MULTISPAN DEMAND CONTROLLER **DMR-162-M1**

TECHNICAL SPECIFICATION

PARAMETER SPECIFICATION

Input Signal	3Ø 3 Wire / 3Ø 4Wire / 1Ø 2Wire
CT Primary	up to 9999A (Programmable)
CT Secondary	5 Amp/1 Amp selectable
PT Primary	100V to 520kV (Programmable)
PT Secondary	100V to 520V (L-L) (Programmable)
PF Avg. & Per Phase	0.100 - 1.000
Frequency (Hz)	45.00 - 60.00 Hz
Load hours	9999.59 Hrs/Min.
No load hours	9999.59 Hrs/Min.
RPM	3600 RPM @ 60 Hz & 2 pole
POWER	
kW Total	0.000 - 9999 MW
kW Per Phase	0.000 - 9999 MW
kVA Total	0.000 - 9999 MVA
kVA Per Phase	0.000 - 9999 MVA
kVAr Total	0.000 - 9999 MVAr
kVAr Per Phase	0.000 - 9999 MVAr
ENERGY	
Import kWh	000.000 - 99999999 MWh
Export kWh	000.000 - 99999999 MWh
kVAh Total	000.000 - 99999999 MVAh
Import kVArh	000.000 - 99999999 MVArh
Export kVArh	000.000 - 99999999 MVArh

DISPLAY & KEY :

Display	Upper	8 Digit, 7 Seg 0.40",RED LED
	Lower	4 Digit, 3 Line 7 Seg 0.40",RED
Key		PROGRAM, VAF, POWER /POWER FACTOR ,ENERGY, THD%

OUTPUT SPECIFICATION:

	Relay Output
Relay	2 Nos
Relay Type	1st relay (NO-C) 2nd relay (NO-C)
Rating	1st relay 7A, 250V AC 2nd relay 7A, 250V AC

AUXILIARY SUPPLY :

Supply voltage	100 to 300V AC/DC, 50/60Hz
Power consumption (VA RATING)	Approx 4 VA @ 230V AC MAX

ACCURACY:

Class 0.5 (Standard)

ENVIRONMENT CONDITION:

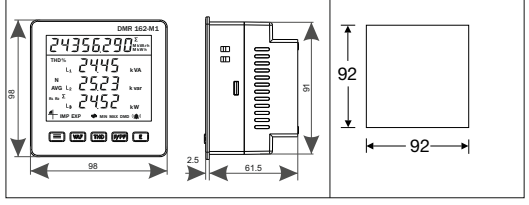
Operating Temp.	0°C to 55°C
Relative Humidity	UP to 95% RH (non-condensing)
Protection Level (AS Per Request)	IP-65 (Front side) As per IS/IEC 60529 : 2001

DIMENSION :

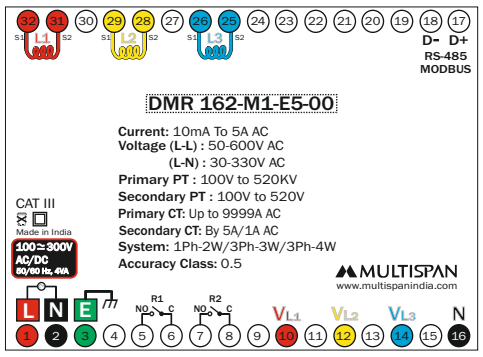
Size	98 (H) x 98 (W) x 61.5 (D) mm
Panel Cutout	92 (H) x 92 (W) mm

MECHANICAL INSTALLATION

Outline Dimension (mm)	Panel Cutout Dimension (mm)



TERMINAL CONNECTION



KEY OPERATION

FUNCTION	PRESS KEY
OPERATOR MODE	
To view VAF Pages	VAF
To view THD Page	THD
To view Power & Power Factor	P/PF
To view Energy Page	E
To scroll & hold pages	Press E For 5Sec
PARAMETER SETTING MODE	
To Set Parameter Value	Press ☰ For 5 Sec
To Increment parameter value	P/PF
To Decrement parameter value	E
To Exit from parameter setting	☰

