

**selec****MRJ385-G-PNW**  
Operating Instructions**SPECIFICATIONS****DISPLAY**

Liquid crystal display with backlight  
4 lines, 4 digits per line to show electrical Parameters  
5th line, 8 digits to show energy  
Bar graph for current indication as percentage of CT rating

**LCD INDICATIONS**

- Integration of energy
- Unit is in configuration menu
- Communication in progress
- Maximum & Minimum Demand of Power

**WIRING INPUT**

3 Ø - 4 wire, 1 Ø - 2 wire

**RATED INPUT VOLTAGE**

100 to 240V AC (L-N) ; 173 to 415V AC (L-L)

**FREQUENCY RANGE**

45-65 Hz

**CT PRIMARY**

5A to 10,000A (Programmable for any Value)

**CT SECONDARY**

330mV

**PT PRIMARY**

100V to 500kV (Programmable for any value)

**PT SECONDARY**

173 to 415V AC (L-L)(Programmable for any value)

**Display update time**

1 sec for all parameters

**Display Scrolling**

Automatic / Manual

**AUXILIARY**

Self supplied

**INSTALLATION CATEGORY : III****TEMPERATURE**

Operating : 0 to 50°C

Storage : -20 to 75°C

**HUMIDITY**

85% non-condensing

**MOUNTING**

Panel mounting

**WEIGHT**

230gms

**OUTPUT**

**Pulse Output** : Voltage range : External 24VDC max.

Current capacity : 100 mA max

**Pulse Width** : Selectable between 0.1s to 2.0s

**SERIAL COMMUNICATION**

|  |  |
|--|--|
| <b>Interface standard &amp; protocol</b> | RS485 & MODBUS RTU                               |
| <b>Communication address</b>             | 1 to 255   |
| <b>Transmission mode</b>                 | Half duplex                                      |
| <b>Data types</b>                        | Float and Integer                                |
| <b>Transmission distance</b>             | 500 Metre maximum                                |
| <b>Transmission speed</b>                | 300, 600, 1200, 2400, 4800, 9600, 19200 (in bps) |
| <b>Parity</b>                            | None, Odd, Even                                  |
| <b>Stop bits</b>                         | 1 or 2   |
| <b>Response time</b>                     | 100 ms<br>(max and independent of baud rate)     |

**ACCURACY**

| Measurement              | Accuracy  |
|--------------------------|---|
| Voltage $V_{L-N}$        | ±0.5% of Full scale                                     |
| Voltage $V_{L-L}$        | ±0.5% of Full scale                                     |
| Current                  | ±0.5% of Full scale                                     |
| Frequency                | ±0.1%<br>For L-N Voltage >20V ,<br>For L-L Voltage >35V |
| Active Power             | 1%  |
| Apparent power           | 1%  |
| Reactive Power           | 1%  |
| Power factor             | ±0.01   |
| Active energy            | 1%  |
| Reactive energy          | 1%  |
| Apparent energy          | 1%  |
| MAX / MIN Active Power   | 1%  |
| MAX / MIN Reactive Power | 1%  |
| MAX Apparent Power       | 1%  |

**RESOLUTION :**

| PT Ratio x CT Ratio | kWh / kVAh / kVArh | Pulse |
|---------------------|--------------------|-------|
| <15                 | 0.01K              | 0.01K |
| <150                | 0.1K               | 0.1K  |
| <1500               | 1K                 | 1K    |
| <15000              | 0.01M              | 0.01M |
| <150000             | 0.1M               | 0.1M  |
| ≥1500000            | 1M                 | 1M    |

**NOTE :** 1) For Voltage, Current, Power, Resolution is automatically adjusted.

2) For power factor, resolution is 0.001

3) blinks after every 5 seconds, if load is connected on at least any one of 3 phases.

**RESOLUTION FOR CT RATING :**

| CT Rating | kWh  |
|-----------|------|
| 160A      | 0.1K |
| 250A      | 0.1K |
| 400A      | 0.1K |
| 800A      | 1K   |

**SAFETY PRECAUTIONS**

All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument.

