

PROGRAMMABLE DPM

AC Volt Meter (3) : 3V
 AC Ammeter(3) : 3A
 AC Volt Meter (1) : V
 AC Ammeter(1) : A

Installation & Operating Instructions

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Rev. A 02/2012

Available Models :

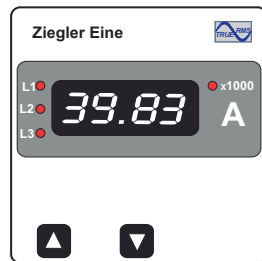
1. Ziegler Eine 3V



3. Ziegler EineV



2. Ziegler Eine 3A



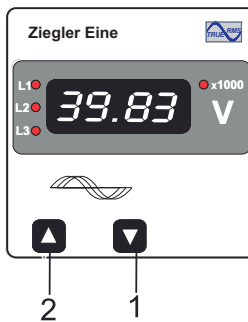
4. Ziegler Eine A



1 .Introduction

The Eine Series is a panel mounted 96 x 96mm Digital Panel Meters for the measurement of AC Voltage and current in three phase systems.

The instrument integrates accurate measurement technology. The parameters are displayed with Ultra high brightness LED display with 14mm Digit height.



Programmable DPM can be configured and Programmed at site for the following :PT Primary, CT Primary.

The front panel has two push buttons for user interface to scroll through the available parameters the two keys has function as follow :

- 1 : .Scrolls through parameter in upward sequence .
Display sequence Eine 3V : L1 voltage, L2 voltage, L3 voltage ,L1-L2 voltage ,L2-L3 voltage ,L3-L1 Voltage ,System voltage and back to L1 voltage.
Display sequence Eine 3A : L1 current ,L2 current ,L3 current ,System current and back to L1 current.
- 2 : .Scrolls the parameters in Reverse of above sequence.

These DPMs come with 14mm height 7 segment Display ,which enables to take readings from long distance .

TABLE 1 :Parameters Displayed with Eine 3V model

Measured Parameters	Unit of measurement
L1 Voltage	volt
L2 Voltage	volt
L3 Voltage	volt
L1-L2 Voltage	volt
L2-L3 Voltage	volt
L3-L1 Voltage	volt
System Voltage	volt

TABLE 2 :Parameters Displayed with EINE 3A models

Measured Parameters	Unit of measurement
L1 Current	Ampere
L2 Current	Ampere
L3 Current	Ampere
System Current	Ampere

2 Measurement Reading Screen

In normal operation the user is presented with the measurement reading screens . These screens may be scrolled through one at a time in incremental order by pressing the key and in decrementing order by pressing key.

A .Display Screens of Eine 3V Models :

Screen 1 :Voltage L1



Screen 2 :System Voltage (value displayed after "Sys "flashing on Display)

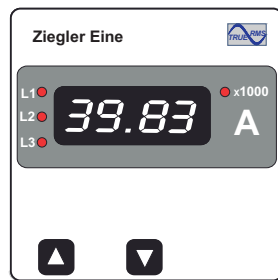


B .Screens of EINE 3A Models :

Screen 1 :L1 Current



Screen 2 :System Current
(Value displayed after "Sys" flashing on Display)



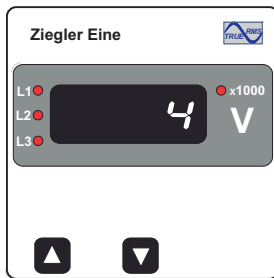
3 .Programming

The following sections comprise step by step procedures for configuring the **EINE 3A/A and EINE 3VV for individual user requirements.**

To access the set-up screens press and hold the "↑" and "↓" Keys Simultaneously. This will take the User into the Sys Type Screen(in case of 3A/3V) Followed by "Sys" on Display (Section 3.1)or directly into the CT/PT Primary Screen(in case of A/V respectively) .

3.1 Set Up Screens

3.1.1 System type (for EINE 3V & EINE 3A)



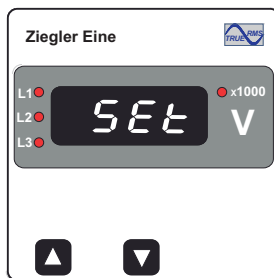
This screen is used to set the system type. System type "3" for 3 phase 3 wire "4" & for 3 phase 4 wire system.

