INTER ELEKTRIK ELEKTRONIK LTD.
PM-DM/PM-DMR DIGITAL MULTIMETER USER GUIDE

1. INTRODUCTION

PM-DM/PM-DMR is microcontroller based device designed to measure current and voltage of three phases and frequency of the system. Device also stores minimum and maximum demands for both current and voltage and is capable to display these values to the user when desired.

2. USING DIGITAL MULTIMETER

All connections have to be done according to **connection** schematic (Figure-1). When power is applied for the first time in order to see current levels correctly current transformer ratio have to be set to appropriate value. After this setting is done device will start displaying correct values. L1, L2, L3 point to three phases and N indicates neutral connection. Outputs of main current transformers have to be connected to k1, k2, k3 and l1,2,3 pins. This means that "k" pins of CTs have to be connected seperately and "l" pins have to be wired together and connected to l1,2,3 pin of R5-DM.

2.1. Setting Current Transformer Ratio

Press SET button. "CTR" and "SET" will be displayed on the lower side of display consequently.Press "SET" button again. The lowest display will show current CTR value (default is 5). Pressing "UP" or "DOWN" buttons enable user to adjust the desired CTR value. Once "SET" button is pressed again the adjusted value will be saved in non-volatile memory. Press "UP" button until "ESC" appears on the lowest display. Press "SET" button again. After a short time device will start displaying current, voltage and frequency values on the displays.

2.2. Setting Over Voltage Level

In normal operation, press "SET" button. Press "UP" button untill "UuL" "SEt" appears on display. Pressing "SET" button again will indicate "Over Voltage Limit." on the lowest display Adjust the desired value and press "SET" button to save. Press "UP" button until "ESC" appears on lowest display. Press "SET" button to Escape. After a short time device will start displaying current, voltage and frequency values on the displays.

2.3. Setting Under Voltage Level

In normal operation, press “SET” button. Press “UP” button untill “UdL” “SET” appears on display. Pressing “SET” button again will indicate “Under Voltage Limit.” on the lowest display Adjust the desired value and press “SET” button to save. Press “UP” button until “ESC” appears on lowest display. Press “SET” button to Escape. After a short time device will start displaying current, voltage and frequency values on the displays.

2.4. Setting Over Current Value

In normal operation, press “SET” button. Press “UP” button untill “IuL” “SEt” appears on display. Press “SET” button again the lowest display will show “ “”Over Current Limit” Adjust the desired value and then press “SET” button to save. Press “UP” button until “ESC” appears on lowest display. Press “SET” button to Escape. After a short time device will start displaying current, voltage and frequency values on the displays.

3. VIEWING CURRENT, VOLTAGE AND FREQUENCY

In normal operation, device displays current of three phases at the same time on first three displays.

Fourth display shows the voltage of one phase and one of the three leds on left side of the display lights. This LED indicates which line’s voltage is being displayed currently. Pressing “UP” or “DOWN” buttons will change the current information of fourth display. User can see voltage levels of three phases to neutral or phase to phase voltages by pressing one of this buttons sequentialy. Each pressing of buttons will update the status of LEDs on left side of fourth display by giving information to the user about which of the reading is to be displayed. Fifth display gives information about line frequency in normal operation.

4. VIEWING MAXIMUM AND MINIMUM DEMANDS

Press “SET” button when device is in normal operation mode. Press “UP” button until “LHı” appears on the lowest display. At this time first three displays give information about maximum reading of currents for three phases. The fourth display shows maximum reading for selected voltage line. Line selection is done by “SET” button in this operation status. Each pressing of “SET” button will change information of fourth display and LED status as well.

If user continues pressing “UP” button until lowest display shows “LLo” the first three displays will give information about minimum reading of currents of three phases.Hence, fourth display will show the minimum value of voltage for the selected line. Selection can be done by “SET” button.

Keep pressing “UP” button until the lowest display shows “ESC” and then “SET” is pressed to Escape . Consequently this will shift the device into its normal operation status by which it gives information about voltage, current and frequency values.

IMPORTANT NOTE: MULTIMETER HAS TWO VERSIONS WITH THE ORDER NO; PM-DM AND PM-DMR. PM-DM IS THE ONE WITHOUT CONTACT OUTPUTS AND NO-

ADJUSTABLE OVER VOLTAGE/CURRENT LIMITS IN ADDITION TO ABSENCE OF NC1.C1.NO1.NC2 AND NO2 CONNECTION POINTS., BUT HOWEVER OPERATINGWISE OF TWO MODELS(PM-DM/PM-DMR) DO NOT DIFFERENTIATE

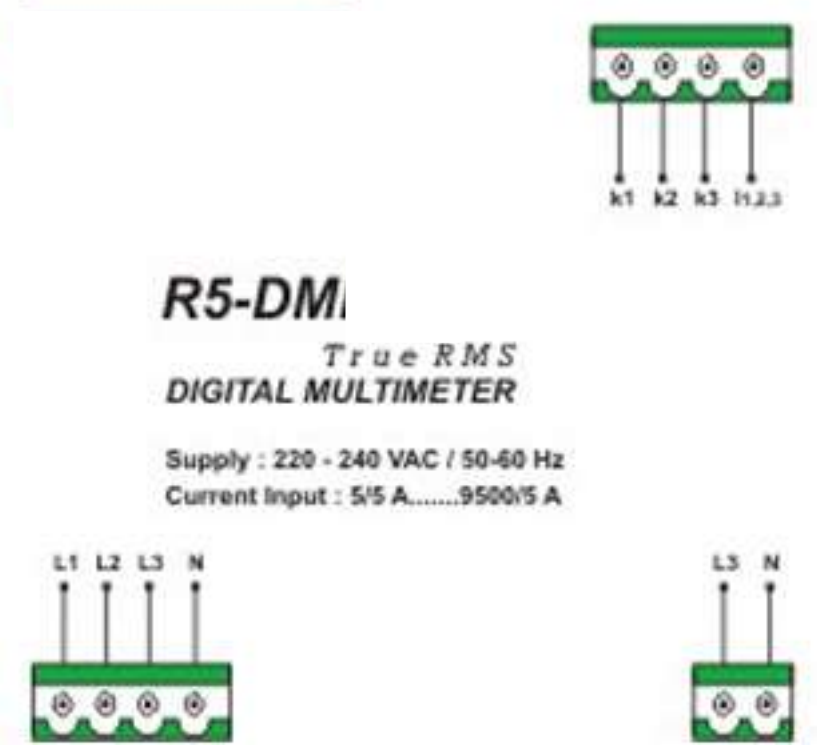

Figure-1 Connection Pins