If the equipment is not used in a manner specified by the manufacturer it might impair the protection provided by the equipment.

**CAUTION**

Read complete instructions prior to installation and operation of the unit.

**CAUTION : Risk of electric shock.****WIRING GUIDELINES****WARNING:**

- To prevent the risk of electric shock, power supply to the equipment must be kept OFF while installing the wiring.
- Wiring shall be done strictly according to the terminal layout. Confirm that all connections are correct.
- Cable used for connection to power source, must have a cross section of 1.5mm<sup>2</sup>. These wires shall have current carrying capacity of 6A.
- Before attempting work on device, ensure absence of voltages using appropriate voltage detection device.

**MAINTENANCE**

- The equipment should be cleaned regularly to avoid blockage of ventilating parts.
- Clean the equipment with a clean soft cloth.  
Do not use Isopropyl alcohol or any other cleaning agent.

**INSTALLATION GUIDELINES****CAUTION :**

- This equipment, being of a built-in-type, normally becomes a part of a main control panel and in such case the terminals do not remain accessible to the end user after installation and internal wiring.
- Conductors must not come in contact with the internal circuitry of the equipment or it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator.
- Protection & disconnection means must be installed between power source and supply terminals to facilitate power 'ON' or 'OFF' function & must be installed in a convenient position normally accessible to the operator.

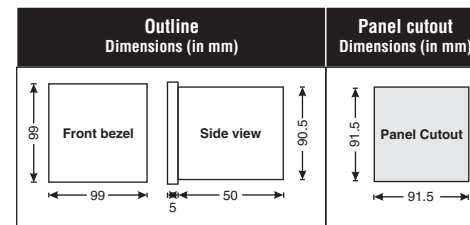
**CAUTION :**

The equipment shall not be installed in environmental conditions other than those mentioned in this manual.

**MECHANICAL INSTALLATION**

For installing the meter

- Prepare the panel cutout with dimensions as shown below:



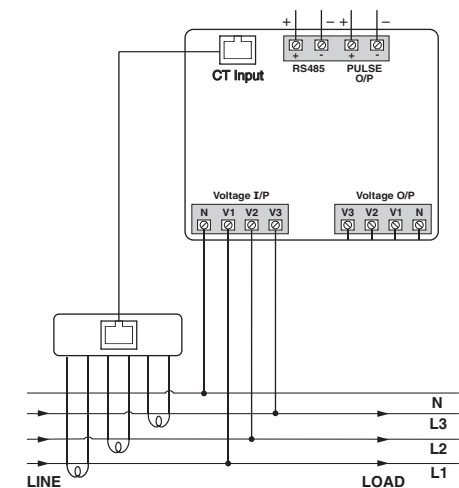
- Push the meter into the panel cutout. Secure the meter in its place by fitting the clamp from the rear side. Fit clamps on both sides in diagonally opposite location for optimum fitting.
- For proper sealing, tighten the screws evenly with required torque.
- Recommended conductor cross section = 1.5mm<sup>2</sup>  
Screw clamp tightening torque = 0.1N-m

**CAUTION:**

The equipment in its installed state must not come in close proximity to any heating sources, caustic vapors, oil, steam, or other unwanted process by-products.

**EMC Guidelines:**

- Use input power cables with shortest connections.
- Layout of connecting cables shall be away from any internal EMI source.

