selec MRJ4M-MID / MRJ4M-SL-MID



SPECIFICATIONS

Display : Liquid crystal display with backlight
1 line,4 digits and 2 line, 7 digits per line to show electrical parameters
LCD Indications : **MD -** Maximum Demand of Power
- Communication in progress
LED Indications : **-** Integration of energy
Installation Categery : III (300V AC L-N)
Wiring Input : 3Ø-4 wire, 1Ø-2 wire - P1, P2, P3
MID certified Wiring Input : 3Ø-4 wire
Rated Input Voltage : Self powered at 85 to 240V AC (L-N)
147 to 415V AC (L-L)
Frequency Range : 45-65 Hz (MID Approved for 50Hz)
No of Channels
For MRJ4M-MID : 3Ø-1 Channel, 1Ø-3 Channel (Selectable)
For MRJ4M-SL-MID : 3Ø-2 Channel, 1Ø-6 Channel (Selectable)
CT Primary 1 &
CT Primary 2 : 1A to 6, 000A (Programmable for any Value)
CT Secondary : 0.01...1(1.2)A (Meter input 330mV)
PT Primary : 100V to 600V (Programmable for any value)
PT Secondary : 100 to 500V AC(L-L)(Programmable for any value)
Display Update Time : 1 Sec. For all parameters.
Temperature : Operating : -10°C...55°C, Storage: -20°C...75°C
Humidity : 85% non-condensing
Mounting : Din Rail mounting
Protection Class : Class II
Pollution Degree : 2
Meter Type : Indoor
Weight
For MRJ4M-SL-MID : 200gms
For MRJ4M-MID : 191gms
IP rating : IP51 (Front of housing only - this device must be installed within a suitable IP rated enclosure)
Communication : RS485 (Modbus RTU)
Pulse Output : Voltage range : 5-27V DC max.
Current capacity : 100mA max.
Pulse Duration : Selectable between (50...300ms)
Pulse Resolution : Selectable between 0.01 to 9.99kW

The meter is intended to be installed in Mechanical Environment `M1`,with Shock and Vibrations of low significance, as per 2004/22/EC Directive.
The meter is intended to be installed in Electromagnetic Environment `E2`, as per 2004/22/EC Directive.

ORDER INFORMATION

Product	Outputs	Certification	
MRJ4M-MID	RS485 (Modbus RTU) & Pulse Output	CE	MID
MRJ4M-SL-MID			

SERIAL COMMUNICATION

Interface standard and protocol	RS485 AND MODBUS RTU
Communication address	1 to 255
Transmission Mode	Half duplex
Data types	Float, Hex and Integer
Transmission distance	500 Meter maximum
Transmission speed	300, 600,1200, 2400, 4800, 9600, 19200 (in bps)
Parity	None, Odd, Even
Stop bits	1 or 2

MID APPROVAL INSTALLATION NOTES

For the installation to be valid the following steps must be followed:
1. The CT ratio must be set before putting the meter into service.
2. The Rj45 connection between the meter and the current transformer must be sealed.

ACCURACY

Measurement	Accuracy	Measurement	Accuracy
Voltage V_{L-N}	±0.5% of F.S.	Reactive Power	1%
Voltage V_{L-L}	±0.5% of F.S.	Power factor	±0.01 (Digit)
Current	±0.5% of F.S.	Active energy	EN50470-3: CI.B
Frequency For L-N > 20V, For L-L > 35V	±0.1% of F.S.	Reactive energy	Class 2
		MAX Active Power	1%
Active Power	1%	MAX Apparent Power	1%
Apparent power	1%		

(F.S - Full Scale)

RESOLUTION

PT Ratio x CT Ratio	<15	<150	<1500	<15000	<150000	≥1500000
kWh / kVAh / kVArh	0.01K	0.1K	1K	0.01M	0.1M	1M
PULSE	0.001K	0.01K	0.1K	1K	0.01M	0.1M
INT	0.01K	0.1K	1K	0.01M	0.1M	1M

NOTE : 1) For Voltage, Current and Power, resolution is automatically adjusted.
2) For power factor, resolution is 0.001

⚠ SAFETY PRECAUTIONS

Safety related notifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of personnel as well as the instrument.
If the equipment is not used in a manner specified by the manufacturer it may impair the protection provided by the equipment.

- Do not use the equipment if there is any mechanical damage.
- Ensure that the equipment is supplied with correct voltage.
- No repairs, maintenance or adjustments are possible.

⚠ CAUTION

1. Read complete instructions prior to installation or operation of the unit.
2. Risk of electric shock. Only to be installed by competent personnel.
3. The equipment in its installed state must not come in close proximity to any heating sources, oils, steam, caustic vapors or other unwanted process by-products.

