Operating Manual

Beta Hz

72mm x 144mm

96mm x 96mm

48mm x 96mm

DIGITAL MULTIFUNCTION INSTRUMENT

Programmable Digital Panel Meter

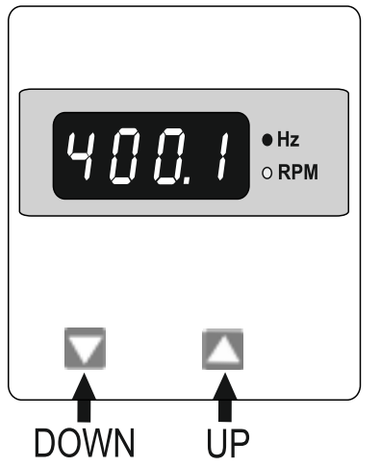
Installation & Operating Instructions

Section **Contents**

1. INTRODUCTION

Beta Hz is a panel mounted 96 x 96mm, 72 x 144mm and 48 x 96mm DIN Quadratic Digital Panel Meter for the measurement of important electrical parameters like Frequency, RPM.

The instrument integrates accurate measurement technology with 4 digits Ultra high bright LED display.



Beta Hz can be configured and Programmed On site for number of poles.

The front panel has two push buttons using which the user can scroll through different screens and configure the product.

2. MEASUREMENT READING SCREENS

In normal operation, the user is presented with one of the measurement reading screens out of several screens. These screens may be scrolled through one at a time in incremental order by pressing the “UP key” and in decremental order by pressing “DOWN key”.

TABLE 1: Measured Parameters:

Sr No.	Measured Parameters	Unit
1	Frequency	Hz
2	RPM	
3	Max Frequency	Hz
4	Min Frequency	Hz

3. Programming

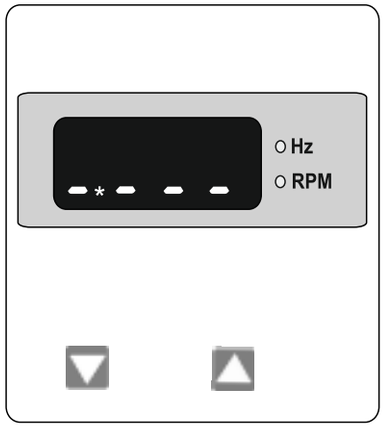
The following sections comprise step by step procedures for configuring the Beta Hz for individual user requirements. To access the set-up screens press and hold the “DOWN” and “UP” keys Simultaneously. This will take the User into the Password Entry screen (Section 3.1).

In Setup mode, if none of the key pressed within 1 min, it will returns operation to the measurement mode.

3.1. Password Protection

Password protection can be enabled to prevent unauthorized 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.

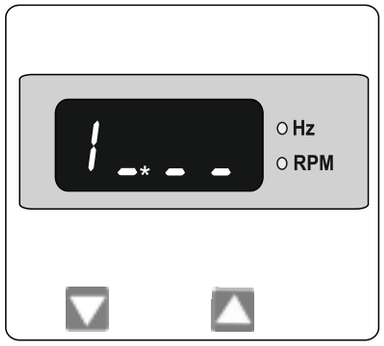


Password Entry:
Enter Password, prompt for first digit.
(* Denotes that decimal point will be flashing).

Press the “DOWN” key to scroll the value of the first digit from 0 through to 9, the value will wrap from 9 round to 0.

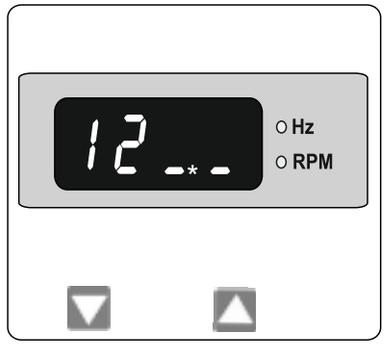
Press the “UP” key to advance to next digit.

In the special case where the Password is “0000” pressing the “UP” key when prompted for the first digit will advance to the “Password Confirmed” screen.