**TERMINAL CONNECTIONS**

## FRONT PANEL DESCRIPTION



## ONLINE PAGE DESCRIPTION

There are 6 dedicated keys labelled as V, I, VAF, PF, P, E. Use these 6 keys to read meter parameters. Simply press these keys to read the parameters.

| KEY PRESS   | ONLINE PAGE DESCRIPTION   |
|-------------|---|
| Press "V"   | <b>The first screen (Page 1)</b> : Displays line to neutral voltage of three phase and average line to neutral voltage.   |
|             | <b>The second screen (Page 2)</b> : Displays line to line voltage of three phase and average line to line voltage.  |
|             | <b>The third screen (Page 3)</b> : Displays percentage harmonics of line to neutral voltage of three phase and average percentage harmonic of line to neutral voltage.                |
|             | <b>The fourth screen (Page 4)</b> : Displays percentage harmonics of line to line voltage of three phase and average percentage harmonic of line to line voltage.                     |
|             | <b>The fifth screen</b> : Press for 3 sec, Displays phase sequence detection.<br><b>Note</b> : In 1 Ø 2W system only first, third and fifth page will be available of selected phase. |
| Press "I"   | <b>The first screen (Page 5)</b> : Displays phase current of three phase and neutral current.   |
|             | <b>The second screen (Page 6)</b> : Displays phase maximum current demand of three phase and average current.   |
|             | <b>The third screen (Page 7)</b> : Displays percentage harmonic of current of three phase and average percentage harmonic of current.   |
|             | <b>The fourth screen</b> : Press for 3 sec, Displays current correction indication page.  |
|             | <b>The first screen (Page 8)</b> : Displays voltage, current, power factor of first phase and frequency.  |
| Press "VAF" | <b>The second screen (Page 9)</b> : Displays voltage, current, power factor of second phase and frequency.  |
|             | <b>The third screen (Page 10)</b> : Displays voltage, current, power factor of third phase and frequency.   |
|             | <b>The fourth screen (Page 11)</b> : Displays average value of voltage, current and power factor of three phases and frequency.   |
|             | <b>Note</b> : In 1 Ø 2W system only one screen will be available of selected phase.   |
|             | <b>The first screen (Page 12)</b> : Displays power factor of three phase and average power factor.  |
| Press "PF"  | <b>The first screen (Page 13)</b> : Displays active power of three phase and total active power.  |
|             | <b>The second screen (Page 14)</b> : Displays reactive power of three phase and total reactive power.   |

| KEY PRESS | ONLINE PAGE DESCRIPTION  |   |
|-----------|--|---|
| Press "P" | <b>The third screen (Page 15)</b> : Displays apparent power of three phase and total apparent power.   |   |
|           | <b>The fourth screen (Page 16)</b> : Displays active, reactive, apparent power and power factor of first phase.  |   |
|           | <b>The fifth screen (Page 17)</b> : Displays active, reactive, apparent power and power factor of second phase.  |   |
|           | <b>The sixth screen (Page 18)</b> : Displays active, reactive, apparent power and power factor of third phase.   |   |
|           | <b>The seventh screen (Page 19)</b> : Displays total active, reactive, apparent power and average power factor of three phase.   |   |
|           | <b>The eighth screen (Page 20)</b> : Displays maximum active power demand, reactive power demand and apparent power demand.  |   |
|           | <b>The ninth screen (Page 21)</b> : Displays minimum active power demand and reactive power demand.<br><b>Note</b> : In 1 Ø 2W system only first, second, third, eighth and ninth screen will be available also for 1 Ø 2 W-P1 fourth, 1 Ø 2 W-P2 fifth and 1 Ø 2 W-P3 sixth page will be available. |   |
|           | <b>Press "E"</b>   | <b>The first Screen</b> : Displays import active energy of first phase.<br><b>The second screen</b> : Displays import active energy of second phase.<br><b>The third screen</b> : Displays import active energy of third phase.<br><b>The fourth screen</b> : Displays export active energy of first phase.<br><b>The fifth screen</b> : Displays export active energy of second phase.<br><b>The sixth screen</b> : Displays export active energy of third phase.<br><b>The seventh screen</b> : Displays total import active energy of three phase.<br><b>The eighth screen</b> : Displays total export active energy of three phase.<br><b>The ninth screen</b> : Displays total net active energy of three phase.<br><b>The tenth Screen</b> : Displays import reactive energy of first phase.<br><b>The eleventh screen</b> : Displays import reactive energy of second phase.<br><b>The twelfth screen</b> : Displays import reactive energy of third phase.<br><b>The thirteenth screen</b> : Displays export reactive energy of first phase.<br><b>The fourteenth screen</b> : Displays export reactive energy of second phase.<br><b>The fifteenth screen</b> : Displays export reactive energy of third phase.<br><b>The sixteenth screen</b> : Displays total import reactive energy of three phase.<br><b>The seventeenth screen</b> : Displays total export reactive energy of three phase.<br><b>The eighteenth screen</b> : Displays total net reactive energy of three phase.<br><b>The nineteenth screen</b> : Displays apparent energy of first phase.<br><b>The twentieth screen</b> : Displays apparent energy of second phase.<br><b>The twenty first screen</b> : Displays apparent energy of third phase.<br><b>The twenty second screen</b> : Displays total net apparent energy of three phase.<br><b>The twenty third screen</b> : Displays run hour. |
|           | <b>Note</b> : For 1 Ø 2W network, all page will be same as 3 Ø 4W only selected phase parameter will display.  |   |