⚠ WIRING GUIDELINES

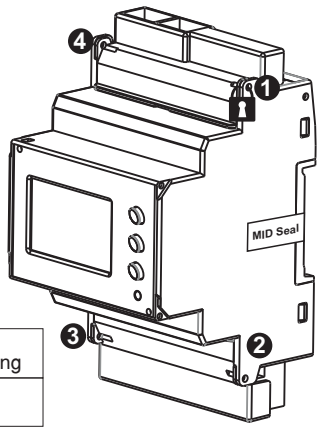
1. To prevent the risk of electrocution, always isolate the power supply to the equipment prior to undertaking any work. Always confirm absence of supply prior to starting work using appropriate voltage detection equipment.
2. Wiring shall be done strictly according to the terminal layout. Confirm that all connections are correct before energizing the equipment.
3. To reduce electromagnetic interference use of wires with adequate ratings and twists of equal size are recommended. All connection should be kept as short as possible.
4. Routing of connecting cables shall be away from any internal EMI source.
5. All cables used for connections must have a cross section of 0.5mm^2 to 2.5mm^2. (20 to 14AWG ; 75°C (min))
6. Copper cable should be used. (stranded or solid core cable)
7. All wiring to be in accordance with applicable local standards.

CONFIGURATION LOCK PARAMETER DESCRIPTION

NOTE: After entering the configuration mode, if any of the below mentioned parameters are changed, the user has only 15 minutes to make changes. After 15 minutes the below parameters will get locked and cannot be changed. Power ON/OFF in between will also lock the parameters. The Meter can only be unlocked by returning it to the factory for removal of the lock out.

1) Channel Selection
2) Network selection
3) CT Primary L1&L2
5) PT secondary
6) PT Primary
7) Factory Default

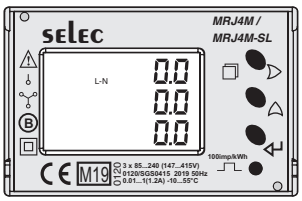
MID ANTI-TAMPERING PROVISION



NOTE:

🔒	Points 1, 2, 3 & 4 provided for locking
MID Seal	Sticker used for sealing the case.

FRONT PANEL DESCRIPTION



ONLINE PAGE DESCRIPTION

There are 2 dedicated keys with symbols marked as ▷ and △ to read meter parameters.

At power ON meter displays average phase to neutral voltage and active energy of three phases. The device will return to the default screen, 60 seconds after the last button press.

ONLINE PAGE DESCRIPTION FOR MRJ4M-MID

KEY PRESS	PARAMETER KEY	ONLINE PAGE DESCRIPTION
Press page (❐) key (1st time)	——	Displays line to neutral voltage of three phases.
	Press △ key	Displays line to line voltage of three phases.
	Press ▷ key 3 sec.	Displays voltage sequence.
Press page (❐) key (2nd time)	——	Displays phase current of three phases.
Press page (❐) key (3rd time)	——	Displays average phase to neutral voltage, current and power factor of three phases and frequency
	Press △ key	Displays average line to line voltage, current and power factor of three phases and frequency.
Press page (❐) key (4th time)	——	Displays power factor of three phases and frequency.
	Press △ key 1st time	Displays active power of three phases.
	Press △ key 2nd time	Displays reactive power of three phases.
	Press △ key 3rd time	Displays apparent power of three phases.
	Press △ key 4th time	Displays total active power of three phases.
	Press △ key 5th time	Displays total reactive power of three phases.
	Press △ key 6th time	Displays total apparent power of three phases.
	Press △ key 7th time	Displays max demand of active power.
	Press △ key 8th time	Displays max demand of apparent power.
Press page (❐) key (5th time)	——	Displays average phase to neutral voltage and active energy of three phases.
	Press △ key	Displays average phase to neutral voltage and reactive energy of three phases.

