (max 250 A).

Auxiliary

AC/DC Auxiliary Supply	60V….300 VAC-DC ±5% 24V….60 VAC-DC ±10%
Auxiliary Supply frequency range	45.....65 Hz
Auxiliary Supply consumption	

60V…….300 VAC-DC	≤ 8VA for one output
	≤ 10VA for two outputs
24V…….60 VAC-DC	≤ 5VA for one output
	≤ 6VA for two outputs

Measuring Output Y (Single or Optional Dual)

Output type	Load independent DC Voltage or DC Current (Onsite selectable through DIP switches & Programming.)
Load independent DC - output	0…20mA / 4…20mA / 0-1mA OR 0…10V.
Output burden with DC current output Signal	$0 \leq R \leq 15V/Y2$
Output burden with DC voltage output Signal	$Y2/(2\ mA) \leq R \leq \infty$
Current limit under overload R=0	≤ 1.25 * Y2 with current output ≤ 100 mA with Voltage output
Voltage limit under R= ∞	≤ 1.25 * Y2 with voltage output ≤ 30 V with current output
Residual Ripple in Output signal	≤1% pk-pk
Response Time	< 400 ms

Accuracy: (Acc. to IEC 60688)

Reference Value	Output end Value Y2 (Voltage or Current)
Basic Accuracy	0.2*C

Factor C (The Highest value applies)

Linear characteristics

$$C = \frac{1 - \frac{Y0}{Y2}}{1 - \frac{X0}{X2}} \quad \text{or } C=1$$

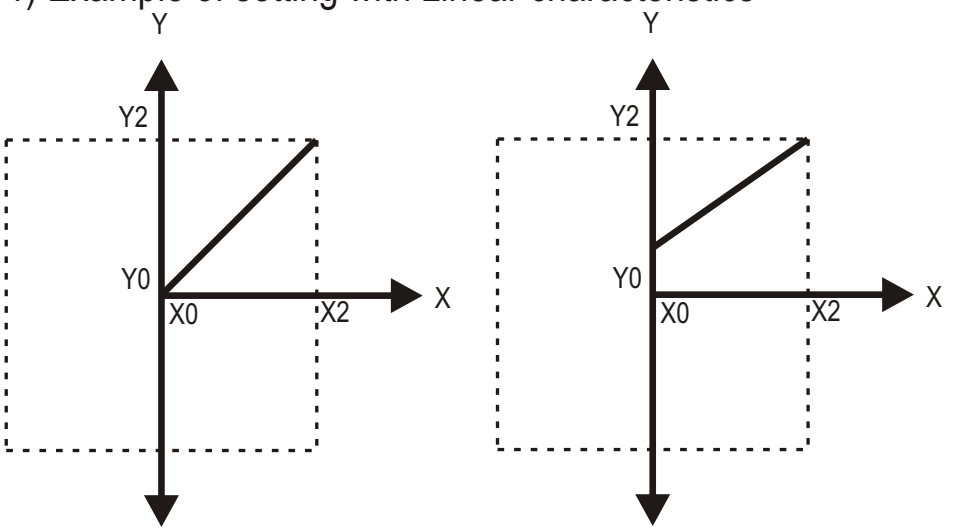
Bent characteristics

$$C = \frac{Y1 - Y0}{X1 - X0} \cdot \frac{X2}{Y2} \quad \text{or } C=1$$

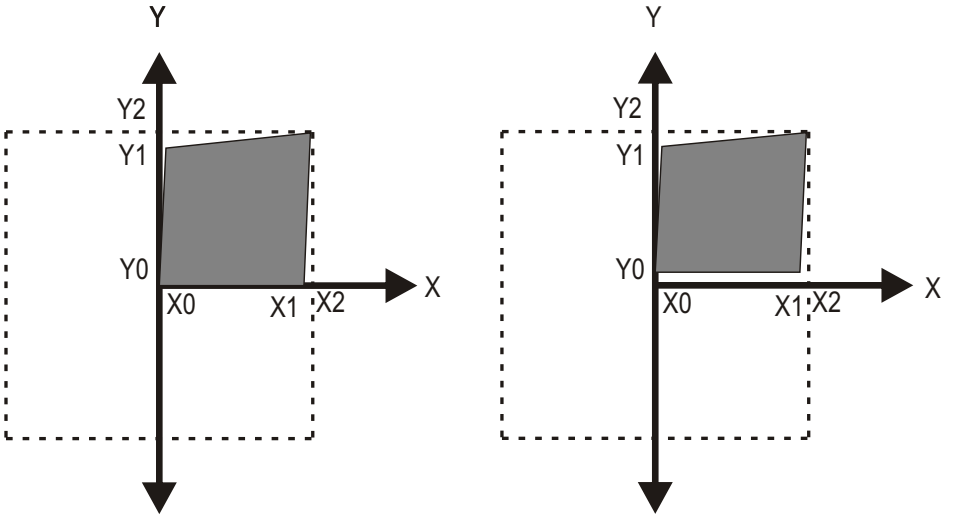
$$C = \frac{1 - \frac{Y1}{Y2}}{1 - \frac{X1}{X2}} \quad \text{or } C=1$$

Output characteristics

1) Example of setting with Linear characteristics



2) Example of setting with Bent characteristics:



X0 = Start value of input
X1 = Elbow value of input
X2 = End value of input
R_N = Rated value of output burden

Y0 = Start value of output
Y1 = Elbow value of output
Y2 = End value of output
I_N = Nominal input current .