## AUTOMATIC / MANUAL MODE DESCRIPTION

Press E (←) button for 3 seconds to toggle between Automatic and Manual mode.  
**Note** : By default unit operates in automatic mode. In automatic mode online pages scroll automatically at the rate of 5 seconds per page. In automatic mode when any key is pressed, unit temporarily switches to manual mode and the appropriate page is displayed, also if no key is pressed for 5 sec, unit resumes automatic mode.

## SERIAL NUMBER DESCRIPTION

Press PF (▲) key for 10sec. to display 8 digit serial number only for 10sec. at 5th line of display

## CONFIGURATION

There are 6 dedicated keys with symbols marked as ◀, ▶, ▼, ▲, ←, → use these 6 keys to enter into configuration menu / change setting.

**Note** : The settings should be done by a professional, after going through this users manual and after having understood the application situation. For the configuration setting mode :  
 ● Use ▲ + ▼ keys for 3 sec to enter or exit from the configuration menu.  
 ● Use ◀ or ▶ keys to move cursor left or right by one digit each time.  
 ● Use ▲ or ▼ keys for increasing or decreasing parameters value.  
 ● Use ← key to go back to previous page.  
 ● Use → key to save the setting and move on to next page.

| Config. page. | Function                 | Range or Selection                         | Factory Setting |
|---------------|--------------------------|--|-----------------|
|               | Password                 | 0000 to 9998                               | 1000            |
| 1             | Change Password          | No / Yes                                   | No              |
| 1.1           | New Password             | 0000 to 9998                               | 1000            |
| 2             | Network Selection        | 3P4W, 1P2W-P1, 1P2W-P2, 1P2W-P3            | 3P4W            |
| 3             | CT Secondary             | Preset                                     | 5               |
| 4             | CT Primary               | 5A to 10,000A (10.0kA)                     | 160             |
| 5             | PT Secondary             | 173V to 415V                               | 350             |
| 6             | PT primary               | 100V to 500kV                              | 350             |
| 7             | Slave Id                 | 1 to 255                                   | 1               |
| 8             | Baud Rate                | 300, 600, 1200, 2400, 4800, 9600 and 19200 | 9600            |
| 9             | Parity                   | None, Even, Odd                            | None            |
| 10            | Stop Bit                 | 1 or 2                                     | 1               |
| 11            | Back Light               | 0 to 7200 sec.                             | 0000            |
| 12            | Demand interval method   | Sliding / Fixed                            | Sliding         |
| 13            | Demand interval duration | 1 to 30                                    | 15              |
| 14            | Demand interval length   | 1 to 30 min                                | 1               |
| 15            | Max Page Auto            | 1 to 21                                    | 21              |
| 16            | Change Page Sequence     | No / Yes                                   | No              |