ONLINE PAGE DESCRIPTION FOR MRJ4M-SL-MID

Press page (❐) key (1st time)	——	Displays line to neutral voltage of three phases.
	Press △ key	Displays line to line voltage of three phases.
	Press ▷ key 3 sec.	Displays voltage sequence.
Press page (❐) key (2nd time)	——	Displays phase current of three phases of load 1.
	Press △ key	Displays phase current of three phases of load 2.
Press page (❐) key (3rd time)	——	Displays power factor of three phases of load 1 and frequency.
	Press △ key 1st time	Displays power factor of three phases of load 2 and frequency.
	Press △ key 2nd time	Displays active power of three phases of load 1.
	Press △ key 3rd time	Displays active power of three phases of load 2.
	Press △ key 4th time	Displays reactive power of three phases of load 1.
	Press △ key 5th time	Displays reactive power of three phases of load 2.
	Press △ key 6th time	Displays apparent power of three phases of load 1.
	Press △ key 7th time	Displays apparent power of three phases of load 2.
	Press △ key 8th time	Displays total active power of three phases of load 1 and load 2.
	Press △ key 9th time	Displays total reactive power of three phases of load 1 and load 2.
	Press △ key 10th time	Displays total apparent power of three phases of load 1 and load 2.
	Press △ key 11th time	Displays max demand of active power of load 1 and load 2
	Press △ key 12th time	Displays max demand of apparent power of load 1 and load 2
Press page (❐) key (4th time)	——	Displays average phase to neutral voltage and active energy of three phases of load 1 and load 2
	Press △ key 1st time	Displays average phase to neutral voltage and reactive energy of three phases of load 1 and load 2
	Press △ key 2nd time	Displays average phase to neutral voltage and total active energy of three phases of load 1 and load 2
	Press △ key 3rd time	Displays average phase to neutral voltage and total reactive energy of three phases of load 1 and load 2

Note - For 1 phase 2 wire network, all page will be same as 3 phase 4 wire, but only Selactable phase parameter will display.

ONLINE PAGE DESCRIPTION FOR MRJ4M-SL-MID (6CH) and MRJ4M-MID (3CH)

Press page (❐) key (1st time)	——	Displays line to neutral voltage of selected phase.
Press page (❐) key (2nd time)	——	Display current of CH 1 on 1st row, CH 2 on 2nd row and CH 3 on 3rd row as page one.
	Press △ key 1st time	Display current of CH 4 on 1st row, CH 5 on 2nd row and CH 6 on 3rd row as page two.
Press page (❐) key (3rd time)	——	Display power factor of CH 1 on 1st row, CH 2 on 2nd row and CH 3 on 3rd row as page one & Frequency
	Press △ key 1st time	Display power factor of CH 4 on 1st row, CH 5 on 2nd row and CH 6 on 3rd row as page Two & Frequency
	Press △ key 2nd time	Display active power of CH 1 on 1st row, CH 2 on 2nd row and CH 3 on 3rd row as page one.
	Press △ key 3rd time	Display active power of CH 4 on 1st row, CH 5 on 2nd row andCH 6 on 3rd row as page two.
	Press △ key 4th time	Display reactive power of CH 1 on 1st row, CH 2 on 2nd row and CH 3 on 3rd row as page one.
	Press △ key 5th time	Display reactive power of CH 4 on 1st row, CH 5 on 2nd row and CH 6 on 3rd row as page two.
	Press △ key 6th time	Display apparent power of CH 1 on 1st row, CH 2 on 2nd row and CH 3 on 3rd row as page one.
	Press △ key 7th time	Display apparent power of CH 4 on 1st row, CH 5 on 2nd row and CH 6 on 3rd row as page two.
	Press △ key 8th time	Displays total active power of load 1 (CH1,CH2,CH3) on 1st row and load 2 (CH4,CH5,CH6) .
	Press △ key 9th time	Displays total reactive power of load 1 (CH1,CH2,CH3) on 1st row and load 2 (CH4,CH5,CH6) .
	Press △ key 10th time	Displays total apparent power of load 1 (CH1,CH2,CH3) on 1st row and load 2 (CH4,CH5,CH6) .
	Press △ key 11th time	Displays max demand of active power of CH 1 on 1st row, CH 2 on 2nd row and CH 3 on 3rd row as page one.

Press page (▢) key (3rd time)	Press △ key 12th time	Displays max demand of apparent power of CH 1 on 1st row, CH 2 on 2nd row and CH 3 on 3rd row as page one.
	Press △ key 13th time	Displays max demand of active power of CH 4 on 1st row, CH 5 on 2nd row and CH 6 on 3rd row as page two.
	Press △ key 14th time	Displays max demand of apparent power of CH 4 on 1st row, CH 5 on 2nd row and CH 6 on 3rd row as page two.
Press page (▢) key (4st time)	—	Displays average line to neutral voltage of selected phase on 1st row and CH1 active energy
	Press △ key 1st time	Displays average line to neutral voltage of selected phase on 1st row and CH1 reactive energy
	Press △ key 2nd time	Displays average line to neutral voltage of selected phase on 1st row and CH2 active energy
	Press △ key 3rd time	Displays average line to neutral voltage of selected phase on 1st row and CH2 reactive energy
	Press △ key 4th time	Displays average line to neutral voltage of selected phase on 1st row and CH3 active energy
	Press △ key 5th time	Displays average line to neutral voltage of selected phase on 1st row and CH3 reactive energy
	Press △ key 6th time	Displays average line to neutral voltage of selected phase on 1st row and CH4 active energy
	Press △ key 7th time	Displays average line to neutral voltage of selected phase on 1st row and CH4 reactive energy
	Press △ key 8th time	Displays average line to neutral voltage of selected phase on 1st row and CH5 active energy
	Press △ key 9th time	Displays average line to neutral voltage of selected phase on 1st row and CH5 reactive energy
	Press △ key 10th time	Displays average line to neutral voltage of selected phase on 1st row and CH6 active energy
	Press △ key 11th time	Displays average line to neutral voltage of selected phase on 1st row and CH6 reactive energy.
	Press △ key 12th time	Displays average line to neutral voltage of selected phase on 1st row and total active energy of all channel.
	Press △ key 13th time	Displays average line to neutral voltage of selected phase on 1st row and total reactive energy of all channel.