INSTALLATION GUIDELINES

1. This equipment, being built-in-type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the end user after installation and internal wiring.
2. Do not allow pieces of metal, wire clippings, or fine metallic fillings from installation to enter the product or else it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator.
3. Circuit breaker or mains switch must be installed between power source and supply terminal to facilitate power 'ON' or 'OFF' function. However this mains switch or circuit breaker must be installed at convenient place normally accessible to the operator.
4. Use and store the instrument within the specified ambient temperature and humidity ranges as mentioned in this manual.

MECHANICAL INSTALLATION GUIDELINES

1. Prepare the panel cutout with proper dimensions as shown above.
2. Fit the unit into the panel with the help of clamp given.
3. The equipment in its installed state must not come in close proximity to any heating source, caustic vapors, oils steam, or other unwanted process byproducts.
4. Use the specified size of crimp terminal (M3.5 screws) to wire the terminal block. Tightening the screws on the terminal block using the tightening torque of the range of 1.2 N.m.
5. Do not connect anything to unused terminals.

MAINTENANCE

1. The equipment should be cleaned regularly to avoid blockage of ventilating parts.
2. Clean the equipment with a clean soft cloth. Do not use isopropyl alcohol or any other cleaning agent.
3. Fusible resistor must not be replaced by operator.

SAFETY PRECAUTION

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 all the equipment is not handled in a manner specified by the manufacturer, it might impair the protection provided by the equipment.

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

WARNING : Risk of electric shock.

WARNING GUIDELINES

WARNING : Risk of electric shock.

1. To prevent the risk of electric shock, power supply to the equipment must be kept OFF while doing the wiring arrangement. Do not touch the terminals while power is being supplied.
2. To reduce electro magnetic interference, use wire with adequate rating and twists of the same of equal size shall be made with shortest connection.
3. Cable used for connection to power source, must have a cross section of 1mm or greater. These wires should have insulations capacity made of at least 1.5kV.
4. A better anti-noise effect can be expected by using standard power supply cable for the instrument.

PARAMETER SETTING

Basic Parameter Setting : Network, CT/PT Selection.

PASS 0010 — **Enter Password 10**
Long Press ☰ key To Enter into parameter
Chang by P/PF & E Key.

nEtwork 3P4W — Network Selection (3P-4W/3P-3W/1P-2W)
Chang by P/PF & E Key.

Ct PrIM 0005 — CT Primary (5 Amp to 9999 Amp selectable) Digit Shift by THD Key
Chang by P/PF & E Key.

Ct SECod 5 A — CT Secondary (5 Amp/1 Amp selectable)
Chang by P/PF & E Key.

Pt PrIM 0240 — PT Primary (100V to 520kV selectable) Digit Shift by THD Key
Chang by P/PF & E Key.

Pt SECod 0240 — PT Secondary (100V to 520V selectable)
Chang by P/PF & E Key.

Press ☰ key to save & exit from parameter setting

Advance Parameter Setting : Load Hour %, No Load Hour, RPM, Demand, Pulse Output, Demand Control

PASS 0025 — **Enter Password 25**
Long Press ☰ key To Enter into parameter
Chang by P/PF & E Key.

LoAdhoUr Enb — Load Hour Enable / Disable
Chang by P/PF & E Key.

LoAdPErC 0025 — Load Hour Percentage (5 to 50%)
Chang by P/PF & E Key.

rPM Enb — RPM Enable / Enable
Chang by P/PF & E Key.

rPM PoLE 0002 — Pole (2 to 128)
Chang by P/PF & E Key.

dMd CtRL kW — Demand Control kW, kVa, kVar
Chang by P/PF & E Key.

dMd tIME 15 — Demand Time 1,2,3,5,10,15,30
Chang by P/PF & E Key.

dMd SEt 1 HI GH 4000 kw — Demand Set-1 High 0.000 To 9999 (Kilo/Mage) Digit Shift by THD Key
Chang by P/PF & E Key.

