

Installation Guide

RISH ML14XX Multiload Monitor



DIGITAL MULTIFUNCTION INSTRUMENT

Installation Instructions

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About This Document

This Installation Guide is meant for installation purpose only. To get the detailed information about the instrument, kindly visit the website for User Manual (DMAN-00IM-0788) and Interface Definition (Modbus Protocol) (DMAN-00IM-0795) of this product.

Any suggestion and / or query regarding this document is welcome. Kindly visit the website for contact details.

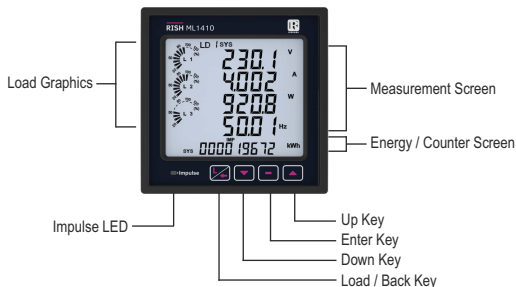
website : www.rishabh.co.in

1. Introduction

The Meter is a panel mounted 96 x 96 DIN Quadratic Digital Panel Meter. It has 12 single phase load, 12 3-wire symmetric load or 4 three phase load option. It measures important electrical parameters of multiple loads simultaneously in a single unit, eliminating the need and cost of multiple panel meters. It provides quick, easy and error free current connections with plug and play connectors. It measures real time electrical parameters like Active / Reactive / Apparent energy and power, current, THD, demand, max demand for each load. The instrument has 4 configurable relay outputs, which can be used for Limit / Pulse / Residual Current / 3 Phase Load Health Monitoring / Tariff / RTC / Timer tripping or alarms. This instrument communicates with either MODBUS or Ethernet connection.

It can be configured & Programmed at site for the following : PT Primary, PT Secondary, CT Primary, Channel modes as any combination of 3 Phase 3 Wire, 3 Phase 3 Wire Symmetric, 3 Phase 4 Wire, 1 Phase 2 Wire system, RCM (Residual Current Monitoring) and NC (No load Connected).

The front panel has four push buttons using which the user can scroll through different screens and configure the instrument. The front panel also has impulse red led, flashing at rate proportional to measured energy.

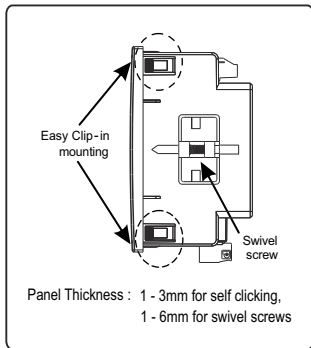


2. Installation

Mounting of the Meter is featured with easy "Clip-in" mounting. Push the meter in panel slot (size 92 x92 mm), it will click fit into panel with the four integral retention clips on two sides of meter. If required, additional support is provided with swivel screws as shown in figure.

The front of the enclosure conforms to IP54. Additional protection to the panel may be obtained by the use of an Optional panel gasket. The terminals at the rear of the product should be protected from liquids.

The Meter should be mounted in a reasonably stable ambient temperature and where the operating temperature is within the range 0 to 50°C. Vibration should be kept to a minimum and the product should not be mounted where it will be subjected to excessive direct sunlight.



Caution

1. In the interest of safety and functionality this product must be installed by a qualified engineer, abiding by any local regulations.
2. Voltages dangerous to human life are present at some of the terminal connections of this unit. Ensure that all supplies are de-energised before attempting any connection or disconnection.
3. These products do not have internal fuses therefore external fuses must be used to ensure safety under fault conditions.

2.1 EMC Installation Requirements

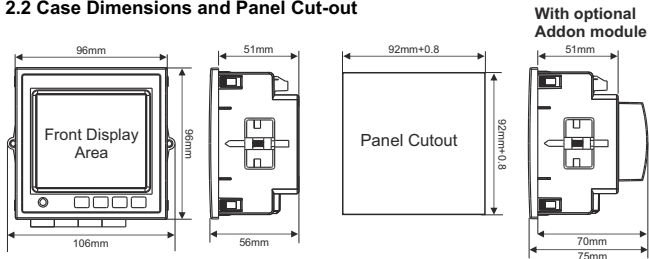
This product has been designed to meet the certification of the EU directives when installed to a good code of practice for EMC in industrial environments, e.g.

1. Screened output and low signal input leads or have provision for fitting RF suppression components, such as ferrite absorbers, line filters etc., in the event that RF fields cause problems.

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

- Avoid routing leads alongside cables and products that are, or could be, a source of interference.
- To protect the product against permanent damage, surge transients must be limited to 2kV pk. It is good EMC practice to suppress differential surges to 2kV at the source. The unit has been designed to automatically recover in the event of a high level of transients. In extreme circumstances it may be necessary to temporarily disconnect the auxiliary supply for a period of greater than 5 seconds to restore correct operation. The Current inputs of these products are designed for connection to systems via Current Transformers only, where one side is grounded.
- ESD precautions must be taken at all times when handling this product.

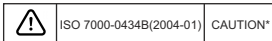
2.2 Case Dimensions and Panel Cut-out



2.3 Wiring

Input connections are made directly to screw-type terminals with indirect wire pressure. Numbering is clearly marked on the connector. Choice of cable should meet local regulations. Terminal for both Current and Voltage inputs will accept upto 4mm² (12AWG) solid or 2.5 mm² stranded cable.

Note : It is recommended to use Pin type wire for connection with meter.



*Note : Refer this Manual wherever the CAUTION symbol is marked.

2.4 Auxiliary Supply

Meter should ideally be powered from a dedicated supply, however powered from the signal source, provided the source remains within it may be the limits of the Chosen auxiliary voltage range.

2.5 Fusing

It is recommended that all voltage lines are fitted with 1 Amp HRC fuses or circuit breaker to disconnect the device.

Specification : Disconnecting device used must be relevant requirements of IEC-60974-1 & IEC-60947-3

For Aux: At most 1.5 times of applied power supply

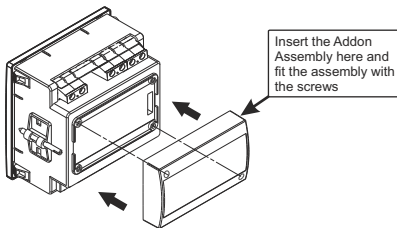
For measuring input : At most 1.5 times of measuring input.

(Switching time of the device should be < 0.1 sec for Aux & I/P both)

2.6 Earth/Ground Connections

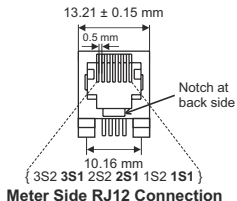
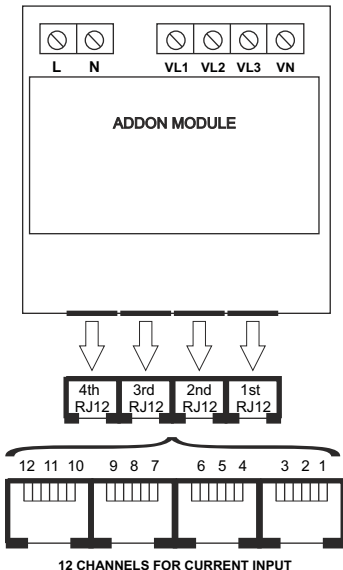
For safety reasons, CT secondary connections should be grounded in accordance with local regulations.

3. Optional Pluggable Module



Optional Pluggable (Addon) Module

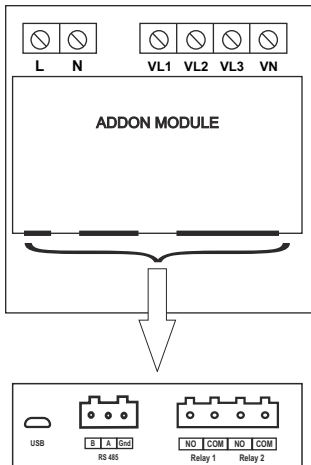
4. Electrical Connection (Backview)



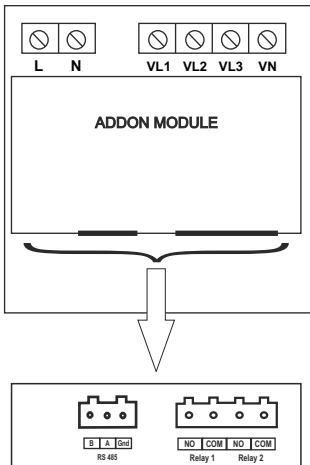
- Note :** A single RJ12 i/p should be used for one of the following cases :
1. A 'Three Phase' load
 2. Max. 3 'Single Phase' loads
 3. Max. 3 'CBCTs (for RCM)'
 4. Max. 3 'Three Wire Symmetric' Load

5. Connection for Optional Pulse Output / RS 485 / Ethernet Module (rear (back) view of Multifunction Meter):

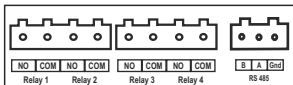
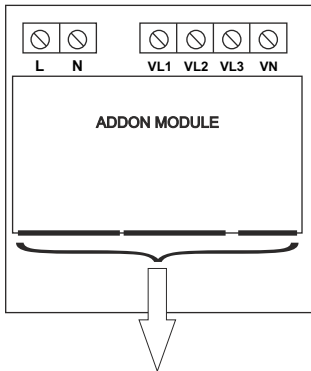
1. USB and RS 485 Output with 2 Relays