Note : 1.All pages will be same as above for P1/P2/P3 only phase wise voltage will be display.

CHANNEL DISCRIPTION

	For MRJ4M-SL-MID		For MRJ4M-MID	
LOAD	**2 CH**	**6 CH**	**1 CH**	**3 CH**
L1	1st, 2nd & 3rd phase of current 1	CH1, CH2, CH3	1st, 2nd & 3rd phase of current 1	CH1, CH2, CH3
L2	1st, 2nd & 3rd phase of current 2	CH4, CH5, CH6	—	—

PRODUCT DESCRIPTION

1] SERIAL NUMBER

Press △ key for 10 sec to display 8 digit serial no.On 2nd and 3rd row of display for 10 sec only

2] CRC

While displaying serial no , press key ▷ once to show CRC of MRJ4M-MID & Load 2 (Master) of MRJ4M-SL-MID on 2nd row and for load 1 (Slave) of MRJ4M-SL-MID on 3rd row.

3] PRODUCT NAME AND VERSION NUMBER

While displaying serial no, press ↵ key once to display product Type on 1st row and Software version and CT mounting type of load 1 on 2nd row of display and 3rd row display CT mounting type of load 2.

⚠ CT ROTATION - IMPORTANT NOTE

Please note: All **THREE PHASE** easywire current transformers as default are configured to monitor Incoming supplies (L1 is on the right-hand side when viewed from the P2 face. If the transformer is to be used for load monitoring (Requiring L1 to be on the Left-hand side when viewed from the P2 face), the operator must perform the "**To change**" procedure described below;

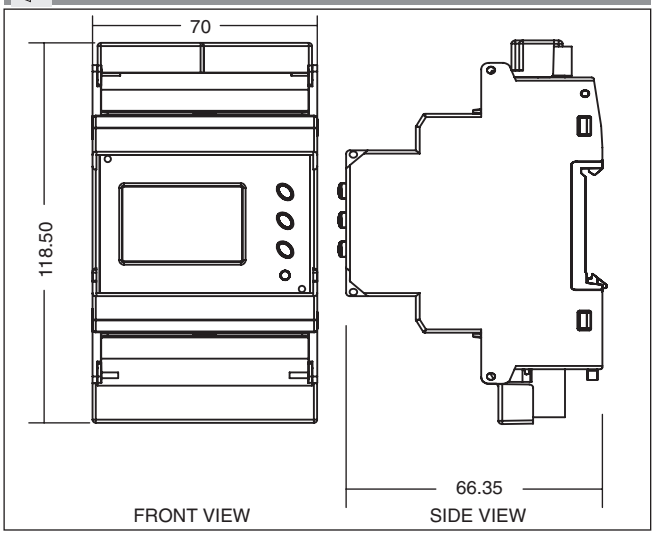
To change:

1. Press and hold ↵ for 3 seconds until the display changes, release the key. Press and hold the key again for 3 seconds.
2. Wait 5 seconds for meter to resume online reading. Meter display will show LH when checked using the "**To check**" procedure described below.

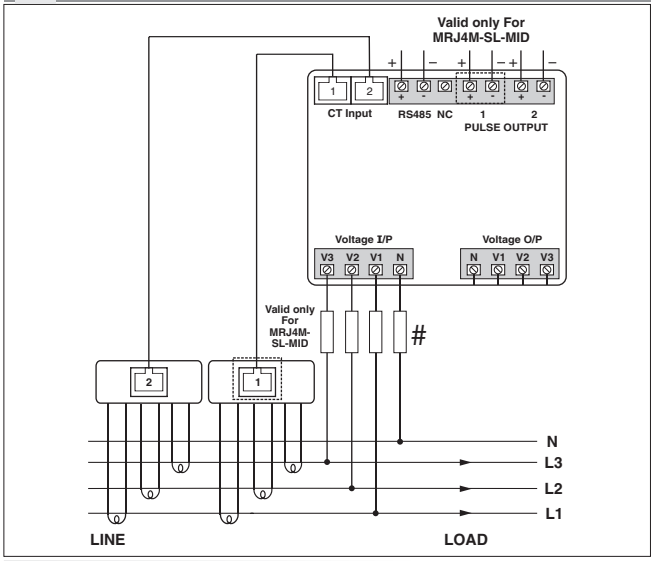
To check:

1. Press and hold ↵ for 3 seconds until the display changes, release the key.
2. Wait 5 seconds and the meter will resume normal operation.