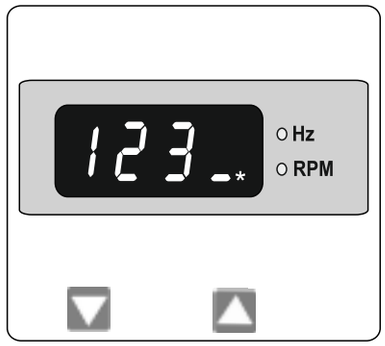
Enter Password, first digit entered, prompt for second digit.(* Denotes that decimal point will be flashing).

Press the “DOWN” key to scroll the value of the second digit from 0 through to 9, the value will wrap from 9 round to 0.
Press the “UP” key to advance to next digit.



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

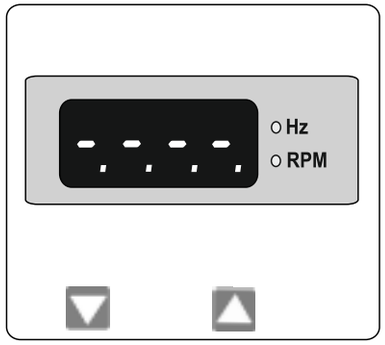
Press the “DOWN” key to scroll the value of the third digit from 0 through to 9, the value will wrap from 9 round to 0.
Press the “UP” key to advance to password confirmation screen.



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

Press the “DOWN” key to scroll the value of the fourth digit from 0 through to 9, the value will wrap from 9 round to 0.
Press the “UP” key to advance to password confirmation screen.

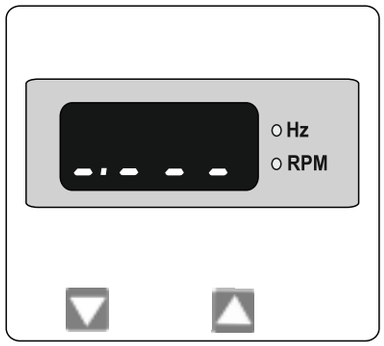
Enter Password, fourth digit entered, Awaiting verification of password.
Password confirmed.
Pressing “DOWN” key will advance to the “New / change Password” entry stage.
Pressing the “UP” key will advance to the setup screen.
(See section 3.2).



Password Incorrect.

The unit has not accepted the Password entered.
Pressing the “DOWN” key will return to the Enter Password stage.

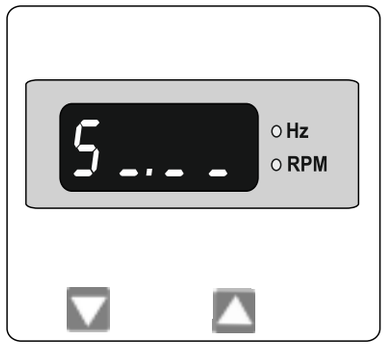
Pressing the “UP”key exits the Password menu and returns operation to the measurement reading mode.



New / Change Password

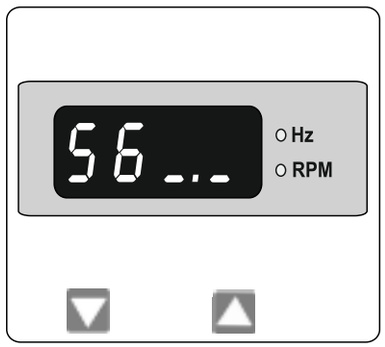
Pressing the “DOWN” key will scroll the value of the first Digit from 0 through to 9, the value will wrap from 9 round to 0.

Pressing the “ UP” key to advance the operation to the next digit and sets the first digit.



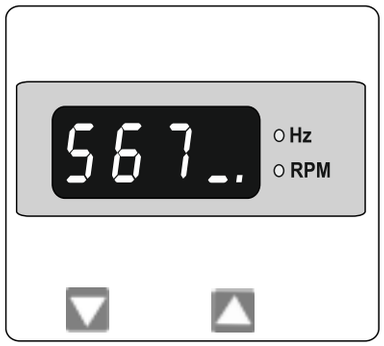
New / Change Password, first digit entered, prompting for second digit.

