OPERATING MANUAL

PROGRAMMABLE DPM

DMAN-00IM-0764 Rev_B 09/2019

INDEX

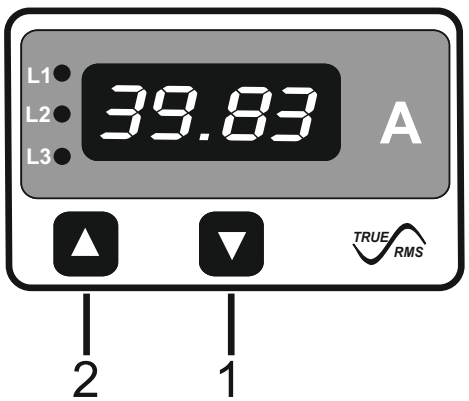
PROGRAMMABLE DPM

AC Ammeter (3Φ)

Installation & Operating Instructions

1. Introduction

The Instrument is a panel mounted 48 x 96mm Digital Panel Meter for the measurement of AC current in three Phase. The Instrument accepts input from 3PH nano CT.



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 :
CT Primary and Auto Scrolling.

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

1. ⬇ : Scrolls through parameter in upward sequence. Display sequence L1 current, L2 current, L3 current, System Current and back to L1.
2. ⬆ : Scrolls the parameters in Reverse of above sequence.

TABLE 1: Parameters Displayed

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.

3. Programming

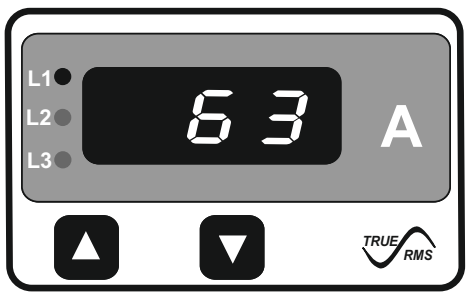
The following sections comprise step by step procedures for configuring the Instrument. To access the set-up screens press and hold the "⇧" and "⇩" Keys Simultaneously.

This will take the User into the Current Transformer Primary value selection Screen Followed by "CtPr" on Display (Sec 3.1).

3.1 Set Up Screens

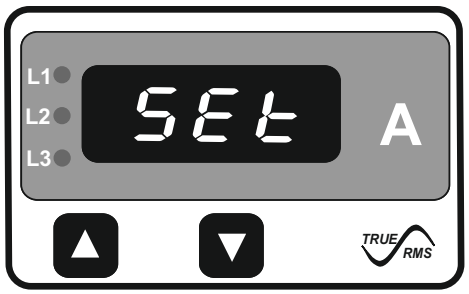
3.1.1 Current Transformer Primary Value

This screen displays "CtPr" message followed by previously set CT primary value on display. This screen enables user to set CT primary as 63 or 125 or 250 A.



Pressing the "⇧" key scrolls through values 63, 125 and 250.

Pressing the "⇩" key accepts the present value and advances to the "Auto Scrolling or Fixed Screen Selection" menu.



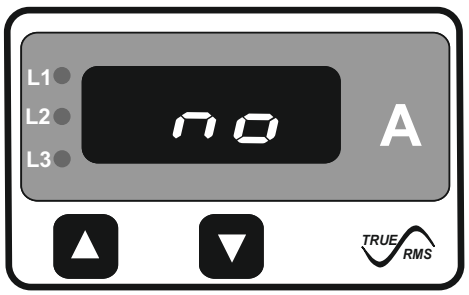
Current Transformer Primary Value Confirmation

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" .

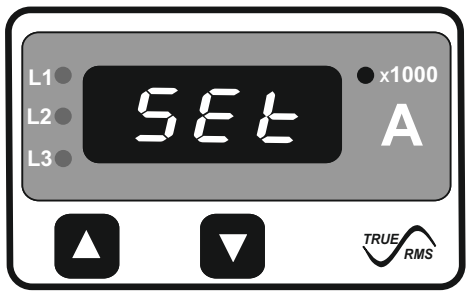
3.1.2 Selection of Auto Scrolling or fixed Screen



Pressing the "⇩" key will accept the display 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.