MECHANICAL INSTALLATION / DIMENSIONS (in mm)

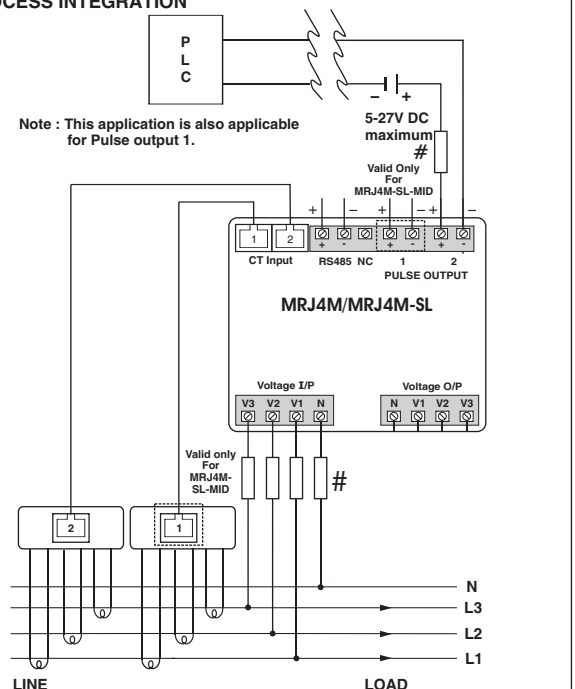


TERMINAL CONNECTIONS



APPLICATION OF PULSE OUTPUT

● **PROCESS INTEGRATION**



Pulse output from MRJ4M-MID / MRJ4M-SL-MID 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.

CONFIGURATION

There are 3 dedicated key with symbols marked as ▷, △ and ↵.
Use these 3 key to enter into configuration / 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 △ and ↵ for 3 sec. to enter or exit from config. mode.
- Use ▷ shift key to move cursor left or right by one digit each time. After last digit of display cursor shift at 1st digit of display.
- Use △ increment key for increasing the parameter value.
- Use ↵ key to save the setting and move on to next page.
- Use △ and ▷ keys to go back to previous 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	Channel Selection		
	For MRJ4M-SL-MID	2CH/6CH	2CH
	For MRJ4M-MID	1CH/3CH	1CH
3	Network Selection	3P4W, 1P2W-P1,P2,P3	3P4W
4	CT Secondary	Preset	1
5	CT Primary 1	1A to 6,000A	1
6	CT Primary 2 **for MRJ4M-SL-MID**	1A to 6,000A	1
7	Current connection L1	RHS/LHS	RHS
8	Current connection L2 **for MRJ4M-SL-MID**	RHS/LHS	RHS
9	PT Secondary	100V to 500V	350
10	PT primary	100V to 600V	350
11	Slave Id	1 to 255	1
12	Baud Rate	300, 600, 1200, 2400, 4800, 9600 and 19200	9600
13	Parity	None, Even, Odd	None
14	Stop Bit	1 or 2	1
15	Back Light	0 to 7200 sec.	0000
16	Demand interval method	Sliding / Fixed	Sliding
17	Demand interval duration	1 to 30	15
18	Demand interval length	1 to 30min	1
19	Pulse Weight (load 1)	0.01 to 9.99kWh	0.10
20	Pulse Weight (load 2) **for MRJ4M-SL-MID**	0.01 to 9.99kWh	0.10
21	Pulse Duration	50, 100, 150, 200, 250, 300	200
22	Factory Default	No / Yes	No
23	Reset Energy and Max Demand	No / Yes	No
•23.1	Password	0001 to 9999	1001
23.01	Reset Active Energy	No / Yes	No
23.02	Reset Reactive Energy	No / Yes	No
23.03	Reset Max Power	No / Yes	No
	For MRJ4M-SL-MID		
•23.1	Password	0001 to 9999	1001
23.01	Reset Active Energy-1	No / Yes	No
23.02	Reset Reactive Energy-1	No / Yes	No
23.03	Reset L1 Max Power	No / Yes	No
23.04	Reset Active Energy-2	No / Yes	No
23.05	Reset Reactive Energy-2	No / Yes	No
23.06	Reset L2 Max Power	No / Yes	No