Pressing the “DOWN” key will scroll the value of second digit from 0 through to 9, the value will wrap from 9 round to 0.
Pressing the “UP” key to advance the operation to the Next digit and sets the second digit.



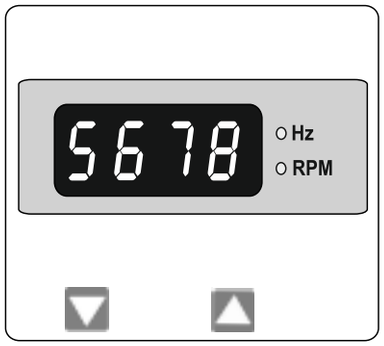
New / Change Password, second digit entered, prompting for third digit.

Pressing the “DOWN” key will scroll the value of the third from 0 through to 9, the value will wrap from 9 round to 0.
Pressing the “UP” key to advance the operation to the Next digit and sets the third digit.



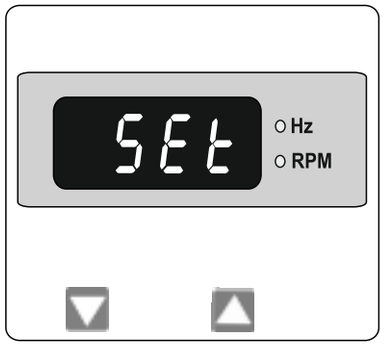
New / Change Password, third digit entered, prompting for fourth digit.

Pressing the “DOWN” key will scroll the value of the fourth from 0 through to 9, the value will wrap from 9 round to 0.
Pressing the “UP ” key to advance the operation to the “New Password Confirmation” screen and sets the fourth digit.



New / Change Password, fourth digit entered, Awaiting for confirmation.

Pressing the “UP ” key to advance the operation to the “New Password Confirmation” screen and sets the fourth digit.



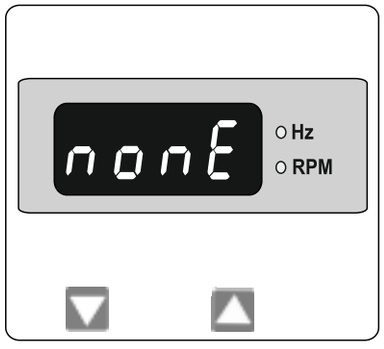
New Password confirmed.

Pressing the “DOWN” key will return to the “New/Change Password”.

Pressing the “UP” key will advances to the Set up screen.
(see section 3.2).

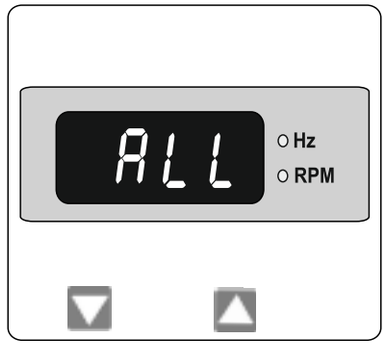
3.2 Set Up Screens

3.2.1. Reset



The following screens allow the users to reset the Min and Max. values of Frequency.

Pressing the “DOWN” key will enter the “Reset edit” menu.
Pressing the “UP” key will Reset None and enter into Auto scrolling / fixed screen selection menu.

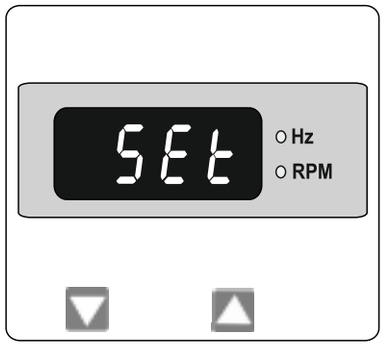


Edit the Reset of Parameters

Pressing “DOWN” will scroll the parameters in sequence as Follow :

1. All : To reset All parameters,
2. Hi : To reset Max values,
3. Lo : To reset min. Values,
4. None : No to reset any of the Parameters,

Select the Correct parameter to Reset and then Press “UP” key. This will enter to Reset Parameter Confirmation Screen.