Pressing the "↓" key accepts the present value and advances to the "PT primary(in case of3 V) or CT primary (in case of3 A) value Edit "menu (see section 3.1.2).

Pressing the "↑" key will enter the system type edit mode and scroll the values through values available.

Pressing the "↓" down "key advances to the system type confirmation menu.

System Type Confirmation



This screen will only appear following the edit of system type .If system type is to be edit again ,

Pressing the "↑" key will scroll between "3" for 3 Phase 3 Wire and "4" for 3 Phase 4 Wire.

Pressing the "↓" down "key sets the displayed value and will advance to" Potential Transformer Primary Value Edit "menu .(See section3.1.2)

3.1.2 Potential Transformer Primary Value for Eine 3V & Eine V

The nominal full scale voltage which will be displayed as the Line to neutral voltage. This screen is displayed followed by "PtPr" on display and enables user to display Line to Neutral Voltages inclusive of any PT ratio from 100VLL to 999kVLL.



Pressing the "↓" key accepts the present value and advances to the "Auto scrolling or Fixed screen" selection menu .(See Section 3.1.4)

Pressing the "↑" key will enter the "Potential transformer Primary Value Multiplier Selection.

Initially the "multiplier must be selected .Pressing the "↑" Key will move the decimal point position to the right Side and show "###. , after which it will again Shift to ".###.###.###with Annunciation of "K, " which indicates the value in kV.

Pressing the "↓" key accepts the present multiplier (Decimal Point position) and advances to the "Potential Transformer value Edit "menu with decimal flashing to indicate cursor position.



Potential Transformer value Edit

Pressing the "↑" key will scroll the value of the most significant digit.

Pressing the "↓" key accepts the present value at the cursor position and advances the cursor to the next Less significant digit.

When the least significant digit has been set ,pressing the "↓" key will advance to the "Potential transformer Primary Value Confirmation "screen.

Note : the flashing decimal point indicates the cursor position ,a steady decimal point will be present to identify the scaling of the number until the cursor position coincides with the steady decimal point position. At this stage the decimal point will be flashing.



Potential Transformer Primary Value Confirmation

This screen will only appear following an edit of the Potential Transformer Primary Value

If the set value is to be corrected ,pressing the "↑" key will return to the "Potential Transformer Primary Value Edit "stage.

Pressing the "↓" key sets the value and then advance to the "Auto scrolling or fixed screen" Selection menu .(See section 3.1.4.)

3.1.3 Current Transformer Primary Value for Eine 3A & Eine A

The nominal full scale Current which will be displayed Phase current.

This screen enables user to display Line current inclusive of any CT Ratio 1A upto 999kA.



Pressing the "↓" key accepts the present value and advances to the "Auto Scrolling or Fixed Screen Selection "menu.(See Section 3.1.4)

Pressing the "↑" key will shift decimal point position to right side and show "###.###.###. , after which it will again shift to "##.##with Annunciation of "K, " .It indicates the value in kA.

Pressing the "↓" key accepts the decimal point position and enters into Current Transformer Primary value edit.



Current Transformer Primary value Edit

Pressing the "↑" key will scroll the value of the most significant digit.

Pressing the "↓" key accepts the present value at the cursor position and advances the cursor to the next Less significant digit.

When the least significant digit has been set ,pressing the "↓" key will advance to the "Current transformer Primary Value Confirmation "screen.

Note : the flashing decimal point indicates the cursor position ,a steady decimal point will be present to identify the scaling of the number until the cursor position coincides with the steady decimal point position. At this stage the decimal point will be flashing.



Current Transformer Primary Value Confirmation

This screen will only appear following an edit of the Current Transformer Primary Value.

If the set value is to be corrected ,pressing the "↑" key will return to the "Current Transformer Primary Value Edit "stage.

Pressing the "↓" key sets the value and then advance to the "Auto Scrolling or Fixed screen" Selection menu .(See section 3.1.4)

3.1.4 Selection of Auto Scrolling or fixed Screen



Pressing the "key will accept the edited value and exit from set up and enter into measurement mode.

Pressing the "key will scroll between "Yes "and "No."

Select "Yes "for Auto scrolling of parameter display and Select "No "for fixed display screen.

Pressing the "key will enter into Screen selection Confirmation screen.