- For resetting energy parameters user will be prompted the 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 / writable parameters : [Data Structure : Integer]

Readable / writable parameters from MRJ4M-MID / MRJ4M-SL-MID

0.01 resolution [1 = 0.01kWh] • Applicable for MRJ4M-MID also

Address	Hex Address	Parameter	Range		Length (Register)
40000	0x00	Password	Min value : 0	Max value : 9998	1
40007	0x07	Slave id	Min value : 1	Max value : 255	1
40008	0x08	Baud rate (bps)	Value : 0x0000	Meaning : 300	1
			Value : 0x0001	Meaning : 600	
			Value : 0x0002	Meaning : 1200	
			Value : 0x0003	Meaning : 2400	
			Value : 0x0004	Meaning : 4800	
			Value : 0x0005	Meaning : 9600	
			Value : 0x0006	Meaning : 19200	
40009	0x09	Parity	Value : 0x0000	Meaning : None	1
			Value : 0x0001	Meaning : Odd	
			Value : 0x0002	Meaning : Even	
40010	0x0A	Stop bit	Value : 0x0000	Meaning : 1	1
			Value : 0x0001	Meaning : 2	
40011	0x0B	Backlight OFF (sec.)	Min value : 0	Max value : 7200	1
40034	0x22	Demand Interval Method	Value : 0x0000	Meaning : Sliding	1
			Value : 0x0001	Meaning : Fixed	
40035	0x23	Demand Interval Duration	MIN Value : 1	MAX Value : 30	1
40036	0x24	Demand Interval Length(min)	MIN Value : 1	MAX Value : 30	1
40037	0x25	Reset max kW [of load 2 **for MRJ4M-SL-MID**]	1	Reset max Active power	1
40041	0x29	Reset max kVA [of load 2 **for MRJ4M-SL-MID**]	1	Reset max Apparent power	1
40045	0x2C	Reset max kW [of load 1 **for MRJ4M-SL-MID**]	1	Reset max Active power	1
40049	0x31	Reset max kVA [of load 1 **for MRJ4M-SL-MID**]	1	Reset max Apparent power	1

40057	0x39	Pulse duration (Sec)	Min value :50	Max value : 300	1
40058	0x3A	Pulse Weight (kWh) [of load 2 **for MRJ4M-SL-MID**	Min value : 0.01	Max value : 9.99	1
40059	0x3B	Pulse Weight (kWh) [of load 1 **for MRJ4M-SL-MID**	Min value : 0.01	Max value : 9.99	1

MODBUS REGISTER ADDRESSES LIST

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

NOTE : LSB will be displayed on lower address and MSB will be displayed on higher address.

Address	Hex Address	Parameter	Address	Hex Address	Parameter	Address	Hex Address	Parameter
30000	0x00	Voltage V1N	30006	0x06	Average Voltage LN	30012	0x0C	Voltage V31
30002	0x02	Voltage V2N	30008	0x08	Voltage V12	30014	0x0E	Average Voltage LL
30004	0x04	Voltage V3N	30010	0x0A	Voltage V23	30132	0x84	Serial No (Data Structure : Hex)
For MRJ4M-MID and MRJ4M-SL-MID [Load 2] Parameter								
30016	0x10	Current I1	30036	0x24	kVAr1	30056	0x38	Frequency
30018	0x12	Current I2	30038	0x26	kVAr2	30058	0x3A	kWh
30020	0x14	Current I3	30040	0x28	kVAr3	30062	0x3E	kVArh
30022	0x16	Average Current	30042	0x2A	Total kW	30064	0x40	kW MAX Active Power
30024	0x18	kW1	30044	0x2C	Total kVA	30072	0x48	kVA MAX Apparent Power
30026	0x1A	kW2	30046	0x2E	Total kVAr	30134	0x86	Existing kW MAX Active Power
30028	0x1C	kW3	30048	0x30	PF1	30138	0x8A	Existing kVA MAX Apparent Power
30030	0x1E	kVA1	30050	0x32	PF2			
30032	0x20	kVA2	30052	0x34	PF3			
30034	0x22	kVA3	30054	0x36	Average PF			
MRJ4M-SL-MID [Load 1] Parameter								
30074	0x4A	Current I1	30094	0x5E	kVAr1	30114	0x72	Frequency
30076	0x4C	Current I2	30096	0x60	kVAr2	30116	0x74	kWh
30078	0x4E	Current I3	30098	0x62	kVAr3	30120	0x78	kVArh
30080	0x50	Average Current	30100	0x64	Total kW	30122	0x7A	kW MAX Active Power
30082	0x52	kW1	30102	0x66	Total kVA	30130	0x82	kVA MAX Apparent Power
30084	0x54	kW2	30104	0x68	Total kVAr	30142	0x8E	Total kWh (Load 1 and Load 2)
30086	0x56	kW3	30106	0x6A	PF1	30144	0x90	Total kVArh (Load 1 and Load 2)
30088	0x58	kVA1	30108	0x6C	PF2	30146	0x92	Existing kW MAX Active Power
30090	0x5A	kVA2	30110	0x6E	PF3	30148	0x94	Existing kVA MAX Apperant Power
30092	0x5C	kVA3	30112	0x70	Average PF			

