

Technical Data Sheet

NW34-R08 WC Connected Energy Meter



OVERVIEW

NW34-R08 series meter is a next generation three phase fully programmable smart energy meter with robust performance of high accuracy, high reliability, wide measurement range, and low power consumption, etc. The meter is fully compliant with IEC's DLMS/COSEM standards, allowing billing and management applications in IEC compliant countries for residential, commercial and industrial energy measurement and management.

NW34-R08 meter is available for whole current measurement (Direct Connection), covering wide voltage range of AC active/reactive energy with frequency of 50/60Hz. NW34-R08 meter provides bi-directional communication with advanced information with the utility and end-customer, It can be read directly using HHU through optical port, as well as thru integrated PRIME V1.4 PLC (or Hybrid (PLC+Wi-SUN) modem or modular wireless (GPRS, GSM, LTE,RF or NB-IOT) modules connected externally thru serial ports, which make it possible for remote data access by DCU or MDCS.

NW34-R08 meter can be used as stand-alone measurement unit with parameters visualized on the LCD display, or in a full AMI system, backed by head-end system for data collection and MDMS for metering data management.

Features

Multi-Energy Measurement

- Bi-directional measurement of import/export active, reactive and apparent energy including demand registers
- Import/Export Energy as well as Absolute value of active energy measurement
- Cumulative energy of each TOU channel

Supply Quality Monitoring

Network quality information monitoring includes:

- Instantaneous voltage, current, power factor, phase angle and frequency monitoring,
- Import/Export Average PF (Total and ToU)
- Voltage and current quality data monitoring (Under voltage and Over current)
- Instantaneous Harmonics (THD) measurement

Field replaceable Battery

- Battery can be replaced in the field without breaking the calibration seals

Communication

- Bi-directional communication channel to read locally and remotely through optical port and integrated PRIME V1.4 PLC (or Hybrid (PLC+Wi-SUN) ports respectively.
- Ease of integrating an external GPRS/3G/4GLTE/NB-IOT or RF communication module/Gateway without powering off and/or disconnecting the meter from the grid through RJ-45 serial interface available at the terminal.

Fraud Detection

- Top cover, terminal cover opening detection is included as well as registration of magnetic field interference
- Current imbalance is detected and registered
- Plugging and unplugging communication

NW34-R08 Whole Current Smart Energy Meter

Load Profile

- Load Profile channel with more than 12 parameters captured in a defined LP interval (Configurable).
- 90 days of profile can be stored in the memory

Time of Use Tariff

- 8 tariffs for active/reactive energy and Max Demand & record them for normal days and holidays separately
- 10 time divisions for each day
- 8 day profiles
- 8 week profiles
- 8 seasonal profiles
- 420 special days
- 2 sets of TOU profiles (active and passive)

Max Demand

- 40 registers of Max demand for each TOU, as well as total for active and reactive power registration
- Configurable Block/Sliding window method used for demand integration

End of Billing

- 19 registers for monthly billing
- 45 registers for daily billing
- Configurable billing Date/time
- Scheduled/On-Command and Manual billing reset

Firmware upgradability

- Local and remote firmware upgrade allowing the meter to be easily extensible and future-proof.
- Auto firmware upgrade and activation on pre-defined times.

Real Time Clock

- Accuracy: 0.5 s/day @ 23°C, and 0.15s/°C/day
- Daylight Saving is supported
- Support Automatic clock synchronization thru broadcast and leap year calendar

Data Security

- 4 levels of user client access (both LLS and HLS)
- Enable/Disable Data transport security mode
- Configurable Encrypted/Unencrypted data transfer
- Encrypted stored metering data
- DLMS/COSEM compliance Security policy and Security suite methods
- GMAC/AES128 Cryptographic algorithm

Communication Protocol

- Optical Port according to IEC62056-21 Mode E and Optical HDLC
- RS485 port according to IEC62056 HDLC protocols

Interoperability

Compliant with DLMS/COSEM IEC 62056 standards, ensuring true communication technology interoperability and increased options for utilities

Events and Alarm

- More than 45 categories of events for easy access (remotely and locally)
- Immediate Alarm Reporting to Control Centre (upon occurrence & Restoration)
- Configurable alarm filters to push critical alarms
- Detailed event log capture with time of event occurrence/restoration and the number of time of occurrence/restoration.