Auto /Fixed Screen Confirmation

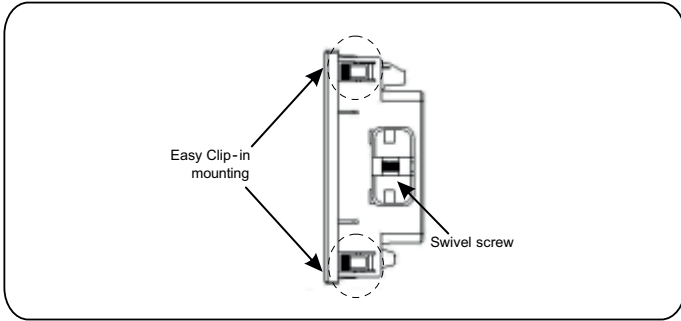
Pressing the "key set the selected option and Exit set up with entering into measurement mode.

Pressing the "key re-enter Screen selection menu.

4 .Installation

Mounting of EINE V/A is featured with easy "Clip-in "mounting .Push the meter in panel slot (size 92 x92 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.



As the front of the enclosure conforms to IP 50. 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.

TheEINE V/A should be mounted in a reasonably stable ambient temperature and where the operating temperature is within the range 0 to 50 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.

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.

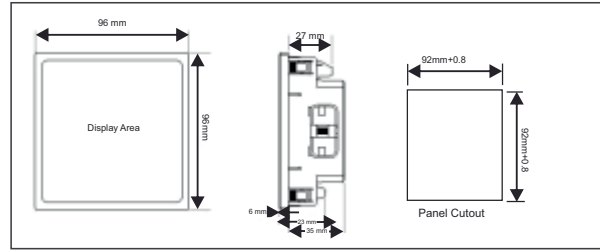
Note:It is good practice to install sensitive electronic instruments that are performing critical functions ,in EMC enclosures that protect against electrical interference which could cause a disturbance in function.

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

4.2 Case Dimensions and Panel Cut Out

4.2.1 for 96X96 models



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 inputs will accept up to 4mm² (12 AWG) or 2.5mm² (12AWG)Standard

- Note :1 (It is recommended to use wire with lug for connection with meter.**
- 2 (For disconnecting the device a switch or circuit-breaker shall be included at the site and it shall be within easy reach of the operator.**

4.4 Auxiliary Supply

EINE V/A 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.

4.5 Fusing

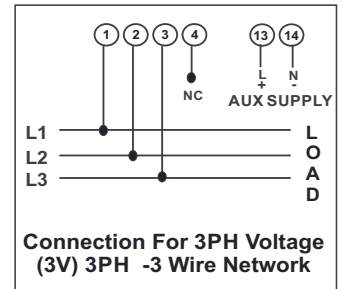
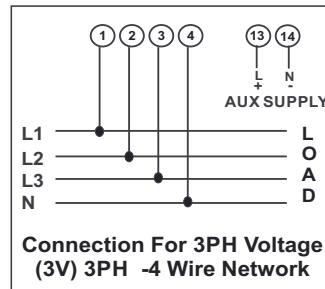
It is recommended that all voltage lines are fitted with 1 amp HRC fuse.

4.6 Earth/Ground Connections

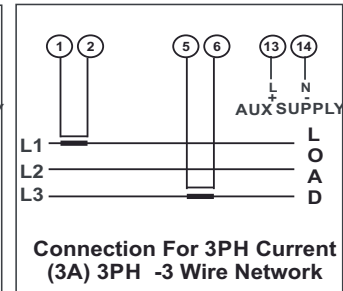
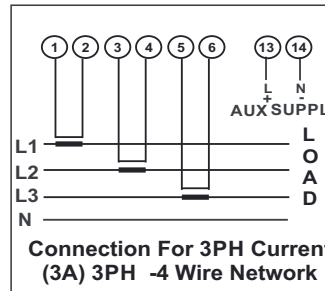
For safety reasons ,panels and accesories should be grounded in accordance