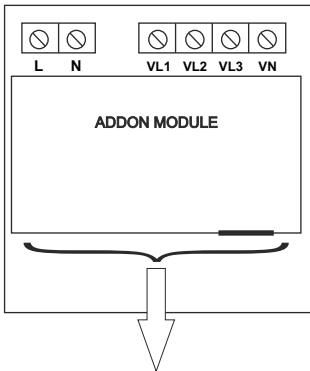
2. RS 485 Output with 2 Relays



3. RS 485 Output with 4 Relays

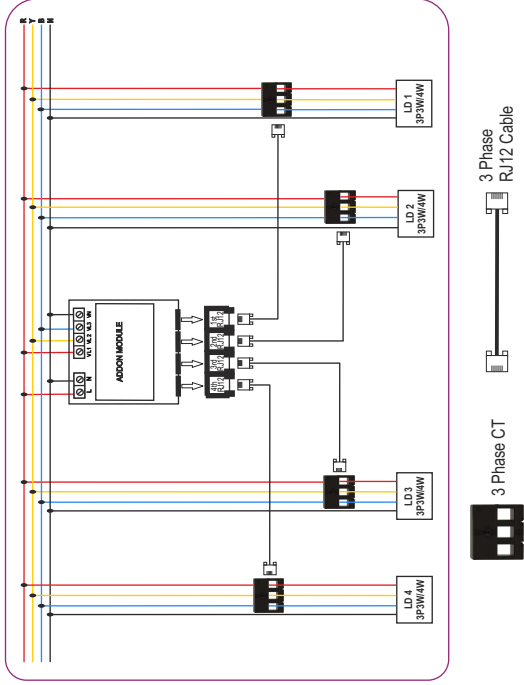


4. Ethernet Option

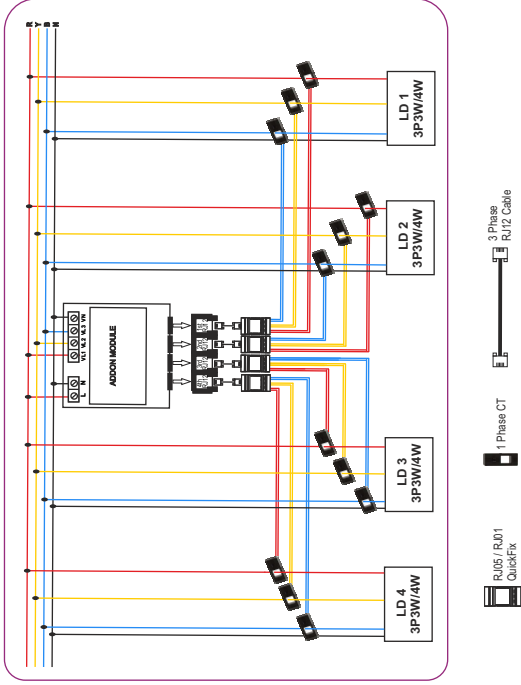


6. Use Case Scenarios

6.1 All 3 Phase Load Connections with 3 Phase RJ12 CT :

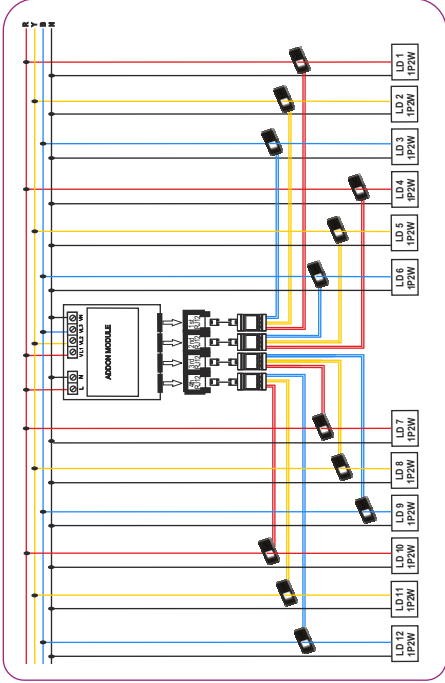


6.2 All 3 Phase Load Connections With 1 Phase 5A/1A CT :



***Note :** User can use 3 phase 5A/1A CT instead of 3x 1 phase 5A/1A CT.

6.3 All 1 Phase Load Connections With 1 Phase 5A/1A CT :



RJ05 / RJ01
QuickFix

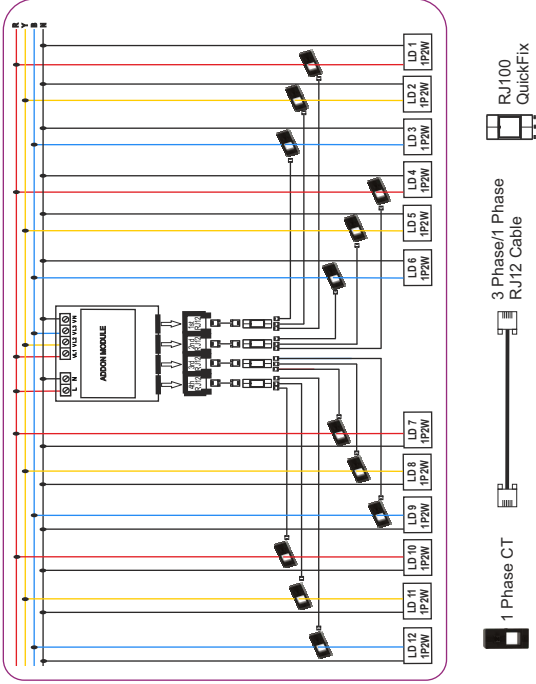


1 Phase CT

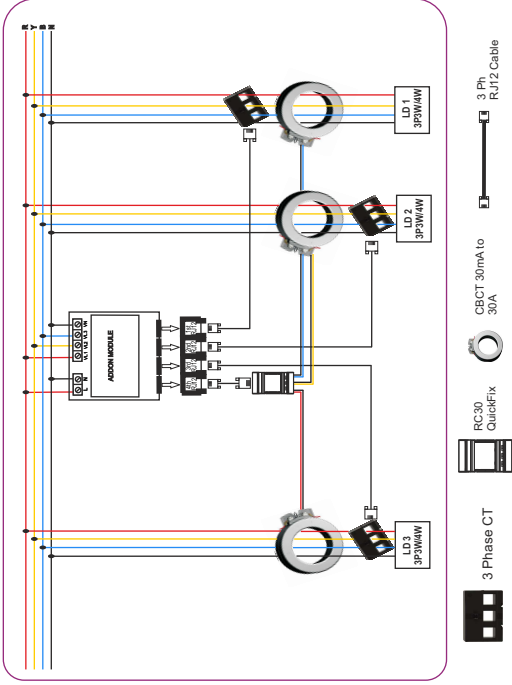


3 Phase
RJ12 Cable

6.4 All 1 Phase Load Connections With 1 Phase RJ12 CT :

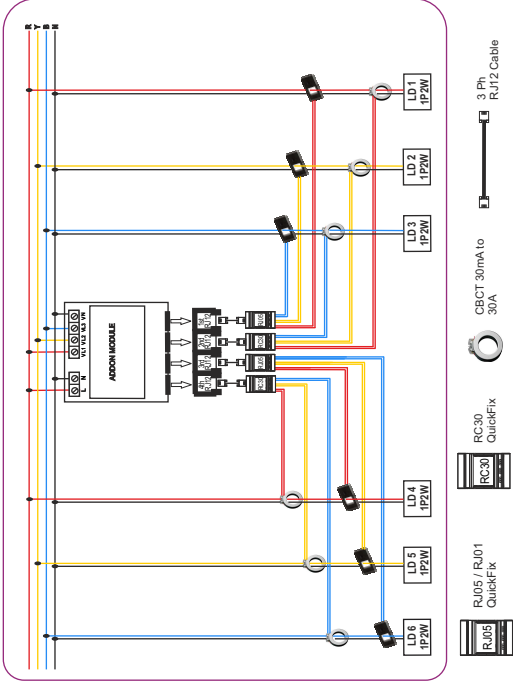


6.5 All 3 Phase Load Plus RCM Connections :



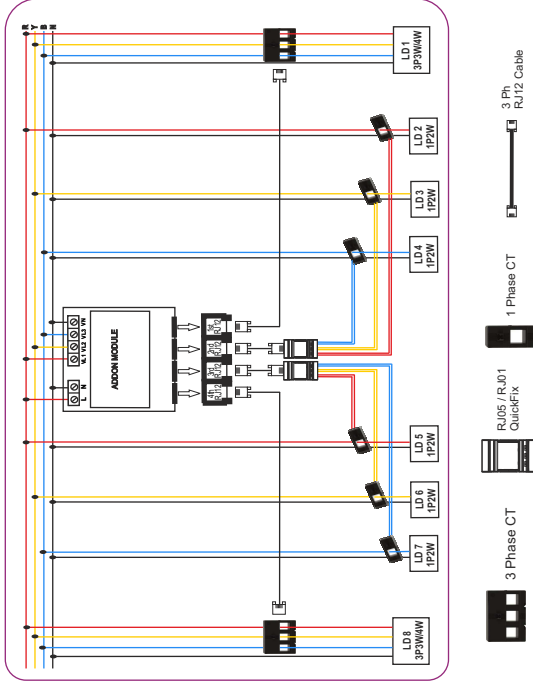
***Note :** User can use 3 phase 5A/1 A CT with "QuickFix 5A/1A to R/J12 Converter" for above application. Many combinations are possible in above application.