Continue

dMd SEt 1 LOW 2500 kw — Demand Set-1 Low 0.000 To 9999 (Kilo/Mage) Digit Shift by THD Key
Chang by P/PF & E Key.

dMd SEt2 HI GH 4000 kw — Demand Set-2 High 0.000 To 9999 (Kilo/Mage) Digit Shift by THD Key
Chang by P/PF & E Key.

dMd SEt2 LOW 2500 kw — Demand Set-2 Low 0.000 To 9999 (Kilo/Mage) Digit Shift by THD Key
Chang by P/PF & E Key.

Press ☰ key to save & exit from parameter setting

Reset Parameter : kWh, kVAh, kVArh, Load Hour, No Load Hour, ,Max Voltage, Max Demand, Min Voltage

PASS 15 — **Enter Password 15**
Long Press ☰ key To Enter into parameter
Chang by P/PF & E Key.

rESt ALL YES — Reset All Parameter (Yes/No)
Chang by P/PF & E Key.

rESt PUh YES — Reset kWh (Yes/No)
Chang by P/PF & E Key.

rESt PUAh YES — Reset kVAh (Yes/No)
Chang by P/PF & E Key.

rESt PUrh YES — Reset kVArh (Yes/No)
Chang by P/PF & E Key.

rESt Lhrh YES — Reset Load Hour (Yes/No)
Chang by P/PF & E Key.

rESt nhrS YES — Reset On Hour / No Load Hour (Yes/No)
Chang by P/PF & E Key.

rESt MAH dMd no — Reset Max Demand (Yes/No)
Chang by P/PF & E Key.

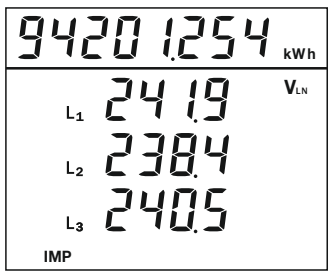
rESt MAH VOLt no — Reset Max ,Voltage (Yes/No)
Chang by P/PF & E Key.

rESt MIn VOLt no — Reset Minimum Voltage (Yes/No)
Chang by P/PF & E Key.

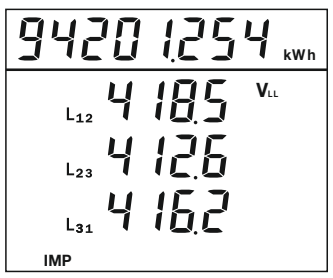
Press ☰ key to save & exit from parameter setting