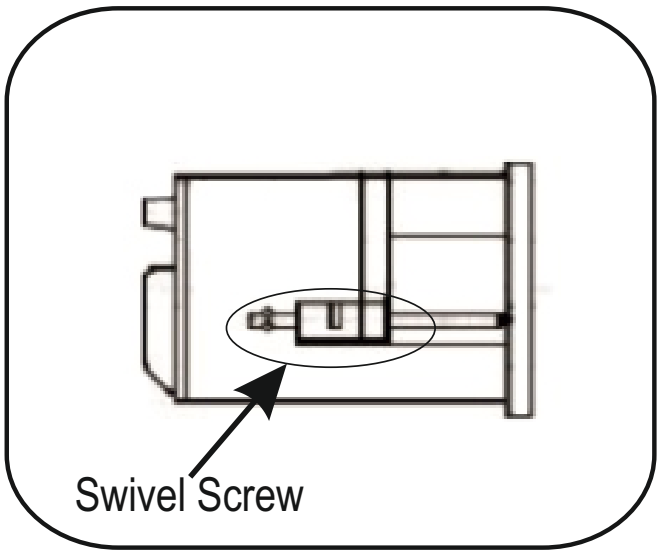
Auto / Fixed Screen Confirmation

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 Instrument is featured with easy mounting. Push the meter in panel slot, 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.

The Instrument should be mounted in a reasonably stable ambient temperature and where the operating temperature is within the range 0 to 50 ^{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 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.

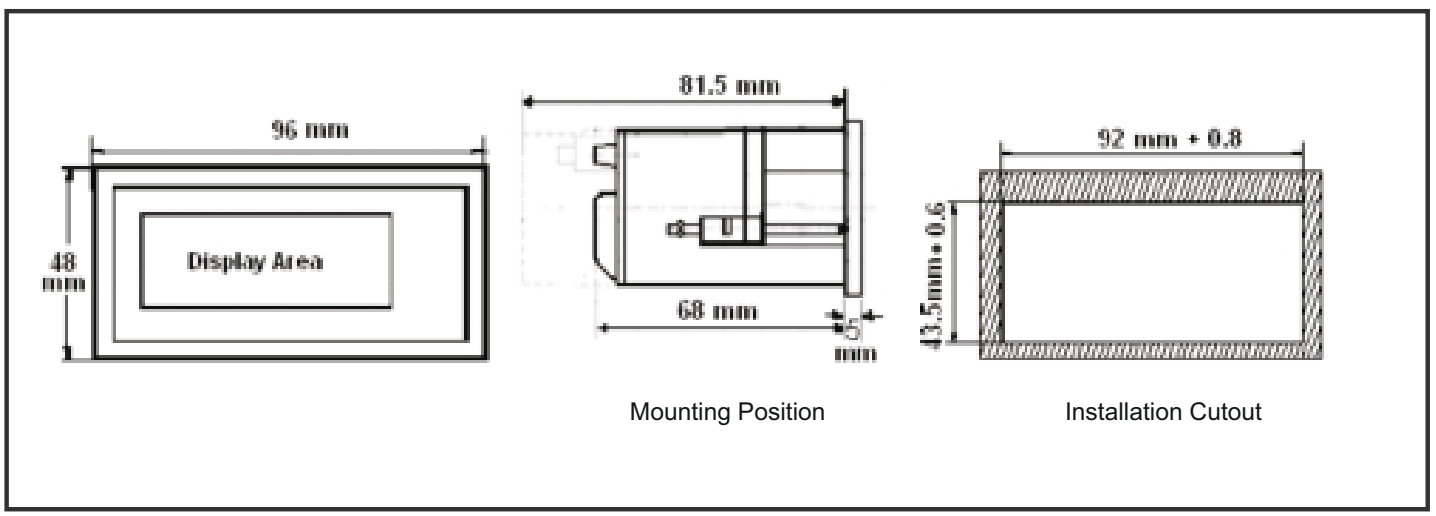
   Note: It is good practice to install sensitive electronic instruments that are performing critical functions, in EMC enclosures that protect against electrical interference which could cause a disturbance in function.