6.6 All 1 Phase 5A/1A CT Plus RCM Connections :



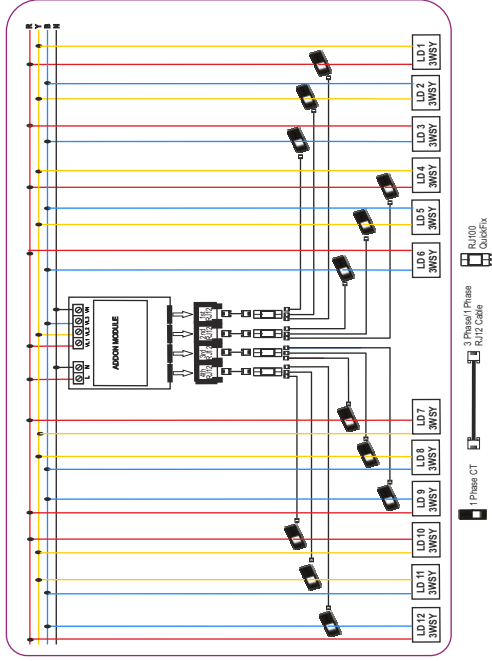
***Note :** User can use 1 phase RJ12 CT with "QuickFix 3x 1Phase RJ12 Converter" for above application. Many combinations are possible in above application.

6.7 Hybrid Load Connections :

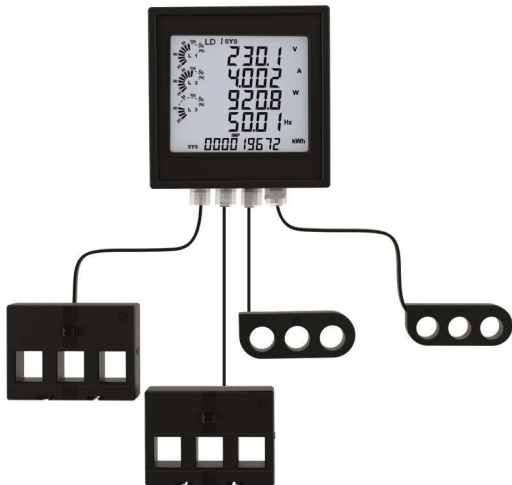


*Note : Many combinations of 1 Phase 3 Phase load along with RCM are possible in above hybrid load connection.

6.8 All 3 Wire Symmetric Load Connections With 1 Phase RJ12 CT :



7. Meter Connection Diagram with CT



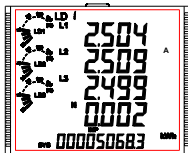
Note : The above diagram is for representation purpose only. Actual connection may depend upon the application.

8. Measurement and Energy/Counter Screens

The display screen follows a simple menu format. The **Main Menu** (as shown in TABLE 1.2) is the outer-most menu. Refer the flow chart "**Measurement Parameter Screens**" for navigation to the required parameter screen.

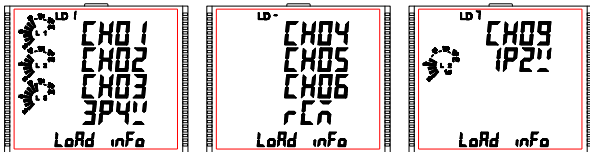
Inside the **Load Menu** OR **Total System Menu**, the user is presented with two sub-screens in a single screen as listed below:

1. Sub-screen 1 : One of the **Measurement screens** out of the screens 1 to 45 of TABLE 1.1 OR 1 to 14 of TABLE 1.2. These sub-screens may be scrolled through one at a time in incremental order by pressing the "Up key" and in decremental order by pressing "Down key".
2. Sub-screen 2 : One of the **Energy/Counter screens** out of the screens 46 to 49 of TABLE 1.1 OR 15 to 17 of TABLE 1.2. These sub-screens may be scrolled through one at a time in incremental order only by pressing the "Enter key" to roll over again in the same order.



← Pictorial representation of one of the Load Measurement screens

The Load Menu contains a sub-menu named **Load Channel Information**. This sub-menu lists the Current Channels and the corresponding mode, whether 3P4W Load / 3P3W Load / 3WSY Load / 1P2W Load / RCM (Residual Current Monitoring) / NC (No Load) that is connected to each of them. An example is shown below.



The **RCM**, **Load Health** and **Tariff** menu provide Residual Current Monitored values, 3 Ph Load Health faults and Cost based Energy Tariff data, respectively.

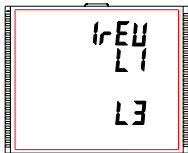
Similarly, the RTC based Date & Time and parameters of Relay in Timer mode are available in **Miscellaneous Menu**.

9. Input Diagnostic Screens

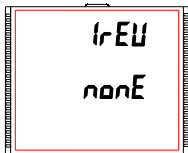
Each load can be checked for correct input connections. Simply visit the Load Menu for the screens explained in this section. Press "UP" and "DOWN" Key to navigate through different screens and press "LOAD/BACK" Key to change the load.

9.1 Current Reversal Screen

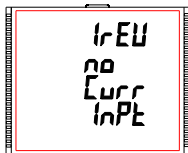
This screen is useful to indicate if current in any phase of the corresponding load is reversed or not. If current in any phase gets reversed, then corresponding phase will be indicated on this screen.



This screen shows that currents in L1 and L3, are reversed.



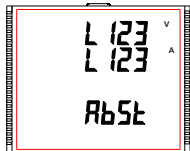
This screen shows that currents in all three phase are correct.



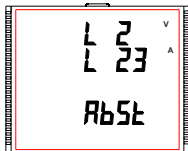
This screen shows that the meter has no current input.

9.2 Phase Absent Screen

This screen is useful to indicate if voltage or current in any phase of the corresponding load is absent. Hence, user will know which voltage or current is missing and take corrective action.



This screen indicates that all three phases (voltage & current) are absent.



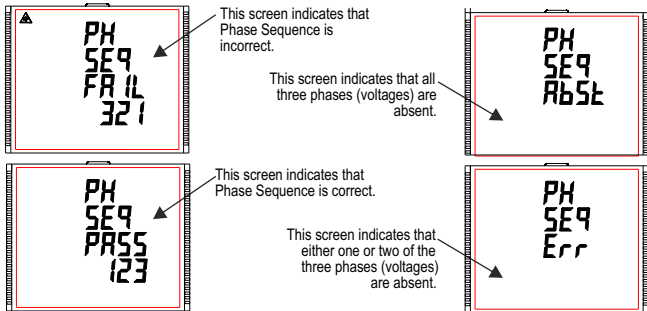
This screen indicates that V2, I2 and I3 are absent.



This screen indicates that all three phases are present i.e. all inputs are present.

9.3 Phase Rotation Error Screen

Meter shows phase rotation information for the phase sequence R-Y-B (L1-L2-L3).



User must check this screen in order to get correct readings when meter is connected.

Phase Sequence is also indicated at top left corner of the screen : In case the input is absent or the phase sequence is not L321, the phase sequence indication is not shown.



Counter-Clockwise Sequence, for L321

9.4 Load Graphics

Load Graphics (refer Section 1 Introduction) indicates the input current as the percentage of the CT Primary value. This indication is available for all Load measurement screens. For example, consider CT Primary to be set at 5A, then the input current of 2.5A indicates 50%.

The absence of lines indicating the percentage implies that the input current is less than 20% of the CT Primary value.