Reference conditions for Accuracy

Ambient temperature	23°C +/- 1°C
Pre-conditioning	30 min acc. to IEC EN - 60688
Input Variable	Rated Current
Input waveform	Sinusoidal, Form Factor 1.1107
Input signal frequency	50 or 60Hz
Auxiliary supply voltage	Rated Value
Auxiliary supply frequency	Rated Value
Output Load	Rn =7.5 V / Y2 ± 1%With DC current output signal. Rn = Y2 / 1 mA ± 1% With DC Voltage output signal.
Miscellaneous	Acc. to IEC EN - 60688

Additional Error

Temperature influence	± 0.2% /10°C
Influence of Variations:	As per IEC EN-60688 standard.
Output stability	< 30min

Safety

Protection Class	II (Protection Isolated, EN 61010)
Protection	IP 40, housing according to EN 60 529 IP 20,terminal according to EN 60 529
IP Pollution degree	2
Installation Category	III
Insulation Voltage	50Hz,1min. (EN 61 010-1) 5500V, Input versus outer surface 3700V, Input versus all other circuits 3700V, Auxiliary supply versus outer surface and output 490V, Output versus output versus RS485 versus outer surface.

Installation Data

Mechanical Housing	Lexan 940 (polycarbonate) Flammability Class V-0 acc. To UL 94, self extinguishing, non dripping, free of halogen
Mounting position	Rail mounting / wall mounting
Weight	Approx. 0.4kg

Connection Terminal

Connection Element	Conventional Screw type terminal with indirect wire pressure

Permissible cross section of the connection lead $\leq$ 4.0 mm^2 single wire or 2 x 2.5mm^2 Fine wire

Environmental

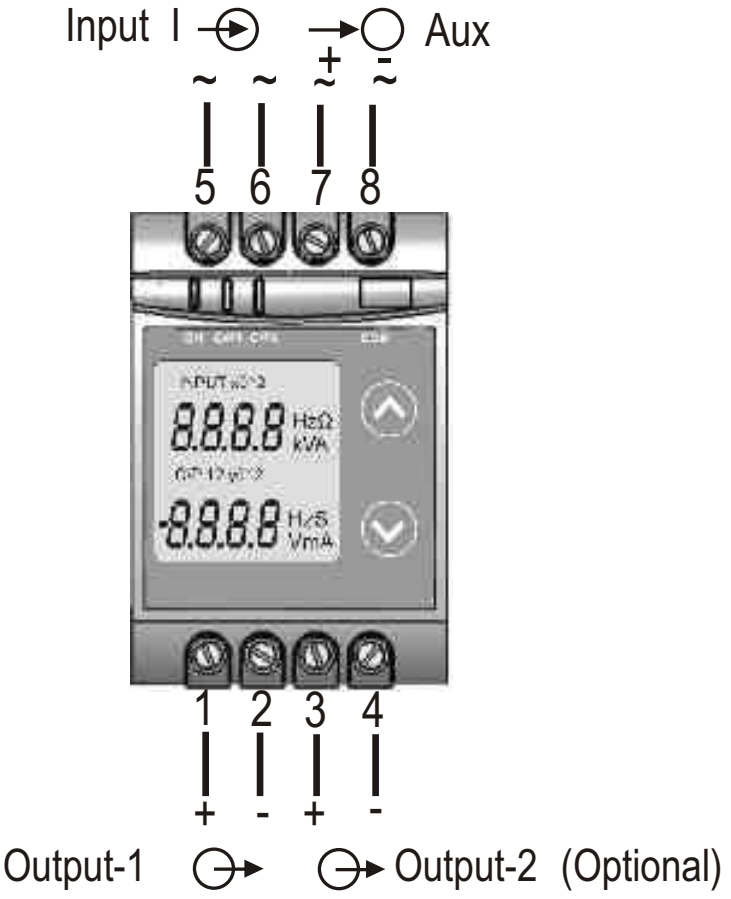
Nominal range of use	0 °C...23 °C... 45 °C(usage Group II)
Storage temperature	-40 °C to 70 °C
Relative humidity of annual mean	≤ 75%
Altitude	2000m max
Location	Indoor use

Ambient tests

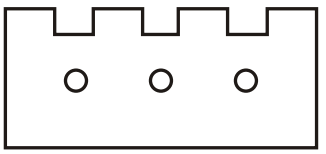
EN 60 068-2-6	Vibration
Acceleration	± 2 g
Frequency range	10....150...10Hz,
Rate of frequency sweep	1 octave/minute
Number of cycles	10, in each of the three axes
EN 60 068-2-27	Shock
Acceleration	3 x 50g
	3 shocks in each direction
EN 60 068-2-1/-2/-3	Cold, Dry, Damp heat
IEC 61000-4-2/-3/-4/-5/-6	
IEC 61326	Electromagnetic compatibility.

7. Connection Diagram

Connection	Terminal details	
Measuring input	~ ~	5 6
Auxilliary Power supply	~ , + ~ , -	7 8
Measuring output - 1	+ -	1 2
Measuring output - 2	+ -	3 4



Rs 485 Connections:



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Rs 485

Meaning of symbols on the instrument

Warning concerning a point of danger
(Attention:observe documentation)

Equipment protected throught by
Double insulation or reinforced
insulation

DC voltage /Current

AC/DC voltage

Isolation between input versus all
other circuit is 3.7 KV.

Notes

Notes

Notes

The Information contained in these installation instructions is for use only by installers trained to make electrical power installations and is intended to describe the correct method of installation for this product. However, Manufacturer has no control over the field condition which influence product installation.

It is the user's responsibility to determine the suitability of the installation method in the user's field conditions. Manufacturer only obligation are those

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