| Config page. | Function                    | Range or Selection | Factory Setting |
|--------------|-----------------------------|--------------------|-----------------|
| 16.01        | Page sequence 1             | Page 1 to 21       | 1               |
| 16.02        | Page sequence 2             | Page 1 to 21       | 2               |
| 16.03        | Page sequence 3             | Page 1 to 21       | 3               |
| 16.04        | Page sequence 4             | Page 1 to 21       | 4               |
| 16.05        | Page sequence 5             | Page 1 to 21       | 5               |
| 16.06        | Page sequence 6             | Page 1 to 21       | 6               |
| 16.07        | Page sequence 7             | Page 1 to 21       | 7               |
| 16.08        | Page sequence 8             | Page 1 to 21       | 8               |
| 16.09        | Page sequence 9             | Page 1 to 21       | 9               |
| 16.10        | Page sequence 10            | Page 1 to 21       | 10              |
| 16.11        | Page sequence 11            | Page 1 to 21       | 11              |
| 16.12        | Page sequence 12            | Page 1 to 21       | 12              |
| 16.13        | Page sequence 13            | Page 1 to 21       | 13              |
| 16.14        | Page sequence 14            | Page 1 to 21       | 14              |
| 16.15        | Page sequence 15            | Page 1 to 21       | 15              |
| 16.16        | Page sequence 16            | Page 1 to 21       | 16              |
| 16.17        | Page sequence 17            | Page 1 to 21       | 17              |
| 16.18        | Page sequence 18            | Page 1 to 21       | 18              |
| 16.19        | Page sequence 19            | Page 1 to 21       | 19              |
| 16.20        | Page sequence 20            | Page 1 to 21       | 20              |
| 16.21        | Page sequence 21            | Page 1 to 21       | 21              |
| 17           | Pulse Length                | 00.01 to 99.99     | 0.10            |
| 18           | Pulse duration              | 0.1 to 2.0         | 0.1             |
| 19           | Factory Default             | No / Yes           | NO              |
| 20           | Reset Energy and Max Demand | No / Yes           | NO              |
| 20.1         | Password                    | 0001 To 9999       | 1001            |
| 20.01        | Reset Active Energy         | No / Yes           | NO              |
| 20.02        | Reset Reactive Energy       | No / Yes           | NO              |
| 20.03        | Reset Apparent Energy       | No / Yes           | NO              |
| 20.04        | Reset Max Power             | No / Yes           | NO              |
| 20.05        | Reset Run Hour              | No / Yes           | NO              |

● For resetting energy parameters user will be prompted for password. If correct password is entered, the user will be able to reset all energy parameters. This password will be value which will be greater than the configuration password by 1.

## MODBUS REGISTER ADDRESSES LIST

Readable Parameters : [ Length (Register) : 2 ; Data Structure : Float ]