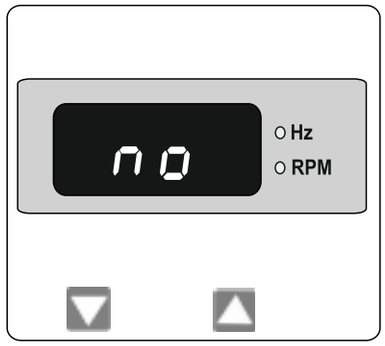


Confirmation of parameter for RESET

Pressing “DOWN” will enter back to the reset menu and scroll between the above parameters.

Pressing “UP” key will Reset the Selected Parameter. Then it will enter to auto scrolling or fixed screen selection parameter.

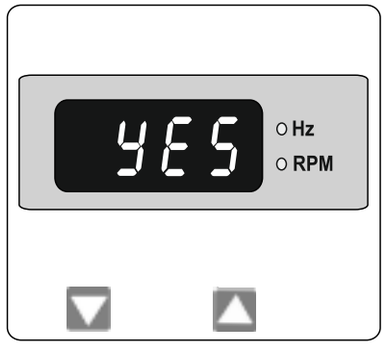
3.2.2 Auto scrolling / Fixed Screen selection



This menu allow to select scrolling or fixed screen.

Pressing “UP” key enters confirmation of Fixed Screen.

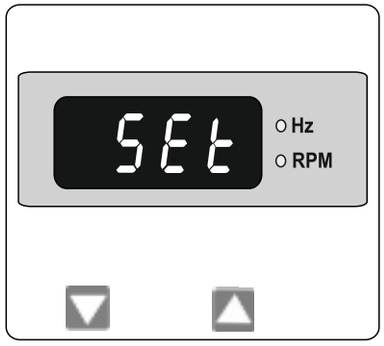
Pressing of “DOWN” key enters to Edit menu.



Fixed Screen / Auto Scrolling Edit.

Pressing of “DOWN” key Rolls between “Yes” and “No”.

Pressing “UP” key enters Auto scrolling / fixed screen select confirmation.

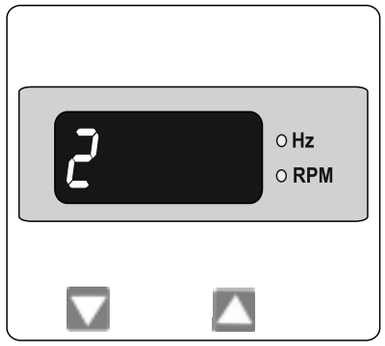


Confirmation of Auto Scrolling / Fixed Screen

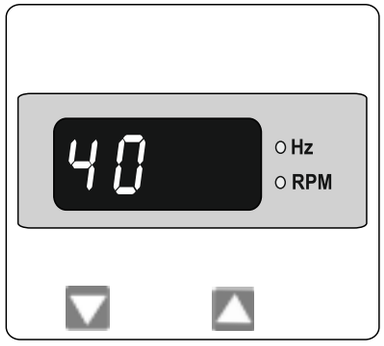
Pressing “DOWN” key enter back to edit menu.

Pressing “UP” key confirms the selection and enters Number of poles selection menu.

3.2.3 No. of Poles Selection :



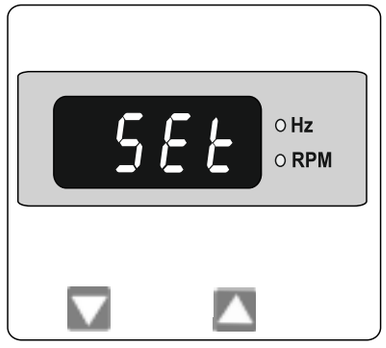
This screen enables to set No. of poles on a Generator of which RPM is to be measured and to which the instrument is connected to measure its output parameters.
Pressing “DOWN” key enters into no. of pole edit menu.
Pressing “UP” key will set the displayed number as No. of poles. Then it will come out of set up menu.