For 3CH and 6CH								
Address	**Hex Address**	**Parameter**	**Address**	**Hex Address**	**Parameter**	**Address**	**Hex Address**	**Parameter**
30150	0x96	kWh CH1	30174	0xAE	kW Max active power of CH1	30198	0xC6	Existing kW Max active power of CH1
30152	0x98	kWh CH2	30176	0xB0	kW Max active power of CH2	30200	0xC8	Existing kW Max active power of CH2
30154	0x9A	kWh CH3	30178	0xB2	kW Max active power of CH3	30202	0xCA	Existing kW Max active power of CH3
30156	0x9C	kWh CH4	30180	0xB4	kW Max active power of CH4	30204	0xCC	Existing kW Max active power of CH4
30158	0x9E	kWh CH5	30182	0xB6	kW Max active power of CH5	30206	0xCE	Existing kW Max active power of CH5
30160	0xA0	kWh CH6	30184	0xB8	kW Max active power of CH6	30208	0xD0	Existing kW Max active power of CH6
30162	0xA2	kVArh CH1	30186	0xBA	kW Max apparent power of CH1	30210	0xD2	Existing kVA Max apparent power of CH1
30164	0xA4	kVArh CH2	30188	0xBC	kW Max apparent power of CH2	30212	0xD4	Existing kVA Max apparent power of CH2
30166	0xA6	kVArh CH3	30190	0xBE	kW Max apparent power of CH3	30214	0xD6	Existing kVA Max apparent power of CH3
30168	0xA8	kVArh CH4	30192	0xC0	kW Max apparent power of CH4	30216	0xD8	Existing kVA Max apparent power of CH4
30170	0xAA	kVArh CH5	30194	0xC2	kW Max apparent power of CH5	30218	0xDA	Existing kVA Max apparent power of CH5
30172	0xAC	kVArh CH6	30196	0xC4	kW Max apparent power of CH6	30220	0xDC	Existing kVA Max apparent power of CH6

Note: CH1,CH2,CH3 Applicable only for MRJ4M-MID

NOTE : LSB will be displayed on lower address and MSB will be displayed on higher address.

Readable parameters : [Data Structure : Hex]

MODBUS REGISTER ADDRESSES LIST

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

NOTE : LSB will be displayed on lower address and MSB will be displayed on higher address.

Address	Hex Address	Parameter	Length	Address	Hex Address	Parameter	Length	Address	Hex Address	Parameter	Length
31000	0x3E8	Voltage V1N	2	31006	0x3EE	Average Voltage LN	2	31012	0x3F4	Voltage V31	2
31002	0x3EA	Voltage V2N	2	31008	0x3F0	Voltage V12	2	31014	0x3F6	Average Voltage LL	2
31004	0x3EC	Voltage V3N	2	31010	0x3F2	Voltage V23	2	—			
For MRJ4M-MID and MRJ4M-SL-MID [load 2] Parameter											
31016	0x3F8	Current I1	2	31024	0x400	kW1	2	31032	0x408	kVA2	2
31018	0x3FA	Current I2	2	31026	0x402	kW2	2	31034	0x40A	kVA3	2
31020	0x3FC	Current I3	2	31028	0x404	kW3	2	31036	0x40C	kVAr1	2
31022	0x3FE	Average Current	2	31030	0x406	kVA1	2	31038	0x40E	kVAr2	2

31040	0x410	kVAr3	2
31042	0x412	Total kW	2
31044	0x414	Total kVA	2
31046	0x416	Total kVAr	2
31048	0x418	PF1	1

31049	0x419	PF2	1
31050	0x41A	PF3	1
31051	0x41B	Average PF	1
31052	0x41C	Frequency	1
31054	0x41E	kWh	3

31057	0x421	kVArh	3
31064	0x428	kW MAX Active Power	2
31072	0x430	kVA MAX Apparent Power	2

For MRJ4M-SL-MID [load 1] Parameter

31074	0x432	Current I1	2
31076	0x434	Current I2	2
31078	0x436	Current I3	2
31080	0x438	Average Current	2
31082	0x43A	kW1	2
31084	0x43C	kW2	2
31086	0x43E	kW3	2
31088	0x440	kVA1	2
31090	0x442	kVA2	2