TABLE 1.1 : Measurement & Energy/Counter Screens for Load Menu

Screen No.	3P 4W Load	3P 3W Load	1P 2W / 3W SY Load
1	System(V, A, W, HZ)	System(V, A, W, HZ)	Channel(V, A, W, HZ)
2	Phase Volt(L1, L2, L3, AVG)	✘	✘
3	Line to Line Volt(L12, L23, L31)	Line to Line Volt(L12, L23, L31)	✘
4	Phase Current(L1, L2, L3, N)	Phase Current(L1, L2, L3)	✘
5	Phase L1(VA, VAr, W, PF)	✘	✘
6	Phase L2(VA, VAr, W, PF)	✘	✘
7	Phase L3(VA, VAr, W, PF)	✘	✘
8	Phase Angle(L1, L2, L3)	✘	✘
9	System W DMD(Imp,Exp)	System W DMD(Imp, Exp)	Channel W DMD(Imp, Exp)
10	System Var DMD(Cap,Ind)	System Var DMD(Cap, Ind)	Channel Var DMD(Cap, Ind)
11	System DMD(VA, A)	System DMD(VA, A)	Channel DMD(VA, A)
12	W Imp DMD(L1, L2, L3)	✘	✘
13	W Exp DMD(L1, L2, L3)	✘	✘
14	VAr Cap DMD(L1, L2, L3)	✘	✘
15	VAr Ind DMD(L1, L2, L3)	✘	✘
16	VA DMD(L1, L2, L3)	✘	✘
17	Current DMD(L1, L2, L3)	✘	✘
18	Max System W DMD(Imp,Exp)	Max System W DMD(Imp,Exp)	Max Channel W DMD(Imp,Exp)
19	Max System VAr DMD(Cap,Ind)	Max System VAr DMD(Cap,Ind)	Max Channel VAr DMD(Cap,Ind)
20	Max System DMD(VA, A)	Max System DMD(VA, A)	Max Channel DMD(VA, A)
21	Max W Imp DMD(L1, L2, L3)	✘	✘
22	Max W Exp DMD(L1, L2, L3)	✘	✘
23	Max VAr Cap DMD(L1, L2, L3)	✘	✘
24	Max VAr Ind DMD(L1, L2, L3)	✘	✘
25	Max VA DMD(L1, L2, L3)	✘	✘
26	Max Current DMD(L1, L2, L3)	✘	✘
27	RPM, Frequency	RPM, Frequency	RPM, Frequency
28	System(VA, VAr, W)	System(VA, VAr, W)	Channel(VA, VAr, W)
29	System(VA, Var, PA, PF)	System(VA, Var, PA, PF)	Channel(VA, Var, PA, PF)
30	Min system (V, A)	Min system (V, A)	Min Channel (V, A)

TABLE 1.1 : Continue...

Screen No.	3P 4W Load	3P 3W Load	1P 2W / 3W SY Load
31	Max system(V, A)	Max system(V, A)	Max Channel(V, A)
32	Min Volt(L1, L2, L3)	✘	✘
33	Max Volt(L1, L2, L3)	✘	✘
34	Min Volt(L12, L23, L31)	Min Volt(L12, L23, L31)	✘
35	Max Volt(L12, L23, L31)	Max Volt(L12, L23, L31)	✘
36	Min Current(L1, L2, L3)	Min Current(L1, L2, L3)	✘
37	Max Current(L1, L2, L3)	Max Current(L1, L2, L3)	✘
38	%THD Volt(L1, L2, L3)	%THD Volt(L1, L2, L3)	✘
39	%THD Current(L1, L2, L3)	%THD Current(L1, L2, L3)	✘
40	System %THD(V, A)	System %THD(V, A)	Channel %THD(V, A)
41	Current reverse	✘	Current reverse
42	Phase reversal	Phase reversal	✘
43	Phase absent screen	✘	✘
44	Individual harmonic(V%)	Individual harmonic(V%)	Individual harmonic(V%)
45	Individual harmonic(A%)	Individual harmonic(A%)	Individual harmonic(A%)
46	System Wh(Imp, Exp)	System Wh(Imp, Exp)	Channel Wh (Imp, Exp)
47	System VARh(Cap, Ind)	System VARh(Cap, Ind)	Channel VARh(Cap, Ind)
48	System VAh	System VAh	Channel VAh
49	System Run hour	System Run hour	Channel Run hour

Note 1: Screens with screen number 46 to 49 are not available for selectable Userscreens.

Note 2: Energy on display is Auto-Ranging, for details refer the Operating Manual.

TABLE 1.2 : Measurement Screens (Menu-wise)

Screen No.	Total System Menu	Load Channel Info Sub-menu	RCM Menu
1	Total (V, A, W)	Channel 1 Load information	Residual Current
2	Total (VA, VAR, W)	Channel 2 Load information	Min Residual Current
3	Total (Angle)	Channel 3 Load information	Max Residual Current
4	Total (Power factor)	Channel 4 Load information	
5	Total (RPM)	Channel 5 Load information	
6	Total (Frequency)	Channel 6 Load information	
7	Total import W demand	Channel 7 Load information	
8	Total export W demand	Channel 8 Load information	
9	Total VAR demand (ind., cap.)	Channel 9 Load information	
10	Total demand (VA, A)	Channel 10 Load information	
11	Max Total import W demand	Channel 11 Load information	
12	Max Total export W demand	Channel 12 Load information	
13	Max Total VAR demand (ind.,cap.)		
14	Max Total demand (VA, A)		
15	Total Energy(kW,VAR,VA)		
16	Instrument On Hour		
17	Instrument interruptions		

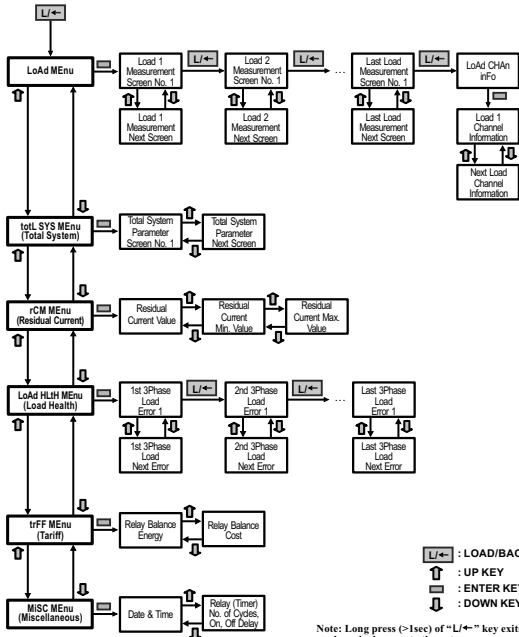
Note : Screens with screen number 15 to 17 are not available for selectable Userscreens.

TABLE 1.2 : Continue...

Screen No.	Tariff Menu	Main Menu*	Miscellaneous Menu
1	Relay 1 Balance Energy	Show Load Data	Date & Time
2	Relay 1 Balance Cost	Show Total Data	Timer 1 cycles/on/off delay
3	Relay 2 Balance Energy	Show RCM Data	Timer 2 cycles/on/off delay
4	Relay 2 Balance Cost	Show LD Health for all 3ph sys	Timer 3 cycles/on/off delay
5	Relay 3 Balance Energy	Show Tariff Data	Timer 4 cycles/on/off delay
6	Relay 3 Balance Cost	Show Miscellaneous Data	
7	Relay 4 Balance Energy		
8	Relay 4 Balance Cost		

***Note : From the Main Menu, only “Show Load Health for all 3ph sys” is available for selectable Userscreen.**

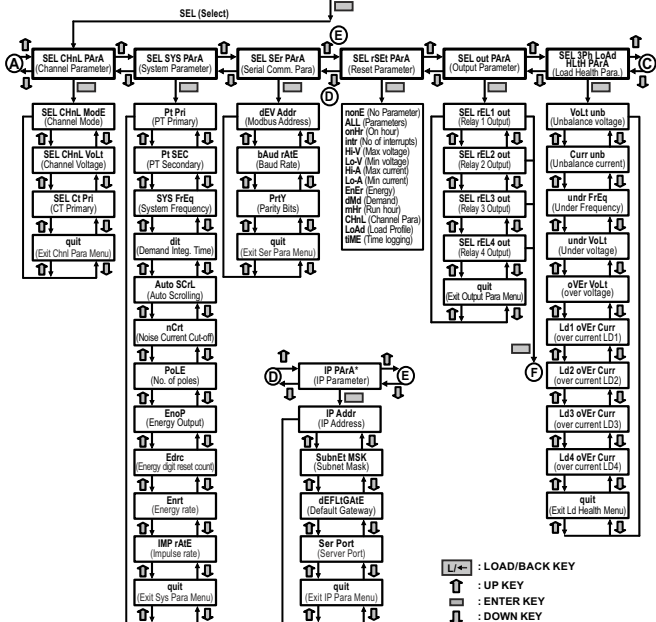
Measurement Parameter Screens



Note: Long press (>1sec) of "L/←" key exits the present menu / edit mode and advances to the outer menu.

Setup Parameter Screens

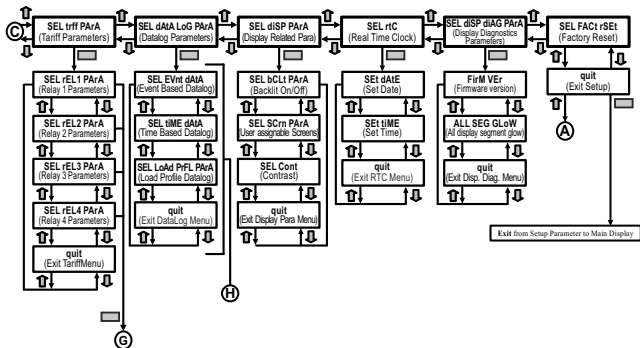
CodE (PassWord)



Note*: IP Menu is available only in case of Ethernet option.

Note: Long press (>1sec) of "L/←" key exits the present menu / edit mode and advances to the outer menu.