No. of Poles edit

Pressing “DOWN” key scrolls the number from 02 to 40 in step of 2. After 40 it wraps to the number again 02.

Pressing “UP” key enters into No. of poles Confirmation screen.

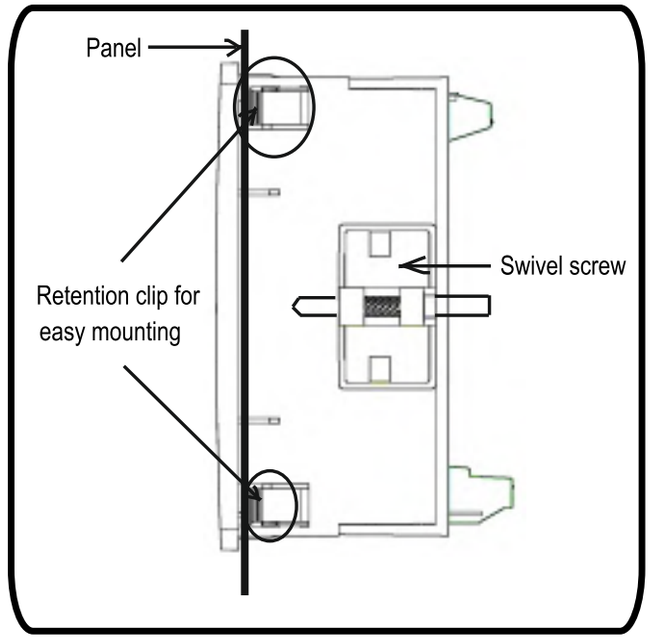


No. of Poles Confirmation

Pressing “DOWN” key enters back to No. of poles edit menu.

Pressing “UP” key sets the number on screen as number of poles of generator and exit from setup and goes to measurement screen.

4. Installation



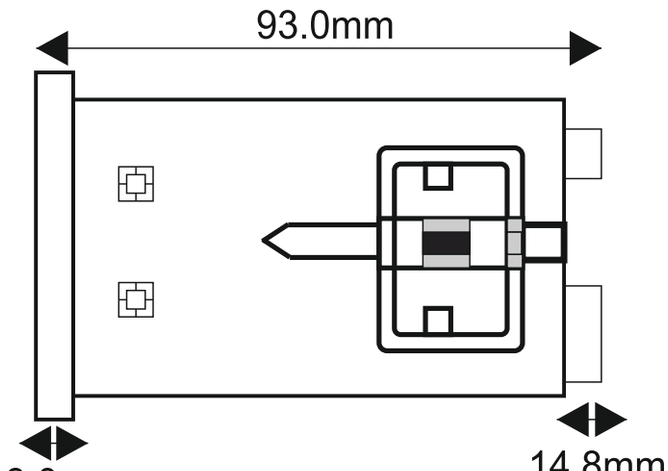
For 96 x 96 mm

For 96 x 96mm-Mounting of Beta Hz is featured with easy “Clip- in” mounting. Push the meter in panel slot (size 92 x 92 mm), it will click fit into panel with the four integral retention clips on two sides of meter.

If required Additional support is provided with swivel screws (optional) as shown in figure.

The front of the enclosure conforms to IP50. Additional protection to the panel may be obtained by the use of an optional panel gasket. The terminals at the rear of the product should be protected from liquids

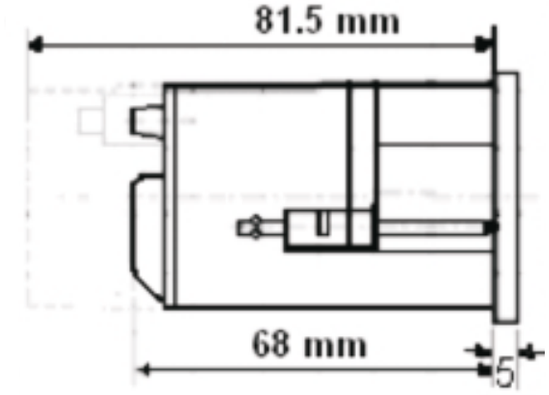
The Beta Hz should be mounted in a reasonably stable ambient temperature and where the operating temperature is within the range -10°C to 55°C . Vibration should be kept to a minimum and the product should not be mounted where it will be subjected to excessive direct sunlight.