31092	0x444	kVA3	2
31094	0x446	kVAr1	2
31096	0x448	kVAr2	2
31098	0x44A	kVAr3	2
31100	0x44C	Total kW	2
31102	0x44E	Total kVA	2
31104	0x450	Total kVAr	2
31106	0x452	PF1	1
31107	0x453	PF2	1

31108	0x454	PF3	1
31109	0x455	Average PF	1
31110	0x456	Frequency	1
31112	0x458	kWh	3
31115	0x45B	kVArh	3
31122	0x462	kW MAX Active Power	2
31131	0x46B	kVA MAX Apparent Power	2
31142	0x476	Total kWh	3
31145	0x479	Total kVArh	3

For 3CH and 6CH

31150	0x47E	kWh CH1	3
31153	0x481	kWh CH2	3
31156	0x484	kWh CH3	3
31159	0x487	kWh CH4	3
31162	0x48A	kWh CH5	3
31165	0x48D	kWh CH6	3
31168	0x490	kVArh CH1	3
31171	0x493	kVArh CH2	3
31174	0x496	kVArh CH3	3
31177	0x499	kVArh CH4	3
31180	0x49C	kVArh CH5	3
31183	0x49F	kVArh CH6	3

31186	0x4A2	kW Max active power of Ch1	2
31188	0x4A4	kW Max active power of CH2	2
31190	0x4A6	kW Max active power of CH3	2
31192	0x4A8	kW Max active power of CH4	2
31194	0x4AA	kW Max active power of CH5	2
31196	0x4AC	kW Max active power of CH6	2
31198	0x4AE	kW Max apparent power of CH1	2
31200	0x4B0	kW Max apparent power of CH2	2
31202	0x4B2	kW Max apparent power of CH3	2
31204	0x4B4	kW Max apparent power of CH4	2
31206	0x4B6	kW Max apparent power of CH5	2
31208	0x4B8	kW Max apparent power of CH6	2

DECLARATION OF CONFORMITY

We, Selec Control Pvt Ltd declares under our sole responsbility as the manufacturer that the MRJ4M-MID & MRJ4M-SL-MID meter described within this manual corresponds to the production model described in the EC-type examination certificate and to the requirement of the 2014/22/EC Directive. EC type examination certificate number 0120/SGS0415

Note: 1.CH1,CH2,CH3 Applicable only for **MRJ4M-MID**
2.Voltage and current will display in mV and mA. Power will display in W(Active), VAr (Reactive) & VA(Apparent). Energy will display in Wh(Active) VArh(Reactive) & VAh(Apparent)

Energy rollover counter addresses : This counter will increment when energy is rollover from 9999999 to 0. **[Data Structure : Integer]**

For MRJ4M-MID

Address	Hex Address	Parameter	Lenght
31291	0x50B	kWh CH 1	1
31292	0x50C	kWh CH 2	1
31293	0x50D	kWh CH 3	1
31294	0x50E	Total kWh	1

Address	Hex Address	Parameter	Lenght
31295	0x50F	kVArh CH 1	1
31296	0x510	kVArh CH 2	1
31297	0x511	kVArh CH 3	1
31298	0x512	Total kVArh	1

For MRJ4M-SL-MID

Address	Hex Address	Parameter	Lenght
31299	0x513	kWh CH 1	1
31300	0x514	kWh CH 2	1
31301	0x515	kWh CH 3	1
31302	0x516	Total kWh(CH1,CH2,CH3)	1
31291	0x50B	kWh CH 4	1
31292	0x50C	kWh CH 5	1
31293	0x50D	kWh CH 6	1
31294	0x50E	Total kWh(CH4,CH5,CH6)	1
31307	0x51B	Total kWh (All 6 Channel)	1

Address	Hex Address	Parameter	Lenght
31303	0x517	kVArh CH 1	1
31304	0x518	kVArh CH 2	1
31305	0x519	kVArh CH 3	1
31306	0x51A	Total kVArh(CH1,CH2,CH3)	1
31295	0x50F	kVArh CH 4	1
31296	0x510	kVArh CH 5	1
31297	0x511	kVArh CH 6	1
31298	0x512	Total kVArh(CH4,CH5,CH6)	1
31308	0x51C	Total kVArh (All 6 Channel)	1

Example to Read Data from Input Register

For eg. If Total Active Energy =1234.12 kWh
Start Address : 30090 , No. of Register: 02
Hexadecimal Equivalent of 1234.12 is 0x449A43D7

Data stored at 30090 is LSB : A 43 B D7

Data stored at 30091 is MSB : C 44 D 9A
Data Format to be followed is C-D-A-B

(Specifications are subject to change, since development is a continuous process.)

SELEC CONTROLS PVT LTD,
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