Setup Parameter Screens



L/← : LOAD/BACK KEY

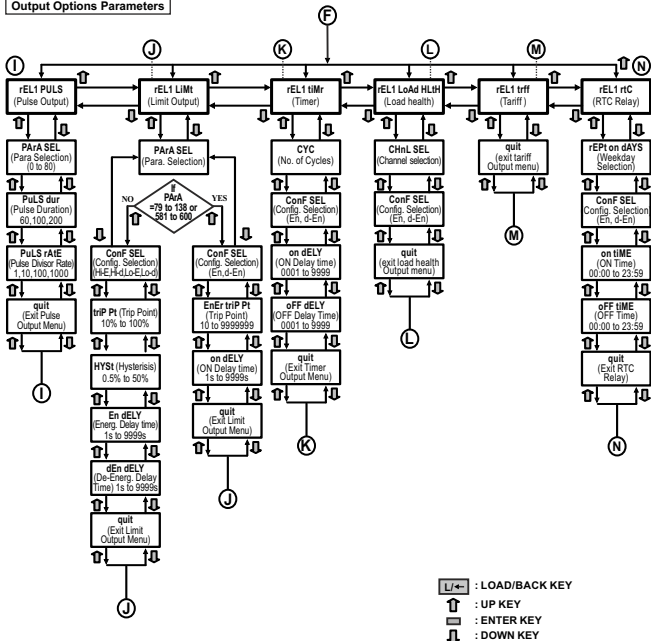
↑ : UP KEY

▬ : ENTER KEY

↓ : DOWN KEY

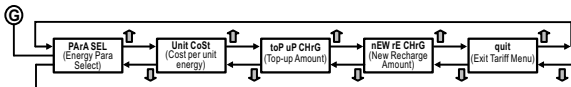
Note: Long press (>1sec) of "L/←" key exits the present menu / edit mode and advances to the outer menu.

Output Options Parameters

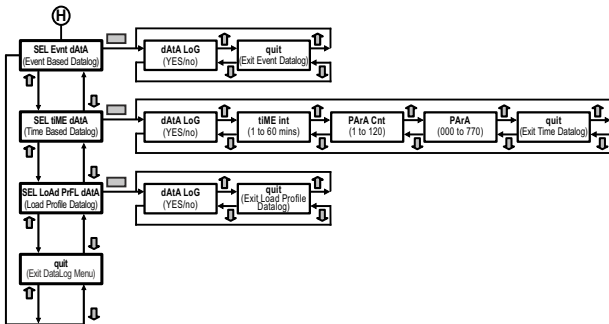


Note: Long press (>1sec) of "L/←" key exits the present menu / edit mode and advances to the outer menu.

Tariff Parameter Settings



Datalog Options Parameters



L/← : LOAD/BACK KEY

↑ : UP KEY

→ : ENTER KEY

↓ : DOWN KEY

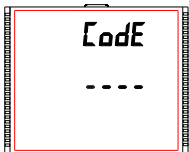
Note: Long press (>1sec) of "L/←" key exits the present menu / edit mode and advances to the outer menu.

10. Programming

The following section comprises the procedure for accessing the setup parameters of the Meter. To access the set-up screens press and hold "UP" and "DOWN" Keys simultaneously for 5 seconds. This advances to the Password Protection Entry Stage.

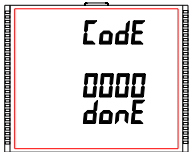
10.1. Password Protection

Password protection can be enabled to prevent unauthorised access to set-up screens, when default password protection is not enabled. Password protection is enabled by selecting a four digit number other than 0000, setting a password of 0000 disables the password protection.



Enter Password, prompt for first digit. Press the "UP" key to scroll the value of first digit from 0 through to 9, the value rolls back from 9 round to 0 and "DOWN" key to scroll the value of first digit from 9 through to 0, the value rolls back from 0 round to 9.

Press the "ENTER" key to advance to next digit.



In special case where the Password is "0000" pressing the "ENTER" key when prompted for the first digit advances to the password accepted screen and then pressing the "ENTER" key again makes the set-up screens accessible to the user.

But instead of pressing the "ENTER" key, if "UP" or "DOWN" key is pressed, the user is advanced to the "New/change Password" entry stage.

For detailed explanation of "New/change Password" entry stage and all the Setting Parameter Screens, refer the Operating Manual.

Note : Inside the Setup Menu, at any time during edit mode of a parameter, long press the "LOAD/BACK" key to exit the edit mode.

TABLE 2 : 4X (Setup) register addresses and default values

Parameter No.	Parameter	Read/Write	Display	Default Value
1	Reset parameters	R/Wp	SEL rSET PArA	0
2	Demand integration time	R/Wp	dit	8
3	RS485 setup code	R/Wp	SEL Ser PArA	4
4	Node address	R/Wp	dEV Addr	1
5	Register Order / Word Order	R/Wp	- - -	0
6	No. of poles	R/Wp	PoLE	2
7	Channel 1 Mode	R/Wp	SEL CHnL ModE	4
8	Channel 2 Mode	R/Wp	SEL CHnL ModE	
9	Channel 3 Mode	R/Wp	SEL CHnL ModE	
10	Channel 4 Mode	R/Wp	SEL CHnL ModE	
11	Channel 5 Mode	R/Wp	SEL CHnL ModE	
12	Channel 6 Mode	R/Wp	SEL CHnL ModE	
13	Channel 7 Mode	R/Wp	SEL CHnL ModE	
14	Channel 8 Mode	R/Wp	SEL CHnL ModE	
15	Channel 9 Mode	R/Wp	SEL CHnL ModE	
16	Channel 10 Mode	R/Wp	SEL CHnL ModE	
17	Channel 11 Mode	R/Wp	SEL CHnL ModE	
18	Channel 12 Mode	R/Wp	SEL CHnL ModE	
19	Related Voltage Channel 1	R/Wp	SEL CHnL VoLt	0
20	Related Voltage Channel 2	R/Wp	SEL CHnL VoLt	1
21	Related Voltage Channel 3	R/Wp	SEL CHnL VoLt	2
22	Related Voltage Channel 4	R/Wp	SEL CHnL VoLt	0
23	Related Voltage Channel 5	R/Wp	SEL CHnL VoLt	1
24	Related Voltage Channel 6	R/Wp	SEL CHnL VoLt	2
25	Related Voltage Channel 7	R/Wp	SEL CHnL VoLt	0
26	Related Voltage Channel 8	R/Wp	SEL CHnL VoLt	1
27	Related Voltage Channel 9	R/Wp	SEL CHnL VoLt	2
28	Related Voltage Channel 10	R/Wp	SEL CHnL VoLt	0
29	Related Voltage Channel 11	R/Wp	SEL CHnL VoLt	1
30	Related Voltage Channel 12	R/Wp	SEL CHnL VoLt	2

TABLE 2 : Continued...

Parameter No.	Parameter	Read/Write	Display	Default Value
31	PT Primary	R/Wp	Pt Pri	415
32	PT Secondary	R/Wp	Pt SEC	415
33	CT Primary Channel 1	R/Wp	SEL Ct Pri	60
34	CT Primary Channel 2	R/Wp	SEL Ct Pri	
35	CT Primary Channel 3	R/Wp	SEL Ct Pri	
36	CT Primary Channel 4	R/Wp	SEL Ct Pri	
37	CT Primary Channel 5	R/Wp	SEL Ct Pri	
38	CT Primary Channel 6	R/Wp	SEL Ct Pri	
39	CT Primary Channel 7	R/Wp	SEL Ct Pri	
40	CT Primary Channel 8	R/Wp	SEL Ct Pri	
41	CT Primary Channel 9	R/Wp	SEL Ct Pri	
42	CT Primary Channel 10	R/Wp	SEL Ct Pri	
43	CT Primary Channel 11	R/Wp	SEL Ct Pri	
44	CT Primary Channel 12	R/Wp	SEL Ct Pri	
45	Energy Resolution / unit	R/Wp	EnoP	2
46	Energy digit reset count	R/Wp	EdrC	8
47	Energy Update rate on MODBUS	R/Wp	Enrt	15
48	System Frequency selection	R/Wp	SYS Freq	50
49	Impulse on Energy Selection	R/Wp	---	1
50	CT Secondary	R	---	-
51	EnergyPara Select	R/Wp	---	0
52	Enter Energy Start Count	R/Wp	---	0
53	Relay 1 Timer Start stop*	R/Wp	SEL tMr1	0
54	Relay 2 Timer Start stop*	R/Wp	SEL tMr2	0
55	Relay 3 Timer Start stop*	R/Wp	SEL tMr3	0
56	Relay 4 Timer Start stop*	R/Wp	SEL tMr4	0
57	Pulse width	R/Wp	PuLS dur	100
58	Pulse divisor	R/Wp	PuLS rAtE	1
59	Relay 1 output select	R/Wp	rEL1 nonE	0
60	Relay 1 Parameter select	R/Wp	PARA SEL	0

TABLE 2 : Continued...