For 72 x 144mm

For 72 x 144mm-Mounting is by four side clamps, slide the side clamps through side slot till side clamp gets firmly locked in a groove and tight screw provided over clamp. Considerations should be given to the space required behind the instrument to allow for bends in the connection cables.

As the front enclosure conforms to IP 54 it is protected from water spray from all direction, additional protection to the panel may be obtained by the use of optional gasket. The terminals at the rear of product should be protected from liquids.



For 48 x 96 mm

For 48 x 96mm-Mounting of Beta Hz 48 x 96 is featured with easy “Clip- in” mounting. Push the meter in panel slot (size 48.5 x 96 mm), it will click fit into panel with the four integral retention clips on two sides of meter.

The front of the enclosure conforms to IP54. Additional protection to the panel may be obtained by the use of an optional panel gasket. The terminals at the rear of the product should be protected from liquids.

The Beta Hz should be mounted in a reasonably stable ambient temperature and where the operating temperature is within the range -10°C to 55°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.

4.1 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. 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.

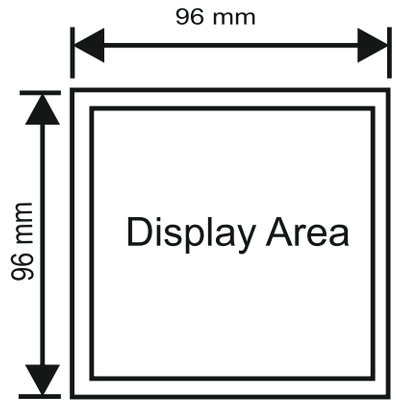
Note: It is good practice to install sensitive electronic instruments that are performing critical functions, in EMC enclosures that protect against electrical interference which could cause a disturbance in function.

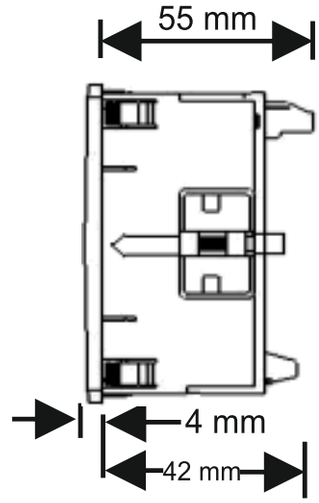
Avoid routing leads alongside cables and products that are, or could be, a source of interference.

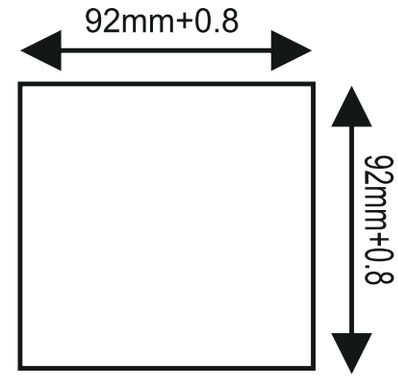
To protect the product against permanent damage, surge transients must be limited to 2kV pk. It is good EMC practice to suppress differential surges to 2kV at the source. The unit has been designed to automatically recover in the event of a high level of transients.In extreme circumstances it may be necessary to temporarily disconnect the auxiliary supply for a period of greater than 5 seconds to restore correct operation.