APPLICABLE STANDARDS

The smart meters are manufactured and tested in accordance with the latest edition of the following standards:

- **IEC 62051:** Electricity metering - Glossary of terms
- **IEC 62051-1 :** Electricity metering - Data exchange for meter reading, tariff and load control – Glossary of terms - Part 1: Terms related to data exchange with metering equipment using DLMS/COSEM
- **IEC 62052-11 :** Electricity metering equipment (AC) – General requirements, tests and test conditions – Part 11: Metering equipment
- **IEC 62052-21 :** Electricity metering equipment (a.c.) - General requirements, tests and test conditions - Part 21: Tariff and load control equipment
- **IEC 62053-21:** Electricity metering equipment (a.c.) – Particular requirements – Part 21: Static meters for active energy (classes 1 and 2)
- **IEC 62053-23 :** Electricity metering equipment (a.c.) – Particular requirements – Part 23: Static meters for reactive energy (classes 2 and 3)
- **IEC 62054-21 :** Electricity metering - Tariff and load control - Part 21: Particular requirements for time switches
- **IEC 62056-21:** Electricity metering - Data exchange for meter reading, tariff and load control - Part 21: Direct local data exchange
- **IEC 62056-42:** Electricity metering - Data exchange for meter reading, tariff and load control - Part 42: Physical layer services and procedures for connection-oriented asynchronous data exchange
- **IEC 62056-46:** Electricity metering - Data exchange for meter reading, tariff and load control - Part 46: Data link layer using HDLC protocol
- **IEC 62056-47:** Electricity metering - Data exchange for meter reading, tariff and load control - Part 47: COSEM transport layers for IPv4 networks
- **IEC 62056-53:** Electricity metering - Data exchange for meter reading, tariff and load control - Part 53: COSEM application layer
- **IEC 62056-61:** Electricity metering - Data exchange for meter reading, tariff and load control, Part 61: Object identification system (OBIS)
- **IEC 62056-62:** Electricity metering - Data exchange for meter reading, tariff and load control - Part 62: Interface classes

TECHNICAL DATA

General Specification

No	Description	Unit	Technical Parameters
			DC (whole current)
1	Wiring connection		3-phase, 4-wire
Electronic Specification			
2	Ratings		
	Nominal Voltage (Un)	V	3x133/230/400 (max endurable 500V per phase)
	Operating range	V	0.8 Un ~ 1.15 Un
	Reference Frequency	Hz	60
	Reference Current: Ib/In(I _{max})	A	10/100
	Starting Current (I _{st})	A	Active (Cos Φ) : 0.004I _b Reactive (Sin Φ) : 0.005I _b
3	Accuracy		
	Active Energy		1.0
	Reactive Energy		2.0
4	Power Consumption		
	Voltage circuit		≤ 1.5W/6VA
	Current circuit		≤ 0.4VA
5	Meter Constant		
	Active Constant	imp/kWh	1000
	Reactive Constant	imp/kvarh	1000
6	Pulse Indicator		LED w/ wavelength 610-700nm
Mechanical Specification			
7	Protection		
	Protective Class for insulation		II
	Protection Degree		IP54
8	Temperature		
	Limit range for operation	°C	-10 ~ + 75
	Limit range for storage and transport	°C	-10 ~ + 85
9	Relative Humidity	RH	≤ 95% (no-condensing)
10	Display		
	Display method		Segment Type
	Connection		Pin
	Dimension WxH	mm	75 x 22
	Character Height	mm	8.32
	No. of digits		8
11	Life time		
	Storage life of Battery	years	≥ 20
	Operating life of Battery	years	≥ 1 (RTC keeps active when mains power off)
	Meter life time	years	≥ 20

NW34-R08 Whole Current Smart Energy Meter

No	Description	Unit	Technical Parameters
			DC (whole current)
	Super capacitor	Days	7 Days (When fully charged and battery removed)
12	Terminal type and hole size	mm	Screw type 9 mm (for cable accommodation)
13	Outline Dimensions	mm	265 (H) x 170 (W) x 81 (D)
14	Weight	kg	2.0
15	Sealing arrangement	Pcs	Top Cover (2), Window Cover (1) Terminal Cover (2) (by utility)
16	Material		
	Meter Base		PC + 10% GF
	Meter Cover		PC + 10% GF
	Terminal Block		PBT + 30% GF
	Terminal Cover		PC + 10% GF, Transparent
	Terminals		H59 Copper, Tin Plated
	Screw		Tin Plated Copper
17	Supply Control Switch (SCS)		
	Qty	Nos	03 (Each per Phase)
	Utilization Category		UC3
	Rated Operational Voltage	V	230
	Rated Frequency	Hz	60
	Operational Current	A	120
	Electrical Endurance	Nos	5500 ON/ 5500 OFF
	Maximum Overload Current	A	120
	Short-time withstand Current	kA	3
	Safe Short-time withstand Current	kA	6
	Short-circuit making capacity	kA	3