Parameter No.	Parameter	Read/Write	Display	Default Value
61	Relay 1 Limit Trip point	R/Wp	triP Pt	10
62	Relay 1 Limit Hysteresis	R/Wp	HYST	0.5
63	Relay 1 delay (On)	R/Wp	on dELY	1
64	Relay 1 delay (Off)	R/Wp	oFF dELY	1
65	Relay 1 Configuration select	R/Wp	ConF SEL	0
66	Relay 2 output select	R/Wp	rEL2 nonE	0
67	Relay 2 Parameter select	R/Wp	PARA SEL	0
68	Relay 2 Limit Trip point	R/Wp	triP Pt	10
69	Relay 2 Limit Hysteresis	R/Wp	HYST	0.5
70	Relay 2 delay (On)	R/Wp	on dELY	1
71	Relay 2 delay (Off)	R/Wp	oFF dELY	1
72	Relay 2 Configuration select	R/Wp	ConF SEL	0
73	Relay 3 output select	R/Wp	rEL3 nonE	0
74	Relay 3 Parameter select	R/Wp	PARA SEL	0
75	Relay 3 Limit Trip point	R/Wp	triP Pt	10
76	Relay 3 Limit Hysteresis	R/Wp	HYST	0.5
77	Relay 3 delay (On)	R/Wp	on dELY	1
78	Relay 3 delay (Off)	R/Wp	oFF dELY	1
79	Relay 3 Configuration select	R/Wp	ConF SEL	0
80	Relay 4 output select	R/Wp	rEL4 nonE	0
81	Relay 4 Parameter select	R/Wp	PARA SEL	0
82	Relay 4 Limit Trip point	R/Wp	triP Pt	10
83	Relay 4 Limit Hysteresis	R/Wp	HYST	0.5
84	Relay 4 delay (On)	R/Wp	on dELY	1
85	Relay 4 delay (Off)	R/Wp	oFF dELY	1
86	Relay 4 Configuration select	R/Wp	ConF SEL	0
87	Auto scroll	R/Wp	Auto SCrL	0
88	Noise Current cutoff	R/Wp	nCrT	0
89	Password	R/Wp	CodE	0000
90	Factory Reset Mode	R/Wp	SEL FACt rSET	0

TABLE 2 : Continued...

Parameter No.	Parameter	Read/Write	Display	Default Value
91	RTC Complete Date	R/Wp	SET dAIE	-
92	RTC Complete Time	R/Wp	Set tiME	-
93	---	---	---	-
97	Meter Version number	R	FirM VEr	-
99	Serial number_1	R	---	-
100	Serial number_2	R	---	-
101	Model No	R	---	-
102	Backlit ON/OFF	R/Wp	SEL bCLt PArA	1
103	Contrast	R/Wp	SEL Cont	3
104	Number of User Screens	R/Wp	uSEr SCrn	0
105	User screen 1	R/Wp	SCrn	1301
106	User screen 2	R/Wp	SCrn	1302
107	User screen 3	R/Wp	SCrn	1303
108	User screen 4	R/Wp	SCrn	1304
109	User screen 5	R/Wp	SCrn	1305
110	User screen 6	R/Wp	SCrn	1306
111	User screen 7	R/Wp	SCrn	1307
112	User screen 8	R/Wp	SCrn	1308
113	User screen 9	R/Wp	SCrn	1309
114	User screen 10	R/Wp	SCrn	1310
115	User screen 11	R/Wp	SCrn	1311
116	User screen 12	R/Wp	SCrn	1312
117	User screen 13	R/Wp	SCrn	1313
118	User screen 14	R/Wp	SCrn	1314
119	User screen 15	R/Wp	SCrn	1301
120	User screen 16	R/Wp	SCrn	1302
121	User screen 17	R/Wp	SCrn	1303
122	User screen 18	R/Wp	SCrn	1304
123	User screen 19	R/Wp	SCrn	1305
124	User screen 20	R/Wp	SCrn	1306

TABLE 2 : Continued...

Parameter No.	Parameter	Read/Write	Display	Default Value
125	User screen 21	R/Wp	SCrn	1307
126	User screen 22	R/Wp	SCrn	1308
127	User screen 23	R/Wp	SCrn	1309
128	User screen 24	R/Wp	SCrn	1310
129	User screen 25	R/Wp	SCrn	1311
130	User screen 26	R/Wp	SCrn	1312
131	User screen 27	R/Wp	SCrn	1313
132	User screen 28	R/Wp	SCrn	1314
133	User screen 29	R/Wp	SCrn	1301
134	User screen 30	R/Wp	SCrn	1302
135	User screen 31	R/Wp	SCrn	1303
136	User screen 32	R/Wp	SCrn	1304
137	User screen 33	R/Wp	SCrn	1305
138	User screen 34	R/Wp	SCrn	1306
139	User screen 35	R/Wp	SCrn	1307
140	User screen 36	R/Wp	SCrn	1308
141	User screen 37	R/Wp	SCrn	1309
142	User screen 38	R/Wp	SCrn	1310
143	User screen 39	R/Wp	SCrn	1311
144	User screen 40	R/Wp	SCrn	1312
145	Event-based Datalog Select	R/Wp	dAtA LoG	0
146	Time-based Datalog Select	R/Wp	dAtA LoG	0
147	Time-based Datalog Interval Selection	R/Wp	tIME int	1
148	Time-based Datalog Parameter Count	R/Wp	PArA Cnt	1
149	Datalog Parameter 1	R/Wp	PArA	0
150	Datalog Parameter 2	R/Wp	PArA	0
151	Datalog Parameter 3	R/Wp	PArA	0
152	Datalog Parameter 4	R/Wp	PArA	0
153	Datalog Parameter 5	R/Wp	PArA	0
154	Datalog Parameter 6	R/Wp	PArA	0

TABLE 2 : Continued...

Parameter No.	Parameter	Read/Write	Display	Default Value
155	Datalog Parameter 7	R/Wp	PArA	0
156	Datalog Parameter 8	R/Wp	PArA	0
157	Datalog Parameter 9	R/Wp	PArA	0
158	Datalog Parameter 10	R/Wp	PArA	0
159	Datalog Parameter 11	R/Wp	PArA	0
160	Datalog Parameter 12	R/Wp	PArA	0
161	Datalog Parameter 13	R/Wp	PArA	0
162	Datalog Parameter 14	R/Wp	PArA	0
163	Datalog Parameter 15	R/Wp	PArA	0
164	Datalog Parameter 16	R/Wp	PArA	0
165	Datalog Parameter 17	R/Wp	PArA	0
166	Datalog Parameter 18	R/Wp	PArA	0
167	Datalog Parameter 19	R/Wp	PArA	0
168	Datalog Parameter 20	R/Wp	PArA	0
169	Datalog Parameter 21	R/Wp	PArA	0
170	Datalog Parameter 22	R/Wp	PArA	0
171	Datalog Parameter 23	R/Wp	PArA	0
172	Datalog Parameter 24	R/Wp	PArA	0
173	Datalog Parameter 25	R/Wp	PArA	0
174	Datalog Parameter 26	R/Wp	PArA	0
175	Datalog Parameter 27	R/Wp	PArA	0
176	Datalog Parameter 28	R/Wp	PArA	0
177	Datalog Parameter 29	R/Wp	PArA	0
178	Datalog Parameter 30	R/Wp	PArA	0
179	Datalog Parameter 31	R/Wp	PArA	0
180	Datalog Parameter 32	R/Wp	PArA	0
181	Datalog Parameter 33	R/Wp	PArA	0
182	Datalog Parameter 34	R/Wp	PArA	0
183	Datalog Parameter 35	R/Wp	PArA	0
184	Datalog Parameter 36	R/Wp	PArA	0

TABLE 2 : Continued...

Parameter No.	Parameter	Read/Write	Display	Default Value
185	Datalog Parameter 37	R/Wp	PArA	0
186	Datalog Parameter 38	R/Wp	PArA	0
187	Datalog Parameter 39	R/Wp	PArA	0
188	Datalog Parameter 40	R/Wp	PArA	0
189	Datalog Parameter 41	R/Wp	PArA	0
190	Datalog Parameter 42	R/Wp	PArA	0
191	Datalog Parameter 43	R/Wp	PArA	0
192	Datalog Parameter 44	R/Wp	PArA	0
193	Datalog Parameter 45	R/Wp	PArA	0
194	Datalog Parameter 46	R/Wp	PArA	0
195	Datalog Parameter 47	R/Wp	PArA	0
196	Datalog Parameter 48	R/Wp	PArA	0
197	Datalog Parameter 49	R/Wp	PArA	0
198	Datalog Parameter 50	R/Wp	PArA	0
199	Datalog Parameter 51	R/Wp	PArA	0
200	Datalog Parameter 52	R/Wp	PArA	0
201	Datalog Parameter 53	R/Wp	PArA	0
202	Datalog Parameter 54	R/Wp	PArA	0
203	Datalog Parameter 55	R/Wp	PArA	0
204	Datalog Parameter 56	R/Wp	PArA	0
205	Datalog Parameter 57	R/Wp	PArA	0
206	Datalog Parameter 58	R/Wp	PArA	0
207	Datalog Parameter 59	R/Wp	PArA	0
208	Datalog Parameter 60	R/Wp	PArA	0
209	Datalog Parameter 61	R/Wp	PArA	0
210	Datalog Parameter 62	R/Wp	PArA	0
211	Datalog Parameter 63	R/Wp	PArA	0
212	Datalog Parameter 64	R/Wp	PArA	0
213	Datalog Parameter 65	R/Wp	PArA	0
214	Datalog Parameter 66	R/Wp	PArA	0

TABLE 2 : Continued...