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

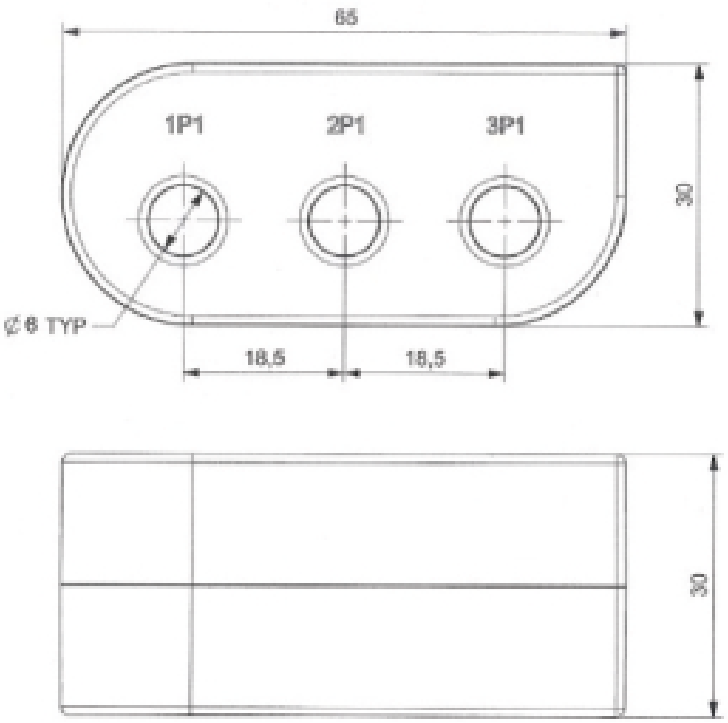


Mounting Position

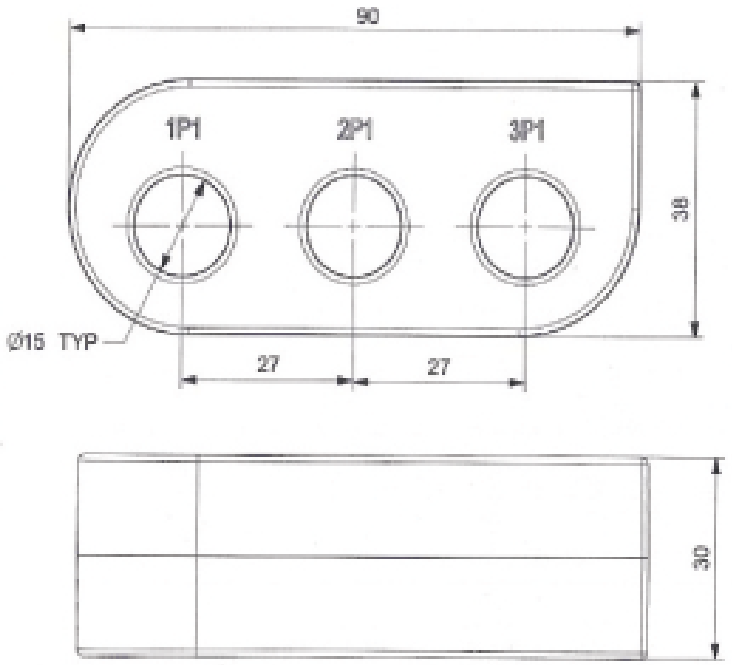
Installation Cutout

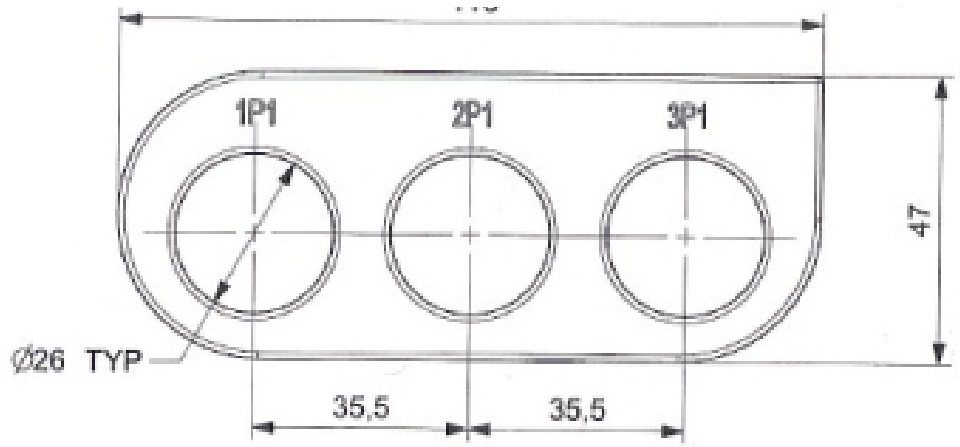
4.2.1 Case Dimensions of Current Transformer

X308: 63A / 100mA CT

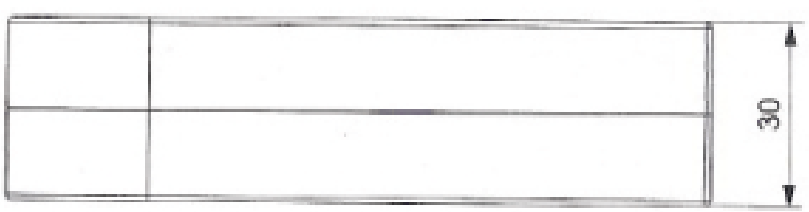


X306: 125A / 100mA CT





X307: 250A / 100mA CT



4.3 Wiring

Input connections are made directly to connector type for 48 x 96mm DPM.
Numbering is clearly marked on the connector. Choice of cable should meet local regulations.