DISPLAY PAGES for VAF Key

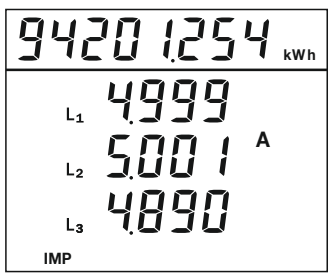
1) Voltage L-N



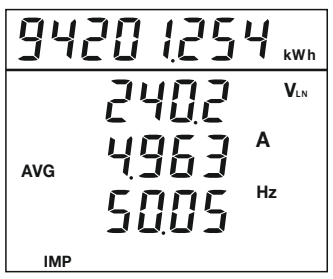
2) Voltage L-L



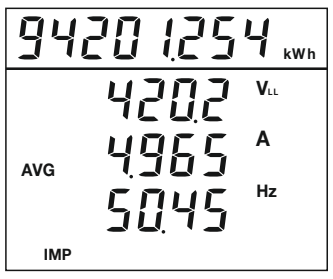
3) Current



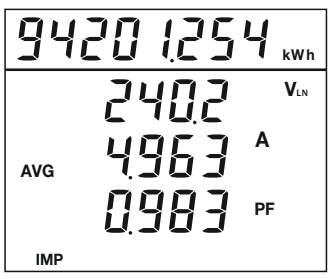
4) AVG V(L-N)-A-F



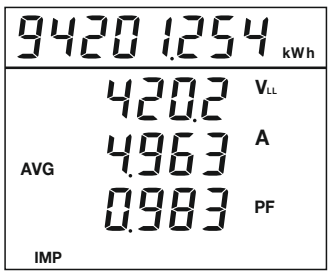
5) AVG V(L-L)-A-F



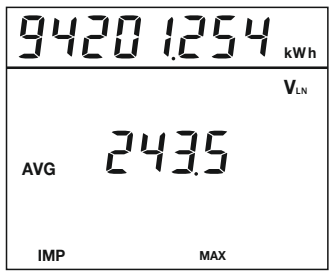
6) AVG V(L-N)-A-PF



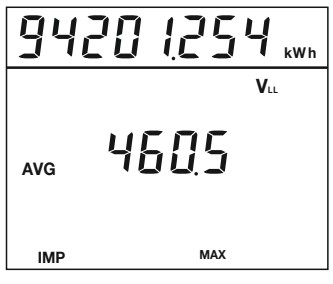
7) AVG V(L-L)-A-PF



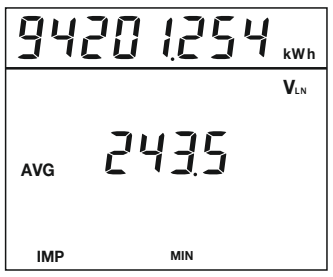
8) Max Voltage L-N



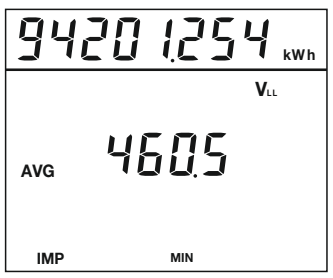
9) Max Voltage L-L



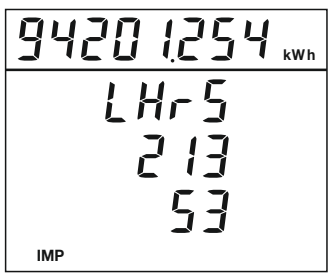
10) Min Voltage L-N



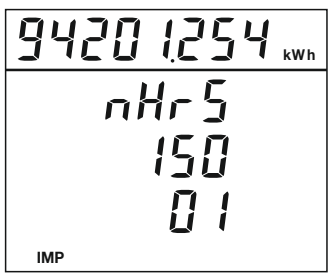
11) Min Voltage L-L



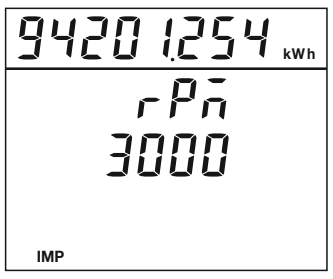
12) Load Hour



13) No Load Hour

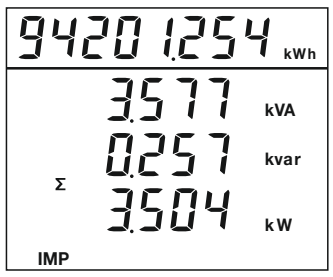


14) RPM

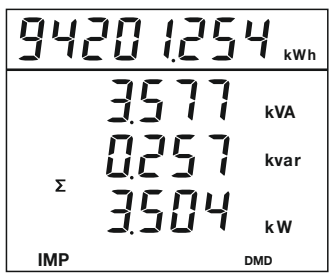


DISPLAY PAGES for P Key

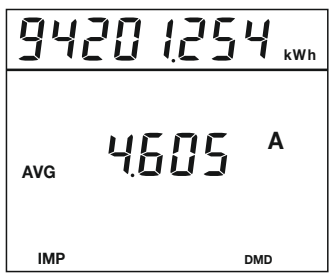
1) Total kW,kVA,kVAr



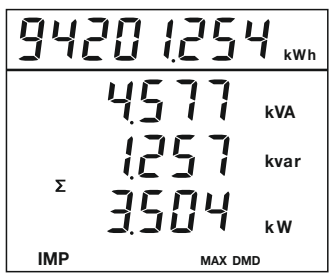
2) Power Demand(kW,kVA,kVAr)