Parameter No.	Parameter	Read/Write	Display	Default Value
215	Datalog Parameter 67	R/Wp	PArA	0
216	Datalog Parameter 68	R/Wp	PArA	0
217	Datalog Parameter 69	R/Wp	PArA	0
218	Datalog Parameter 70	R/Wp	PArA	0
219	Datalog Parameter 71	R/Wp	PArA	0
220	Datalog Parameter 72	R/Wp	PArA	0
221	Datalog Parameter 73	R/Wp	PArA	0
222	Datalog Parameter 74	R/Wp	PArA	0
223	Datalog Parameter 75	R/Wp	PArA	0
224	Datalog Parameter 76	R/Wp	PArA	0
225	Datalog Parameter 77	R/Wp	PArA	0
226	Datalog Parameter 78	R/Wp	PArA	0
227	Datalog Parameter 79	R/Wp	PArA	0
228	Datalog Parameter 80	R/Wp	PArA	0
229	Datalog Parameter 81	R/Wp	PArA	0
230	Datalog Parameter 82	R/Wp	PArA	0
231	Datalog Parameter 83	R/Wp	PArA	0
232	Datalog Parameter 84	R/Wp	PArA	0
233	Datalog Parameter 85	R/Wp	PArA	0
234	Datalog Parameter 86	R/Wp	PArA	0
235	Datalog Parameter 87	R/Wp	PArA	0
236	Datalog Parameter 88	R/Wp	PArA	0
237	Datalog Parameter 89	R/Wp	PArA	0
238	Datalog Parameter 90	R/Wp	PArA	0
239	Datalog Parameter 91	R/Wp	PArA	0
240	Datalog Parameter 92	R/Wp	PArA	0
241	Datalog Parameter 93	R/Wp	PArA	0
242	Datalog Parameter 94	R/Wp	PArA	0
243	Datalog Parameter 95	R/Wp	PArA	0
244	Datalog Parameter 96	R/Wp	PArA	0

TABLE 2 : Continued...

Parameter No.	Parameter	Read/Write	Display	Default Value
245	Datalog Parameter 97	R/Wp	PArA	0
246	Datalog Parameter 98	R/Wp	PArA	0
247	Datalog Parameter 99	R/Wp	PArA	0
248	Datalog Parameter 100	R/Wp	PArA	0
249	Datalog Parameter 101	R/Wp	PArA	0
250	Datalog Parameter 102	R/Wp	PArA	0
251	Datalog Parameter 103	R/Wp	PArA	0
252	Datalog Parameter 104	R/Wp	PArA	0
253	Datalog Parameter 105	R/Wp	PArA	0
254	Datalog Parameter 106	R/Wp	PArA	0
255	Datalog Parameter 107	R/Wp	PArA	0
256	Datalog Parameter 108	R/Wp	PArA	0
257	Datalog Parameter 109	R/Wp	PArA	0
258	Datalog Parameter 110	R/Wp	PArA	0
259	Datalog Parameter 111	R/Wp	PArA	0
260	Datalog Parameter 112	R/Wp	PArA	0
261	Datalog Parameter 113	R/Wp	PArA	0
262	Datalog Parameter 114	R/Wp	PArA	0
263	Datalog Parameter 115	R/Wp	PArA	0
264	Datalog Parameter 116	R/Wp	PArA	0
265	Datalog Parameter 117	R/Wp	PArA	0
266	Datalog Parameter 118	R/Wp	PArA	0
267	Datalog Parameter 119	R/Wp	PArA	0
268	Datalog Parameter 120	R/Wp	PArA	0
269	Load Profile Datalog Select	R/Wp	dAtA LoG	4096
270	Start Date of Load Profile Datalog Channel 1	R	---	-
271	Start Date of Load Profile Datalog Channel 2	R	---	-
272	Start Date of Load Profile Datalog Channel 3	R	---	-
273	Start Date of Load Profile Datalog Channel 4	R	---	-
274	Start Date of Load Profile Datalog Channel 5	R	---	-

TABLE 2 : Continued...

Parameter No.	Parameter	Read/Write	Display	Default Value
275	Start Date of Load Profile Datalog Channel 6	R	---	-
276	Start Date of Load Profile Datalog Channel 7	R	---	-
277	Start Date of Load Profile Datalog Channel 8	R	---	-
278	Start Date of Load Profile Datalog Channel 9	R	---	-
279	Start Date of Load Profile Datalog Channel 10	R	---	-
280	Start Date of Load Profile Datalog Channel 11	R	---	-
281	Start Date of Load Profile Datalog Channel 12	R	---	-
283	Health Monitor Voltage Unbalance limit	R/Wp	VoLt unb	20
284	Health Monitor Current Unbalance limit	R/Wp	Curr unb	20
285	Health Monitor Under Freq Limit	R/Wp	undr FrEq	95
286	Health Monitor Under Voltage Limit	R/Wp	undr VoLt	70
287	Health Monitor Over Voltage Limit	R/Wp	oVEr VoLt	120
288	Health Monitor System 1 Over Current Limit	R/Wp	oVEr Curr	120
289	Health Monitor System 2 Over Current Limit	R/Wp	oVEr Curr	120
290	Health Monitor System 3 Over Current Limit	R/Wp	oVEr Curr	120
291	Health Monitor System 4 Over Current Limit	R/Wp	oVEr Curr	120
292	---	---	---	-
293	---	---	---	-
294	---	---	---	-
295	---	---	---	-
296	---	---	---	-
297	---	---	---	-
298	---	---	---	-
299	---	---	---	-
300	---	---	---	-
301	---	---	---	-
302	---	---	---	-
303	---	---	---	-
304	---	---	---	-
305	---	---	---	-

TABLE 2 : Continued...

Parameter No.	Parameter	Read/Write	Display	Default Value
306	---	---	---	-
307	---	---	---	-
312	---	---	---	-
313	---	---	---	-
314	---	---	---	-
315	---	---	---	-
316	---	---	---	-
317	---	---	---	-
319	IP Address 1	R/Wp	IP-Addr	192.168
320	IP Address 2	R/Wp	IP-Addr	11.11
321	Subnet Mask 1	R/Wp	SubnEtMSH	255.255
322	Subnet Mask 2	R/Wp	SubnEtMSH	255.0
323	Default Gateway 1	R/Wp	dEFLtGAtE	192.168
324	Default Gateway 2	R/Wp	dEFLtGAtE	1.1
325	Server Port	R/Wp	SER Port	502

Note 1 : Wp - Write protected , R - Read only , R/Wp - Read & Write protected

Note 2 : For detailed explanation about setting via modbus or display, refer Interface Definition and Operating Manual.

***Note : The timer can be turned ON or OFF by long press (about 3sec) of UP key or Down key while present in any of the measurement screens.**

11. Specification

Channel Mode

3 Phase 3 Wire / 4 Wire or Single Phase or 3 Wire Symmetric or RCM or No Load or any of the combination of these programmable on site

Inputs

Nominal Input Voltage (AC RMS)	100VLL to 600VLL programmable on site. (57.7VLN to 346.4VLN)
System PT Primary Values	100VLL to 1200 kVLL, programmable on site
System PT Secondary Values	100VLL to 600VLL programmable on site (57.7VLN to 346.4VLN)
Max continuous input voltage	120% of Nominal Value
Nominal input voltage burden	< 0.3 VA approx. per Phase (at nominal 240V)
Overload Indication	"-OL-" >121% of Nominal value

Input Current

Nominal Input Current	100mA
Max continuous input current	120% of Nominal value
Nominal input current burden	< 0.05 VA approx. per phase
System CT primary values	Std. Values 1A to 9999A
Overload Indication	"-OL-" >121% of Nominal value

Auxiliary Supply

Auxiliary supply range	100V to 550V AC-DC
Aux Frequency Range	45 to 65 Hz
VA Burden With Addon card	< 8 VA approx. (at nominal) for 2 Relays < 10 VA approx. (at nominal) for 4 Relays
VA Burden With Ethernet card	< 9 VA approx. (at nominal)

Operating Measuring Ranges

Voltage	20 ... 120 % of nominal Value
Current	1....120% of nominal value
Starting Current	As per Standard IEC62053-21 (Class 1) As per Standard IEC62053-22 (Class 0.5S) (optional)
Frequency	45 to 66 Hz
Power Factor	0.5 Lag ... 1 ... 0.8 Lead
Total Harmonic Distortion	50% upto 15th harmonic 10% upto 31st harmonic

Reference Conditions for Accuracy

Reference temperature (as per IEC 62053-21)	23°C \pm 2°C
Input Waveform	Sinusoidal (distortion factor 0.005)
Input Frequency	50 / 60 Hz \pm 2%
Auxiliary supply	230V AC/DC \pm 1%
Auxiliary supply frequency	50 / 60 Hz \pm 1%
Total Harmonic Distortion	50% upto 15th harmonic 10% upto 31st harmonic

Accuracy

Voltage	\pm 0.5% of nominal value
Current	\pm 0.5% of nominal value
Frequency	\pm 0.2 % of mid frequency
Active power	\pm 0.5% of nominal value
Reactive power	\pm 1.0% of nominal value
Apparent Power	\pm 0.5% of nominal value

Power Factor / Phase Angle	$\pm 3^\circ$
Active energy	Class 1 as per IEC 62053 - 21 Class 0.5S as per IEC 62053 - 22 (optional)
Reactive energy	Class 2 as per IEC 62053-23
Apparent energy	Class 1
THD (Voltage / Current)	$\pm 3.0 \%$

Display Update Rate

Response time to step input	Approx. 1 sec.
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Controls