| Address | Hex Address | Parameter               | Address | Hex Address | Parameter                         |
|---------|-------------|-------------------------|---------|-------------|-----------------------------------|
| 30000   | 0x00        | Voltage V1N             | 30082   | 0x52        | Run hour                          |
| 30002   | 0x02        | Voltage V2N             | 30084   | 0x54        | kWh1 (Imp)                        |
| 30004   | 0x04        | Voltage V3N             | 30086   | 0x56        | kWh2 (Imp)                        |
| 30006   | 0x06        | Average Voltage LN      | 30088   | 0x58        | kWh3 (Imp)                        |
| 30008   | 0x08        | Voltage V12             | 30090   | 0x5A        | kWh1 (Exp)                        |
| 30010   | 0x0A        | Voltage V23             | 30092   | 0x5C        | kWh2 (Exp)                        |
| 30012   | 0x0C        | Voltage V31             | 30094   | 0x5E        | kWh3 (Exp)                        |
| 30014   | 0x0E        | Average Voltage LL      | 30096   | 0x60        | Total kWh (Imp)                   |
| 30016   | 0x10        | Current I1              | 30098   | 0x62        | Total kWh (Exp)                   |
| 30018   | 0x12        | Current I2              | 30100   | 0x64        | kVArh1 (Imp)                      |
| 30020   | 0x14        | Current I3              | 30102   | 0x66        | kVArh2 (Imp)                      |
| 30022   | 0x16        | Average Current         | 30104   | 0x68        | kVArh3 (Imp)                      |
| 30024   | 0x18        | kW1                     | 30106   | 0x6A        | kVArh1 (Exp)                      |
| 30026   | 0x1A        | kW2                     | 30108   | 0x6C        | kVArh2 (Exp)                      |
| 30028   | 0x1C        | kW3                     | 30110   | 0x6E        | kVArh3 (Exp)                      |
| 30030   | 0x1E        | kVA1                    | 30112   | 0x70        | Total kVArh (Imp)                 |
| 30032   | 0x20        | kVA2                    | 30114   | 0x72        | Total kVArh (Exp)                 |
| 30034   | 0x22        | kVA3                    | 30116   | 0x74        | kVAh1                             |
| 30036   | 0x24        | kVAr1                   | 30118   | 0x76        | kVAh2                             |
| 30038   | 0x26        | kVAr2                   | 30120   | 0x78        | kVAh3                             |
| 30040   | 0x28        | kVAr3                   | 30122   | 0x7A        | Neutral Current                   |
| 30042   | 0x2A        | Total KW                | 30124   | 0x7C        | THD of 1st Phase Voltage          |
| 30044   | 0x2C        | Total KVA               | 30126   | 0x7E        | THD of 2nd Phase Voltage          |
| 30046   | 0x2E        | Total KVAR              | 30128   | 0x80        | THD of 3rd Phase Voltage          |
| 30048   | 0x30        | PF1                     | 30130   | 0x82        | THD of Voltage V12                |
| 30050   | 0x32        | PF2                     | 30132   | 0x84        | THD of Voltage V23                |
| 30052   | 0x34        | PF3                     | 30134   | 0x88        | THD of Voltage V31                |
| 30054   | 0x36        | Average PF              | 30136   | 0x8A        | THD of Current I1                 |
| 30056   | 0x38        | Frequency               | 30138   | 0x8C        | THD of Current I2                 |
| 30058   | 0x3A        | Total net kWh           | 30140   | 0x8E        | THD of Current I3                 |
| 30060   | 0x3C        | Total net kVAh          | 30684   | 0x2AC       | Serial no. (Data Structure : Hex) |
| 30062   | 0x3E        | Total net kVArh         | 30700   | 0x2BC       | Phase Sequence Indication         |
| 30064   | 0x40        | kW Max Active Power     | 30702   | 0x2BE       | Existing KW MAX Active Power      |
| 30066   | 0x42        | kW Min Active Power     | 30704   | 0x2C0       | Existing KW MIN Active Power      |
| 30068   | 0x44        | kVAr Max Reactive Power | 30706   | 0x2C2       | Existing KVAr MAX Reactive Power  |
| 30070   | 0x46        | kVAr Min Reactive Power | 30708   | 0x2C4       | Existing KVAr MIN Reactive Power  |
| 30072   | 0x48        | kVA Max Apparent Power  | 30710   | 0x2C6       | Existing KVA MAX Apparent Power   |
| 30074   | 0x4A        | MAX I1 Demand           | 30712   | 0x2C8       | Existing MAX I1 Demand            |
| 30076   | 0x4C        | MAX I2 Demand           | 30714   | 0x2CA       | Existing MAX I2 Demand            |
| 30078   | 0x4E        | MAX I3 Demand           | 30716   | 0x2CC       | Existing MAX I3 Demand            |
| 30080   | 0x50        | MAX Avg Demand          | 30718   | 0x2CE       | Existing MAX Avg. I Demand        |

| Formula to find address of individual Harmonic |             |
|--|-------------|
| Constant Parameter                             | Meaning     |
| 0  | Voltage V1N |
| 1  | Voltage V2N |
| 2  | Voltage V3N |
| 3  | Voltage V12 |
| 4  | Voltage V23 |
| 5  | Voltage V31 |
| 6  | Current I1  |
| 7  | Current I2  |
| 8  | Current I3  |