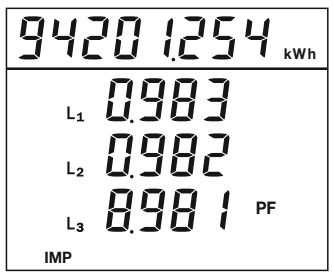
3) Amp Demand



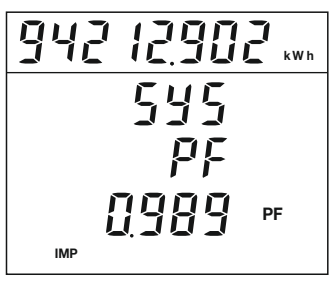
4) Max Power Demand



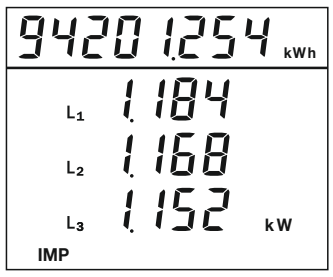
5) PF L1,L2,L3



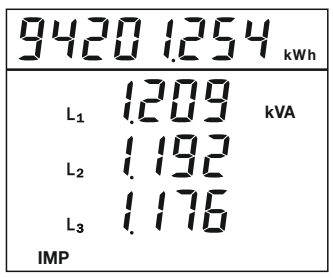
6) System PF



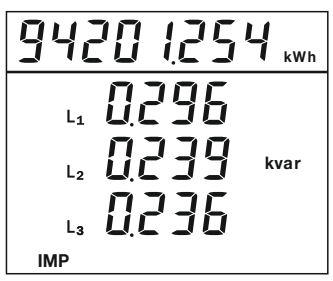
7) kW PER PHASE



8) kVA PER PHASE

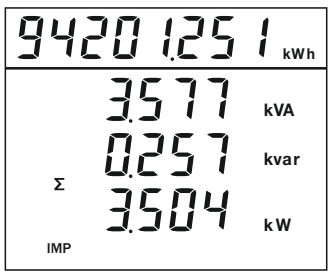


9) kVAr PER PHASE

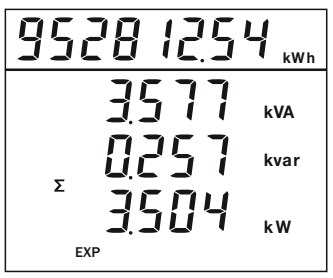


DISPLAY PAGES for E Key

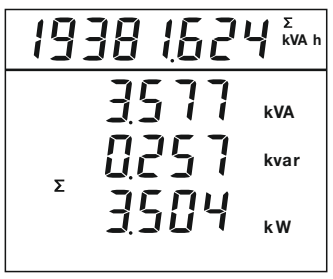
1) Import kWh



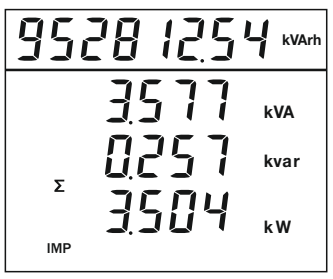
2) Export *kWh*



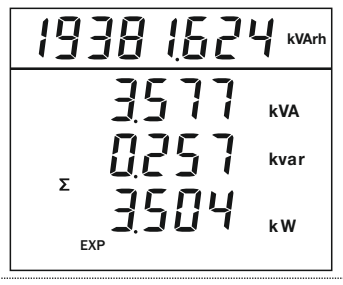
3) Total kVAh



4) Import kVArh

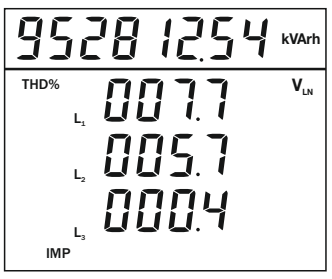


5) Export kVArh

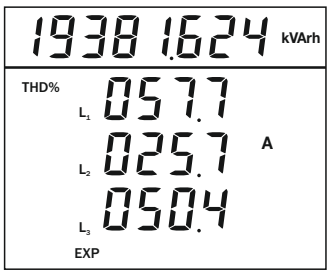


DISPLAY PAGES for THD Key

1) Voltage(LN) THD%

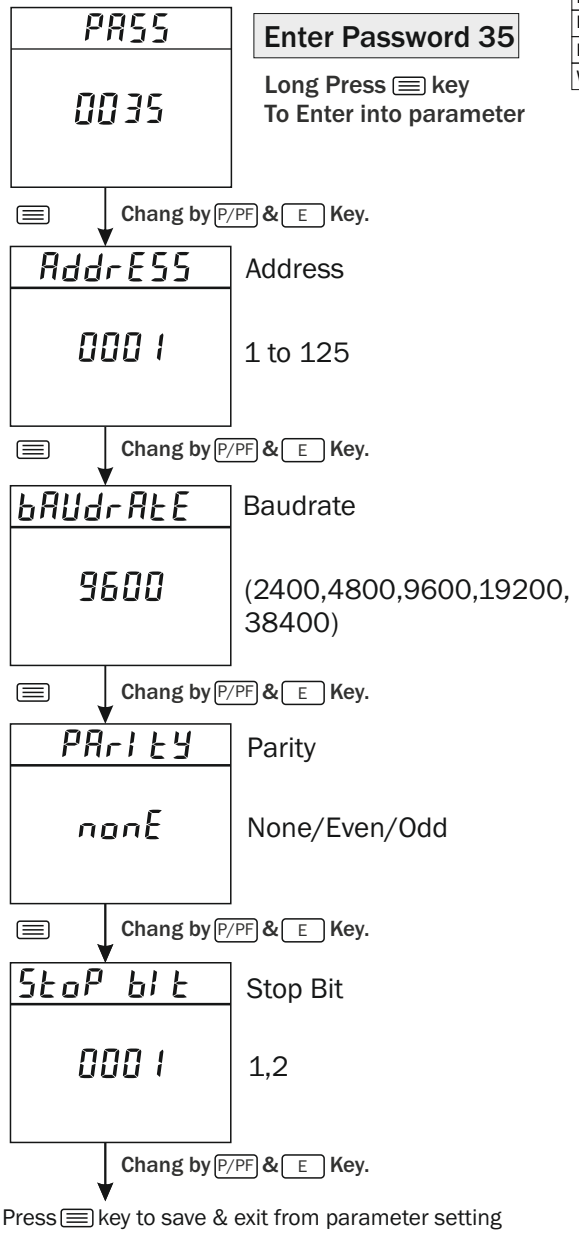


2) Current THD%



Specifications are subject to change, since development is a continuous process,
So for more updated operating information and Support,
Please contact our Helpline: +91-7227057547 or
Email at service@multispanindia.com Ver:2201

Modbus Setting



MODBUS (DMR-162-M1)

Slave Address :	1 to 127
Baudrate :	4800,9600,19200,38400bps
Parity :	None,Even,Odd
Datatype :	Float (32 Bit Little Endian Byte Swap)
Read Function Register :	0x03 and 0x04
Write Function Register :	0x06 and 0x10

Sr.No	Access Type	Parameter	Register Data Type Float
1	R	Import kWh Value *N1	0
		Export kWh Value *N1	2
			4
			6
2	R	Import kVArh Value *N1	8
		Export kVArh Value *N1	10
			12
			14
3	R	kVAh Value * N1	16
			18

*Note 1 :- In Above Energy Parameter, Energy Value Representation shown as per below.