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

4.2 Case Dimensions and Panel Cut Outs

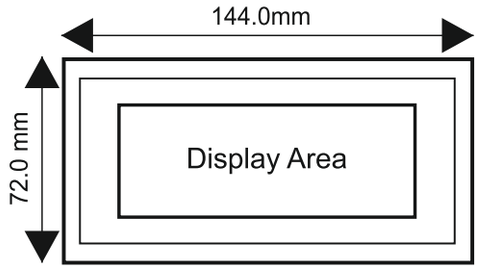


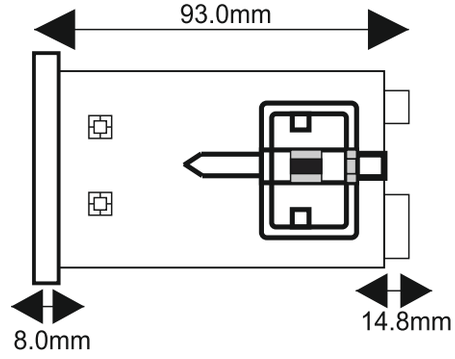




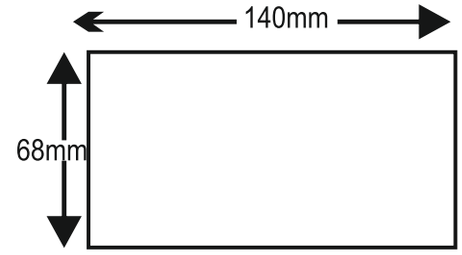
Panel Cutout

For 96 x 96 mm



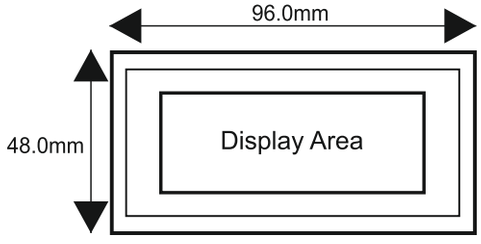


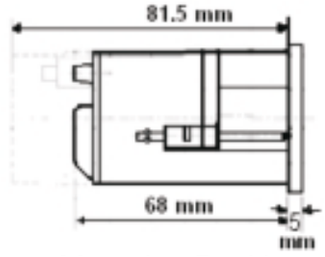
Mounting Position



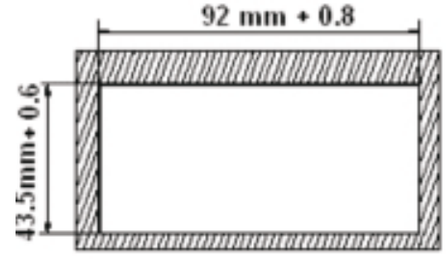
Panel Cutout

For 72 x 144 mm





Mounting Position



Installation Cutout

For 48 x 96 mm

4.3 Wiring

Input connections are made directly to screw-type terminals with indirect wire pressure. Numbering is clearly marked on the connector. Choice of cable should meet local regulations. Terminal for Voltage input will accept upto 4mm^2 (12AWG) solid or 2.5 mm^2 (12AWG) standard cable.

Note : It is recommended to use wire with lug for connection with meter.

4.4 Auxiliary Supply

Beta Hz 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 range.

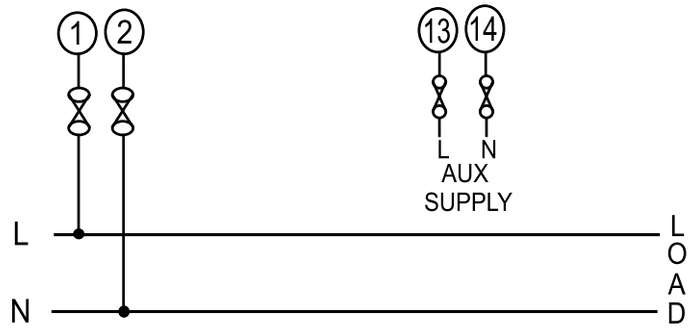
4.5 Fusing

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

4.6 Earth/Ground Connections

For safety reasons, panels and accessories should be grounded in accordance with local regulations.