5 .Connection Diagrams

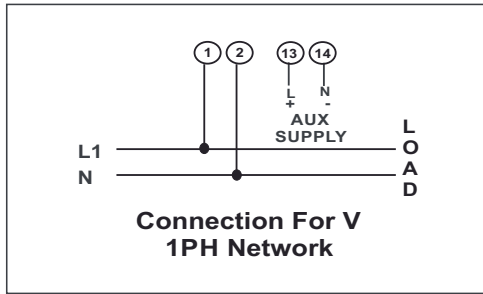
5.1 Connections for EINE 3V



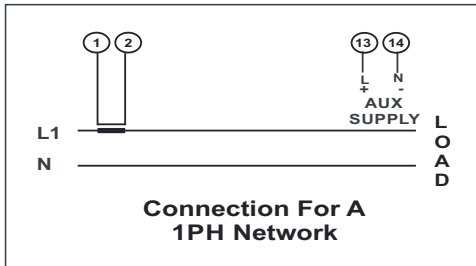
5.2 Connections for EINE 3A



5.3 Connections For EINE V



5.4 Connections For EINE A



6 .Specifications :

Input voltage (EINE V):

Nominal Input Voltage Ranges	Line -Neutral	Line -Line
	57.7 V -70 V L-N	100 V -120 V L-L
	70.1 V -140 V L-N	120.1 V -240 V L-L
	139.1 V -277 V L-N	240.1 V -480 V L-L
Max continuous input voltage	120 %of rated value	
Nominal input voltage burden	>0.3VA approx .per phase	
System PT Primary values	100VL-L to 999kV L-L	

Input current (EINE A):

Nominal Input Current Ranges	1A or 5A AC RMS
System CT Primary values	1A to 999kA(for 1A or 5A)
Max continuous input current	120 %of rated value
Nominal input voltage burden	>0.2VA approx .per phase

Overload Indication :

-"oL"-
(If input is greater than 125 %of secondary value.)

Auxiliary Supply :

AC-DC Auxiliary Supply	40V to 300V AC/DC (-/+5%)
ACAuxiliary Supply	110V to 300V AC
Frequency Range for AC Aux .Supply	45 to 65 Hz
VA Burden	>3 VA at Axillary 240V AC .

Overload Withstand :

Voltage	2 X Rated Value for 1 Second ,repeated 10 times at 10 second interval.
Current	20 X Rated Value for 1 Second ,repeated 5 times at 5 min interval.

Operating Measuring Ranges

Voltage Range	10 ...120 %of Rated Value
Current Range	10 . 120 % of Rated Value
Frequency	45 ...65 Hz

Reference conditions for Accuracy :

Reference temperature	23°C ±2°C
Input waveform	Sinusoidal (distortion factor 0.005)
Auxiliary supply voltage	Rated Value ±1 %
Auxiliary supply frequency	Rated Value ±1 %
Voltage Range	20...100 %of Nominal Value
Current Range	10...100 %of Nominal Value

Accuracy

Voltage (3V /V)	±1.0 %of Nominal value.
Current (3A /A)	± 1.0 %of Nominal value.

Temperature Coefficient

Voltage	0.025 /%C
Current	0.05 /%C

(For Rated value range of use 0 ...50°C)

Display

LED	1 line 4 digits .
Digit height	14mm
Annunciator LEDs	For Displaying Units and Parameter
Update rate	Approx .2-3 seconds

Controls

User Interface	2 Keys
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Applicable Standards

EMC	IEC 61326-1:2005
Safety	IEC 61010-1 :2001,Permanently Connected use
IP for water & dust	IEC 60529

Safety

Pollution Degree	2
Installation Category	III
High Voltage Test	2.2 kV AC ,50 Hz for 1 minute

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	-25 to 70°C
Relative humidity	0 ..90 %(Non condensing)
Warm up time	Minimum 3 minute
Shock	15g in 3 planes
Vibration	10 ..55 Hz ,0.15mm amplitude

Enclosure

Front	IP50
Front with seal(option)	IP65
Back	IP20

Dimension and weight:

Bezel Size (DIN 43718)	96mm X 96mm (DIN 43718)
Panel Cut-Out	92 +0.8mm X 92 +0.8mm
Overall Depth	40mm
Weight	310g Approx.

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, Company has no control over the field conditions which influence product installation.
It is the user's responsibility to determine the suitability of the installation method in the user's field conditions. Company only obligations are those in Company standard Conditions of Sale for this product and in no case will Company be liable for any other incidental, indirect or consequential damages arising from the use or misuse of the products.