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 shall be within easy reach of the operator. The specification are as below.
For aux. = At least 1.5 times of applied Power supply.

4.4 Auxiliary Supply

EINE 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

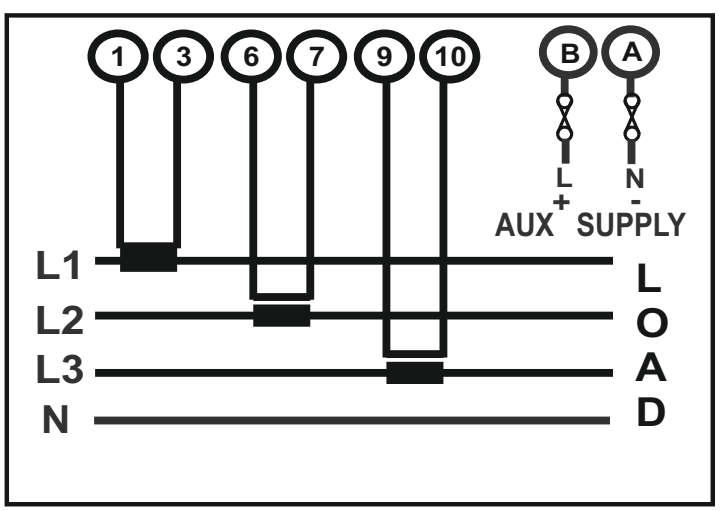
For safety reasons, panels and accesoriess should be grounded in accordance

5. Connection Diagrams

Connect External Current Transformer Secondary as shown below.

1 - COM	6 - COM	9 - COM
3 - 1S1	7 - 2S1	10 - 3S1

Note:- All COM Terminals of Meter are internally shorted.
No need to short externally.



6. Specifications :

Input current:

Nominal Input Current Ranges	100 mA (External 3PH Nano CT Input)
System CT Primary values	63 or 125 or 250 A Programmable onsite
Max continuous input current	120% of rated value
Nominal input current burden	<0.1VA approx. per phase
Overload Indication :	"-oL-"
For continuous input current 120%	(If input is greater than 125% of secondary value)

Auxiliary Supply :

AC-DC Auxiliary Supply	40V to 300V AC/DC (+/- 5%) 20V to 60V DC / 20V to 40V AC
Frequency Range for AC Aux. Supply	45 to 65 Hz
VA Burden	< 4 VA at 240V, 50Hz < 1 VA at 24V AC/DC

Operating Measuring Ranges

Current Range	5 ... 120 % of Rated Value
Frequency	45 ... 65 Hz

Overload Withstand :

Current	4 X Rated Value for 1 Second, repeated 5 times at 5 min interval.

Reference conditions for Accuracy :

Reference temperature	23 ^{0}C $\pm$ 2 ^{0}C
Input waveform	Sinusoidal (distortion factor 0.005)
Auxiliary supply voltage	Rated Value $\pm$ 1 %
Auxiliary supply frequency	Rated Value $\pm$ 1 %
Input Frequency	50 Hz / 60 Hz
Current Range	10...100% of Nominal Value

Accuracy

Current	0.5% of Nominal value.

Temperature Coefficient

Current	0.05% / ^{0}C (For Rated value range of use 0... 50 ^{0}C)

Display

LED	1 line 4 digits .
Digit height	14mm
Annunciator LEDs	For Displaying Units and Parameter

Controls

User Interface	2 Keys

Applicable Standards

EMC	IEC 61326-1:2005 10V/m min-Level 3 industrial low level Electromagnetic radiation environment
Safety	IEC 61010-1: 2001,Permantly 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 ^{0}C
Storage temperature	-25 to 70 ^{0}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
Back	IP20
Material	Polycarbonate Housing ,
Terminals	Screw-type terminals

Dimension and weight:

Bezel Size (DIN 43718)	48mm X 96mm
Panel Cut-Out	43.5 + 0.6mm X 92 + 0.8mm
Overall Depth	81.5 mm
Weight	250g 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, 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 obligations are those in Manufacturer standard Conditions of Sale for this product and in no case will Manufacturer be liable for any other Incidental, indirect or consequential damages arising from the use or misuse of the products.

WARRANTY

Dear Customer,

You are now the privileged owner of **DPM**, 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 **DPM**.
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 **DPM** 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 : _____