{143 + [(Harmonic no-2) x 2] + 60 x Constant Parameter}

For Example,

To find the 14<sup>th</sup> Harmonic address of Voltage V31 following formula can be used :

Formula with the parameter :

{143 + [(Harmonic no-2) x 2] + 60 x C P}

Eg. {143 + [(14-2) x 2] + 60 x 5} = 467

So, Check the 14<sup>th</sup> Harmonic of Voltage V31 at 467 address.

| Readable / writable parameters : [Data Structure : Integer] |             |                              |                  |                              |                   |
|---|-------------|------------------------------|------------------|------------------------------|-------------------|
| Address   | Hex Address | Parameter                    | Range            |                              | Length (Register) |
|   |             |                              | Min value        | Max value                    |                   |
| 40000   | 0x00        | Password                     | 0                | 9998                         | 1                 |
|   |             |                              | <b>Value</b>     | <b>Meaning</b>               |                   |
| 40001   | 0x01        | N/W Selection                | 0x0000           | 3P4W                         | 1                 |
|   |             |                              | 0x0002           | 1P2W-P1                      | 1                 |
|   |             |                              | 0x0003           | 1P2W-P2                      | 1                 |
|   |             |                              | 0x0004           | 1P2W-P3                      | 1                 |
|   |             |                              | <b>Min value</b> | <b>Max value</b>             |                   |
| 40002   | 0x02        | CT Secondary (Readable Only) | 5                | 5                            | 1                 |
| 40003   | 0x03        | CT primary                   | 5                | 10000                        | 1                 |
| 40004   | 0x04        | PT Secondary                 | 173              | 415                          | 1                 |
| 40005   | 0x05        | PT primary                   | 100              | 500kV                        | 2                 |
|   |             |                              | <b>Value</b>     | <b>Meaning</b>               |                   |
| 40007   | 0x07        | Slave id                     | 1                | 255                          | 1                 |
| 40008   | 0x08        | Baud rate                    | 0x0000           | 300                          | 1                 |
|   |             |                              | 0x0001           | 600                          |                   |
|   |             |                              | 0x0002           | 1200                         |                   |
|   |             |                              | 0x0003           | 2400                         |                   |
|   |             |                              | 0x0004           | 4800                         |                   |
|   |             |                              | 0x0005           | 9600                         |                   |
|   |             |                              | 0x0006           | 19200                        |                   |
| 40009   | 0x09        | Parity                       | 0x0000           | None                         | 1                 |
|   |             |                              | 0x0001           | Odd                          |                   |
|   |             |                              | 0x0002           | Even                         |                   |
| 40010   | 0x0A        | Stop bit                     | 0x0000           | 1                            | 1                 |
|   |             |                              | 0x0001           | 2                            | 1                 |
|   |             |                              | <b>Min value</b> | <b>Max value</b>             |                   |
| 40011   | 0x0B        | Backlight OFF                | 0                | 7200                         | 1                 |
| 40012   | 0x0C        | Factory Default              | 1                | Set to factory setting range | 1                 |
| 40016   | 0x10        | Auto Mode Pages              | Min Value : 1    | Max Value : 21               |                   |

## MODBUS REGISTER ADDRESSES LIST

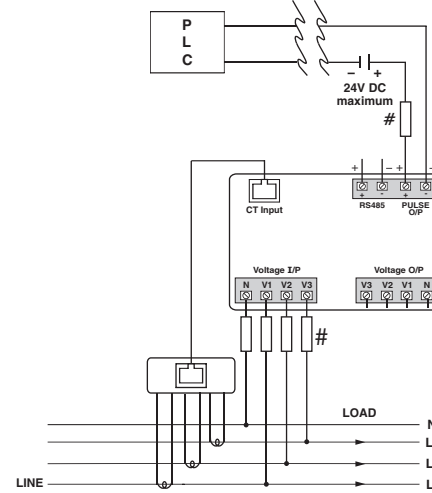
MODBUS register addresses list continued