Example :- Actual Value = 320126789.321
Above Register Address 1 = 320126789
Below Register Address 2 = 0.321

4	R	Voltage L1-N Value	20
5	R	V L1-N Unit Selection: Value Volt: 0 Kilo Volt: 1	22
6	R	Voltage L2-N Value	24
7	R	V L2-N Unit Selection: Value Volt: 0 Kilo Volt: 1	26
8	R	Voltage L3-N Value	28
9	R	V L3-N Unit Selection: Value Volt: 0 Kilo Volt: 1	30
10	R	AVG VLN Value	32
11	R	AVG VLN Unit Selection: Value Volt: 0 Kilo Volt: 1	34
12	R	Voltage L12 Value	36
13	R	V L12 Unit Selection: Value Volt: 0 Kilo Volt: 1	38
14	R	Voltage L23 Value	40
15	R	V L23 Unit Selection: Value Volt: 0 Kilo Volt: 1	42

Sr.No	Access Type	Parameter	Register Data Type Float
16	R	Voltage L31 Value	44
17	R	V L31 Unit Selection: Value Volt: 0 Kilo Volt: 1	46
18	R	AVG VLL Value	48
19	R	AVG VLL Unit Selection: Value Volt: 0 Kilo Volt: 1	50
20	R	Current L1 Value	52
21	R	Current L1 Unit Selection: Value Ampere: 0	54
22	R	Current L2 Value	56
23	R	Current L2 Unit Selection: Value Ampere: 0	58
24	R	Current L3 Value	60
25	R	Current L3 Unit Selection: Value Ampere: 0	62
26	R	AVG Current Value	64
27	R	AVG Current Unit Selection: Value Ampere: 0	66
28	R	Line 1 Power Factor	68
29	R	Line 2 Power Factor	70
30	R	Line 3 Power Factor	72
31	R	System PF	74
32	R	Average Power Factor	76
33	R	System Frequency	78
34	R	Line 1 kW value	80
35	R	Line 1 kW Unit Selection: Value kW: 1 MW: 2	82
36	R	Line 2 kW value	84
37	R	Line 2 kW Unit Selection: Value kW: 1 MW: 2	86
38	R	Line 3 kW value	88
39	R	Line 3 kW Unit Selection: Value kW: 1 MW: 2	90

Sr.No	Access Type	Parameter	Register Data Type Float
40	R	Total kW	92
41	R	Total kW Unit Selection: Value kW: 1 MW: 2	94
42	R	Line 1 kVA value	96
43	R	Line 1 kVA Unit Selection: Value kVA: 1 MVA: 2	98
44	R	Line 2 kVA value	100
45	R	Line 2 kVA Unit Selection: Value kVA: 1 MVA: 2	102
46	R	Line 3 kVA value	104
47	R	Line 3 kVA Unit Selection: Value kVA: 1 MVA: 2	106
48	R	Total kVA value	108
49	R	Total kVA Unit Selection: Value kVA: 1 MVA: 2	110
50	R	Line 1 kVAr value	112
51	R	Line 1 kVAr Unit Selection: Value kVAr: 1 MVAr: 2	114
52	R	Line 2 kVAr value	116
53	R	Line 2 kVAr Unit Selection: Value kVAr: 1 MVAr: 2	118
54	R	Line 3 kVAr value	120
55	R	Line 3 kVAr Unit Selection: Value kVAr: 1 MVAr: 2	122
56	R	Total kVAr value	124
57	R	Total kVAr Unit Selection: Value kVAr: 1 MVAr: 2	126
58	R	Load Hour Value (In Hour)	128
59	R	Load Hour Minute (In Min.)	130
60	R	No Load Hour Value (In Hour)	132
61	R	No Load Hour Minute (In Min.)	134
62	R	RPM	136