User Interface	4 push buttons
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Applicable Standards

EMC	IEC 61326 - 1 : 2012
Immunity	IEC 61000-4-3. 10V/m - Level 3 industrial Low level
Safety	IEC 61010-1-2010, permanently connected use
IP for water & dust	IEC 60529
Pollution degree	2
Installation Category	300V CAT III / 600V CAT II

Isolation

Protective Class	2
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High Voltage Test

- | | |
|-------------------------------|-------------------------|
| 1. Input + Aux vs Surface | 4 kV RMS, 50Hz, 1 min |
| 2. Input vs Remaining Circuit | 3.3 kV RMS, 50Hz, 1 min |

Environmental Conditions

Operating temperature	-20 to +70 °C
Storage temperature	-25 to +75 °C
Relative humidity	0 .. 95 % RH (Non condensing)
Warm up time	3 minute (minimum)
Shock (As per IEC60068-2-27)	Half sine wave, Peak acceleration 30gn (300 m/s ²), duration 18ms
Vibration	10...150...10 Hz, 0.15mm amplitude
Number of Sweep cycles	10 per axis

Interfaces

Impulse Led	For energy testing
Relay (optional)	250 VAC, 5 A AC 30V DC, 5A DC
Modbus (optional)	RS485, max.1200m Baud rate : 4.8k, 9.6k, 19.2k, 38.4k, 57.6kbps
Ethernet (optional)	Ethernet access on modbus TCP/IP Protocol

Dimensions

Bezel Size	96mm x 96mm DIN 43718
Panel cut out	92mm+0.8 X 92mm+0.8
Overall Depth	75 mm
Panel thickness	1 - 3mm for self clicking 1 - 6mm for swivel screws
Weight	320 grams Approx.

Enclosure

Enclosure front	IP 54
Enclosure back (Terminals)	IP 20

Pulse Output Option

Relay	1NO
Switching Voltage & Current	240 VAC, 5 A / 30VDC, 5A DC
Default Pulse rate Divisor	1 per Wh (up to 3600W), 1 per kWh (up to 3600kW), 1 per MWh (above 3600 kW up to 30000 kW)

Pulse Rate Divisors

Programmable on site

10	1 per 10Wh (up to 3600W), 1 per 10kWh (up to 3600kW), 1 per 10MWh (above 3600 kW up to 30000 kW)
100	1 per 100Wh (up to 3600W), 1 per 100kWh (up to 3600 kW), 1 per 100MWh (above 3600 kW up to 30000 kW)
1000	1 per 1000Wh (up to 3600W), 1 per 1000kWh (up to 3600kW), 1 per 1000MWh (above 3600 kW up to 30000 kW)

Pulse Duration	60ms, 100ms or 200ms
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Note :

1. Above conditions are also applicable for Reactive & Apparent Energy.
2. Refer Operating Manual for further details on Pulse output.

Impulse Constant

Depending on nominal power, the number of impulses are created to measure the energy. The number of impulses for particular nominal power is set (as Impulse Constant) which indicates 1kWh energy. Energy can be Watt, VA or VAR. Following table shows impulses corresponding to nominal power.

Nominal power	Impulse constant
<=80	16000
<=160	8000
<=320	4000
<=640	2000
>640	1000

Note :

1) CT Sec = 1

2) For Channel Energy :

$$\text{Nominal Power} = \text{PT Sec (LL)} \times \text{CT Sec} / 1.732$$

3) For System Energy :

$$\text{Nominal Power} = 3 \times \text{PT Sec (LL)} \times \text{CT Sec} / 1.732$$

12. Accessories

12.1 Core Balance Current Transformer (CBCT) for Residual Current Measurement



Models : -

- > RISH TWE - 73/30(50)
- > RISH TWE - 95/50(40)
- > RISH TWE - 260/200(22)
- > RISH TWE - 135/85(30)
- > RISH TWE - 165/130(30)

CBCT Ordering Information:

CBCT	Description
CBCT 73	RISH TWE - 73/30(50)
CBCT 95	RISH TWE - 95/50(40)
CBCT 135	RISH TWE - 135/85(30)
CBCT 165	RISH TWE - 165/130(30)
CBCT 260	RISH TWE - 260/200(22)

CBCT Order Code Example:

- 1] RISH CBCT 73 -2 :-
RISH CBCT TWE - 73/30(50), Quantity Two.
- 2] RISH CBCT 165 -1 :-
RISH CBCT TWE - 165/130(30), Quantity One.

12.2 Nano CT with RJ12

Models : -

- > RJ12-65 63 A
- > RJ12-90 125 A
- > RJ12-116 250 A



Ordering Information :

Order Code for RJ- 65 / 90 /116

Product Code	X30X-	XXX	XX	X	X	X	X	XX	XX
Type	RJ12-65 63 A	X308							
	RJ12-90 125 A	X306							
	RJ12-116 250 A	X307							
Primary Current	63 A		063						
	125 A		125						
	250 A		250						
Secondary Current	100 mA			10					
VA	0.1 VA				1				
Accuracy Class	0.5					1			
Colour	Black						B		
	Gray						G		
Company Code	RISHABH							R	
	Other							L	
Reserved									RJ
Customer Specific									00

***Secondary cable shall be in black color only.

Example :

Sr.No	Description	Ordering Code
1	63/100 mA, 0.1 VA, 0.5 CL, Black, Rishabh, RJ-12	X308-0631011BRRJ00
2	125/100 mA, 0.1 VA, 0.5 CL, Gray, Other, RJ-12	X306-1251011GLRJ00
3	250/100 mA, 0.1 VA, 0.5 CL, Gray, Rishabh, RJ-12	X307-2501011GRRJ00

12.3 3 Phase RJ 12 Current Transformer



3 Phase RJ 12 CTs are available in following models:

- > RJ12- 215 > RJ12-105
- > RJ12-75 > RJ12-140

CBCT Ordering Information:

Order Code for RJ-75

Product Code	XRJ	X-	XX	X	X	X	X	000000
Type	RJ 12-75	1						
Primary Current	60 A		01					
	100 A		02					
	125 A		03					
	160 A		04					
Secondary Output	0.1 A			2				
VA	0.25 VA				A			
Accuracy Class	1					1		
Colour	Black						B	
	Gray						G	

Example : RJ12-75, 125/330mV, Class 1, Gray: XRJ1-031X1G0000000.

Order Code for RJ-105

Product Code	XRJ	X-	XX	X	X	X	X	0000000
Type	RJ 12-105	2						
Primary Current	60 A		01					
	125 A		03					
	160 A		04					
	250 A		05					
Secondary Output	0.1 A			2				
VA	0.25 VA					A		
	0.35 VA					B		
	0.5 VA					C		
Accuracy Class	0.5						0	
	1						1	
Colour	Black							B
	Gray							G

Example : RJ12-105, 160A, With selector switch, 0.35 VA, Class 0.5, Black: XRJ2-043B0B0000000.

Order Code for RJ-140

Product Code	XRJ	X-	XX	X	X	X	X	0000000
Type	RJ 12-140	3						
Primary Current	250 A		05					
	400 A		06					
	630 A		07					
Secondary Output	0.1 A			2				
VA	0.25 VA					A		
Accuracy Class	1						1	
Colour	Black							B
	Gray							G

Example : RJ12-140, 400/0.1 A, 0.25 VA, Class 1, Gray: XRJ3-062A1G0000000.

Order Code for RJ-215

Product Code	XRJ	X-	XX	X	X	X	X	0000000
Type	RJ 12-215	4						
Primary Current	750 A		08					
	800 A		09					
Secondary Output	0.1 A			2				
VA	0.5VA					C		
Accuracy Class	1						1	
Colour	Black							B
	Gray							G

Example : RJ12-215, 750/0.1 A, 0.5 VA, Class 1, Black: XRJ4-082C1B0000000.

12.4 QuickFix Modules

- > RJ05 : 3Ø 5A to 100mA RJ12 QuickFix
- > RJ01 : 3Ø 1A to 100mA RJ12 QuickFix
- > RJ00 : 1Ø RJ-12 to 3Ø RJ-12 QuickFix
- > RC30 : CBCT to RJ12 QuickFix

Order Code:

Product Code : RJCN-X000000000000

- 1 : RJ00 - 1Ø RJ-12 to 3Ø RJ-12 QuickFix
- 2 : RJ01 - 3Ø 1A to 100mA RJ12 QuickFix
- 3 : RJ05 - 3Ø 5A to 100mA RJ12 QuickFix
- 4 : RC30 - CBCT to RJ12 QuickFix

Order Code Examples:

RJCN-1000000000000 : 1Ø RJ-12 to 3Ø RJ-12 QuickFix

NOTE

The Information contained in these installation instructions is for use only by installers trained to make electrical power installations and is intended to describe the correct method of installation for this product. However, 'manufacturer' has no control over the field conditions which influence product installation.

It is the user's responsibility to determine the suitability of the installation method in the user's field conditions. 'manufacturer' only obligations are responsibility to determine the suitability of the installation method in the user's field conditions. 'manufacturer' only obligations are those in 'manufacturer' standard Conditions of Sale for this product and in no case will 'manufacturer' be liable for any other incidental, indirect or consequential damages arising from the use or misuse of the products.