Readable / writable parameters : [Data Structure : Integer]

| Address | Hex Address | Parameter                | Range            |   | Length (Register) |
|---------|-------------|--------------------------|------------------|---|-------------------|
|         |             |                          | Page No          | Meaning                                   |                   |
| 40017   | 0x11        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40018   | 0x12        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40019   | 0x13        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40020   | 0x14        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40021   | 0x15        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40022   | 0x16        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40023   | 0x17        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40024   | 0x18        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40025   | 0x19        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40026   | 0x1A        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40027   | 0x1B        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40028   | 0x1C        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40029   | 0x1D        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40030   | 0x1E        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40031   | 0x1F        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40032   | 0x20        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40033   | 0x21        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40054   | 0x36        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40055   | 0x37        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40059   | 0x3B        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
| 40060   | 0x3C        | Page Address Sequence    | 1-21             | 1-First Page ; 21-Last Page               | 1                 |
|         |             |                          | <b>Value</b>     | <b>Meaning</b>                            |                   |
| 40034   | 0x22        | Demand Interval Method   | 0X0000           | Sliding                                   | 1                 |
|         |             |                          | 0X0001           | Fixed                                     |                   |
| 40035   | 0x23        | Demand Interval Duration | MIN Value : 1    | MAX Value : 30                            | 1                 |
| 40036   | 0x24        | Demand Interval Length   | MIN Value : 1    | MAX Value : 30                            | 1                 |
| 40043   | 0x2B        | Reset Max                | 1                | Reset all Max power                       | 1                 |
| 40044   | 0x2C        | Reset Energy             | 1                | Reset all energy to factory setting range | 1                 |
| 40045   | 0x2D        | Reset Run Hour           | 1                | Reset Run hour                            | 1                 |
|         |             |                          | <b>Min value</b> | <b>Max value</b>                          |                   |
| 40057   | 0x39        | Pulse Duration           | 0.1(sec)         | 2.0(sec)                                  | 1                 |
| 40058   | 0x3A        | Pulse Weight             | 00.10            | 99.99                                     | 1                 |
|         |             |                          | <b>Value</b>     | <b>Meaning</b>                            |                   |
| 40063   | 0x3F        | Reset Max Current        | 1                | Reset Max Current                         | 1                 |

## APPLICATION OF PULSE OUTPUT

### ● PROCESS INTEGRATION



Pulse output from MRJ385-G-PNW meter can be interfaced into a process through a PLC for on line control of energy content in the process. If the PLC has a self excited digital input, external DC supply is not needed. The kWh pulse is also used to derive average kWh information at the PLC.

# All fuse types : 0.5A class CC UL type  
0.5A fast acting 600V

### LEFT HAND CT MOUNTING PHASE CORRECTION

The meter phases L1, L2 & L3 are setup as default for the CT to be mounted as an incomer or on the RH side of the board.

Meter display shows rH when "I" is pressed for 3 seconds.

When the CT is mounted on the LH side of the board the phase sequence needs to be reversed.

1. Press "I" for 3 seconds, then release and then press again for 3 seconds. Phase will be reversed and display will show LH
2. Wait 5 seconds for meter to resume online reading. Meter display shows LH when "I" is pressed for 3 seconds.

#### Meter / CT Ratio Setup -

the meter default CT setting is 160A. to set the meter to other CT sizes follow instructions below.

1. Press ▼ and ▲ keys together for 3 seconds to enter configuration menu.
2. To enter default password 1000 - Press ◀ then press ▲. Press ◀ 4 times to move on and to enter CT primary page 04.
3. Press ◀ or ▶ to select the digit to change and press ▲ or ▼ to raise or lower the CT value. Set to 250, 400 or 800 to match CT.
4. Press ◀ to save settings and move on.
5. Press ▼ and ▲ keys together for 3 seconds to exit configuration menu.

Specifications subject to change as development is a continuous process.

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