5. Connection Diagrams



6. Specification :

Inputs

Nominal Input Voltage	50 VL-N - 500 VL-N
Frequency Input range	10 Hz - 500 Hz
Nominal input voltage burden	< 0.2 VA

Operating Measuring Ranges

Voltage	50 VL-N - 500 VL-N
Frequency	10 Hz - 500 Hz

Auxiliary

External Auxiliary Supply	40V to 300V AC/DC (+/- 5%) or 20V to 40V AC / 20V to 60V DC
Frequency Range	45 to 65 Hz
VA Burden	< 3 VA

Accuracy

Frequency	± 0.5 Hz ± 1 Digit

Reference conditions for Accuracy :

Reference temperature	23°C ± 2°C
Auxiliary supply voltage	Nominal Value ± 1 %
Auxiliary supply frequency	Nominal Value ± 1 %

Display

For 96 x 96mm

LED	4 digits, Display height : 14mm
Update rate	Approx. 1 seconds

For 72 x 144mm

LED	4 digits, Display height : 20mm
Update rate	Approx. 1 seconds

For 48 x 96mm

LED	4 digits, Display height : 14mm
Update rate	Approx. 1 seconds

Controls

User Interface	2 Keys

Applicable Standards:

EMC	IEC 61326
Immunity	IEC 61000-4-3. 10V/m min – Level 3 industrial Low level
Safety	IEC 61010-1-2010 , Permanently connected use
IP for water & dust	IEC 60529
Pollution degree:	2
Installation category:	III

Environmental

Operating temperature	-10 to +55°C
Storage temperature	-20 to +65°C
Relative humidity	0... 90% non condensing
Warm up time	Minimum 3 minute
Shock	15g in 3 planes
Vibration	10... 150.... 10 Hz, 0.15mm amplitude
Enclosure front	IP50(For 96x96) IP54(For 72x144, 48x96)
Enclosure back	IP20(For all models)

Enclosure

For 96 x 96mm

Style	96mm x 96mm DIN Quadratic
Material	Polycarbonate Housing
Terminals	Screw-type terminals
Depth	< 60 mm
Weight	300 grams Approx.

For 72 x 144mm

Style	72mm x 144mm DIN Quadratic
Material	Polycarbonate Housing
Terminals	Screw-type terminals
Depth	< 80 mm
Weight	322 grams Approx.

For 48 x 96mm

Style	48mm x 96mm DIN Quadratic
Material	Polycarbonate Housing
Terminals	Screw-type terminals
Depth	< 68 mm
Weight	250 grams Approx.

WARRANTY

Dear Customer,

You are now the privileged owner of Beta Hz, a product that ranks the first of its kind in the world. **Company** provides 12 months warranty from the original date of Purchase against defective material and workmanship.

In the unlikely event of failure of the instrument / accessories within the warranty period. **Company** will repair meter / accessories free of charge. Please hand over the meter / accessories to the dealer / stockist from whom you have purchased along with this card and relevant Cash Memo / Invoice. This warranty entitles you to bring the meter / accessories at your cost to the nearest stockist / dealer and collect it after repairs.

NO TRANSPORTATION CHARGES WILL BE REIMBURSED.

The warranty is not valid in following cases:

1. Warranty card duly signed and stamped and original Cash Memo / Invoice is not sent along with Beta Hz.
2. Complete warranty card is not presented to authorised person at the time of repairs.
3. Meter / accessories is not used as per the instructions in the instruction manual.
4. Defect caused by misuse, negligence, accidents, tampering and Acts of God.
5. Improper repairing by any person not authorised by the company.
6. Any sort of Modification, Alteration of any sort is made in electrical circuitry.
7. Seal provided inside/outside is broken.

In case of dispute to the validity of the warranty, the decision of Company service center will be final.

If you bought this Beta Hz directly from the company, and if you notice transit damage, then you must obtain the insurance surveyors report and forward it to **Company .**

Thank you.

(To be filled by authorized dealer)

Model No.:_____ Serial No. : _____

Date of Purchase : _____ Cash Memo / Invoice No. : _____

Dealer's Signature : _____ Dealer's Stamp : _____

Sifam Tinsley Instrumentation Inc.
3105 Creekside Village Drive, Suite No. 801, Kennesaw, GA 30144 (USA)
Contact No. : +1 404 736 4903
E-mail Id : psk@sifamtinsley.com
Web : **www.sifamtinsley.com**

Version No : STIUS / 2020 / 01