Sr.No	Access Type	Parameter	Register Data Type Float
63	–	NA	138
64	–	NA	140
65	–	NA	142
66	–	NA	144
67	–	NA	146
68	–	NA	148
69	R	Max V-LN Value	150
70	R	Max V-LN Unit Selection: Value Volt: 0 Kilo Volt: 1	152
71	R	Max V-LL Value	154
72	R	Max V-LL Unit Selection: Value Volt: 0 Kilo Volt: 1	156
73	R	Min V-LN Value	158
74	R	Min V-LN Unit Selection: Value Volt: 0 Kilo Volt: 1	160
75	R	Min V-LL Value	162
76	R	Min V-LL Unit Selection: Value Volt: 0 Kilo Volt: 1	164
77	R/W	Network Selection Selection: Value 3P-3W: 0 3P-4W: 1 1P-2W: 2	166
78	R/W	CT Primary Value	168
79	R/W	CT Secondary Value	170
80	R/W	PT Primary Value	172
81	R/W	PT Secondary Value	174
82	—	NA	176

Note :- To Reset Below Parameter Enter 15 Value

83	R/W	Reset All Parameter	178
84	R/W	Reset kWh	180
85	R/W	Reset kVAh	182
86	R/W	Reset kVArh	184
87	–	NA	186
88	–	NA	188
89	–	NA	190
90	R/W	Reset Max Volt	192
91	R/W	Reset Min Volt	194
92	R/W	Reset Load Hour	196
93	R/W	Reset No Load Hour	198

Sr.No	Access Type	Parameter	Register Data Type Float
94	R/W	Address	200
95	R/W	Baudrate Selection: Value 4800: 0 9600: 1 19200: 2 38400: 3	202
96	R/W	Parity Selection: Value None: 0 Even: 1 Odd: 2	204
97	—	NA	206
98	R/W	Load Hour Selection: Value Disable: 0 Enable: 1	208
99	R/W	Load Hour Percentage	210
100	R/W	RPM Selection: Value Disable: 0 Enable: 1	212
101	R/W	Pole	214
102	R	NA	216
103	R	L1 Voltage THD%	218
104	R	L2 Voltage THD%	220
105	R	L3 Voltage THD%	222
106	R	L1 Current THD%	224
107	R	L2 Current THD%	226
108	R	L3 Current THD%	228
109	–	NA	230
110	–	NA	232
111	–	NA	234
112	–	NA	236
113	R/W	Demand Time	238
114	R/W	Demand Controller Selection: Value kW: 0 kVA: 1 kVAr: 2	240
115	R/W	High Set Value 1	242
116	R/W	Low Set Value 1	244
117	R/W	High Set Value 2	246
118	R/W	Low Set Value 2	248
119	R	Relay Status 1 Selection: Value OFF: 0 ON: 1	250
120	R	Relay Status 2 Selection: Value OFF: 0 ON: 1	252

Sr.No	Access Type	Parameter	Register Data Type Float
121	R	kW Demand	254
122	R	kW Demand Unit Selection: Value kW: 0 MW: 1	256
123	R	kVAr Demand	258
124	R	kVAr Demand Unit Selection: Value kVAr: 0 MVAr: 1	260
125	R	kVA Demand	262
126	R	kVA Demand Unit Selection: Value kVA: 0 MVA: 1	264
127	R	Amp Demand	266
128	R	Amp Demand Unit Selection: Value Amp: 0 Kilo Amp: 1	268
129	R	Max kW Demand	270
130	R	Max kW Demand Unit Selection: Value kW: 0 MW: 1	272
131	R	Max kVAr Demand	274
132	R	Max kVAr Demand Unit Selection: Value kVAr: 0 MVAr: 1	276
133	R	Max kVA Demand	278
134	R	Max kVA Demand Unit Selection: Value kVA: 0 MVA: 1	280