Functional Specification

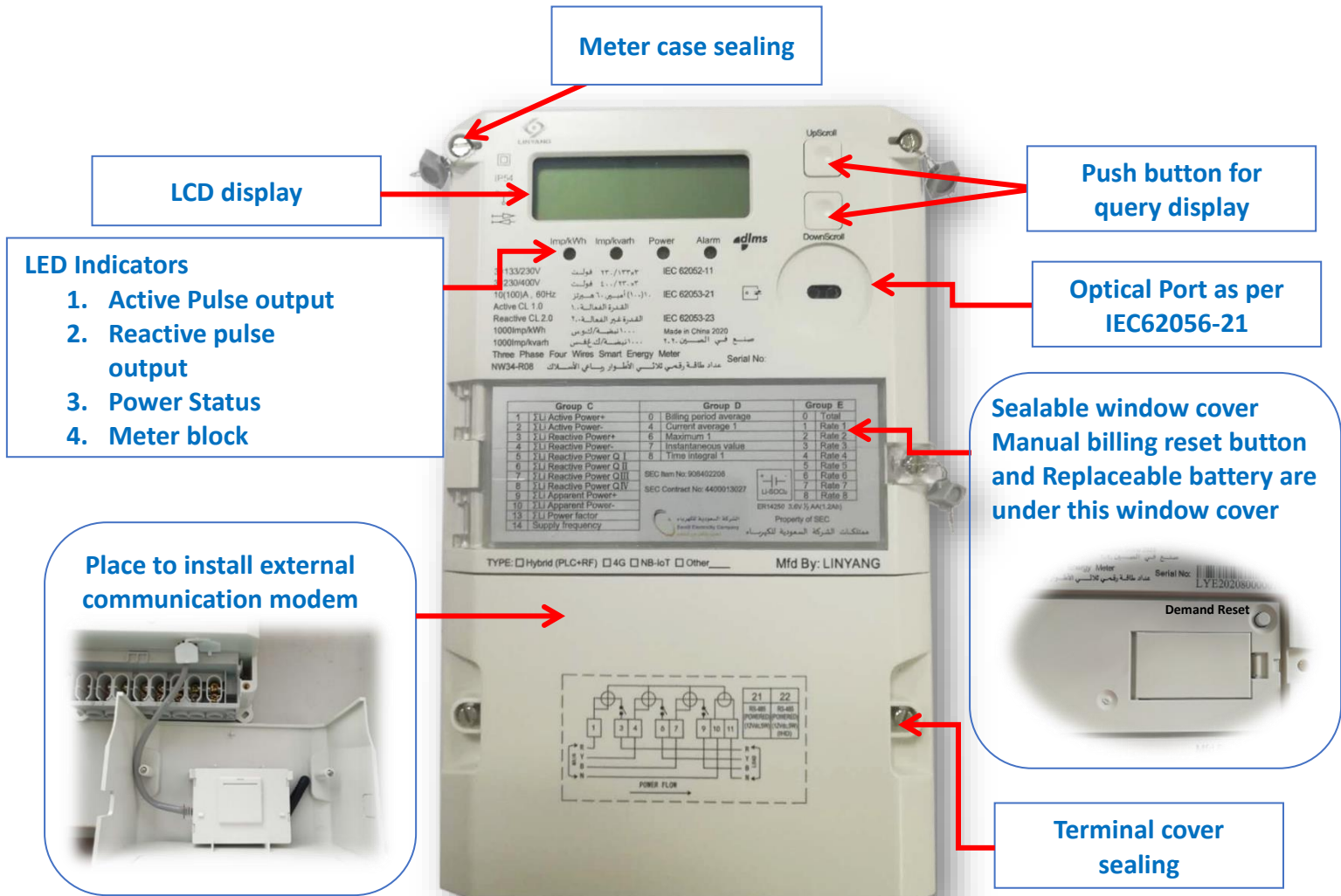
No	Description		Technical Parameters
			DC (whole current)
1	DST		Yes (Default: Disabled)
2	RTC		Yes
3	Battery		Yes
4	Super capacitor		Yes
5	Push button	Display Operation	Yes
		Demand Billing reset	Yes
6	Metrology	No. of elements	Phase – 03 Neutral – 01
		Active	Yes
		Reactive	Yes
		4 Quadrants	Yes
7	Instantaneous measurement	Voltage, Current, Frequency, power factor, Power	Yes
8	Max. Demand	Monthly Max. Demand	Yes
		Cumulative Max. Demand	Yes
9	Power quality	Swell/Sag	Yes
		THD	Yes
		Under voltage/ Over Current	Yes
10	Load profiles	Demand readings/ Average PF	Yes
		Instantaneous readings	Yes
		MUM readings	No
11	Demand management		Yes
12	End of Billing	Monthly Energy	Yes
		Monthly Demand	Yes
		Daily Energy	Yes
		Hourly Energy	No
13	Tariff	TOU	Yes
		Step tariff	No
14	Anti-tampering	Meter cover open	Yes
		Terminal cover open	Yes
		Power reverse	Yes
		Bypass (phase/neutral line unbalance)	Yes
		Magnetic field	Yes
		Neutral line missing	Yes
15	Communication	Optical Port	Yes
		RS485	Yes
		Integrated PRIME PLC/Hybrid (G3PLC+Wi-SUN) module	Yes

NW34-R08 Whole Current Smart Energy Meter

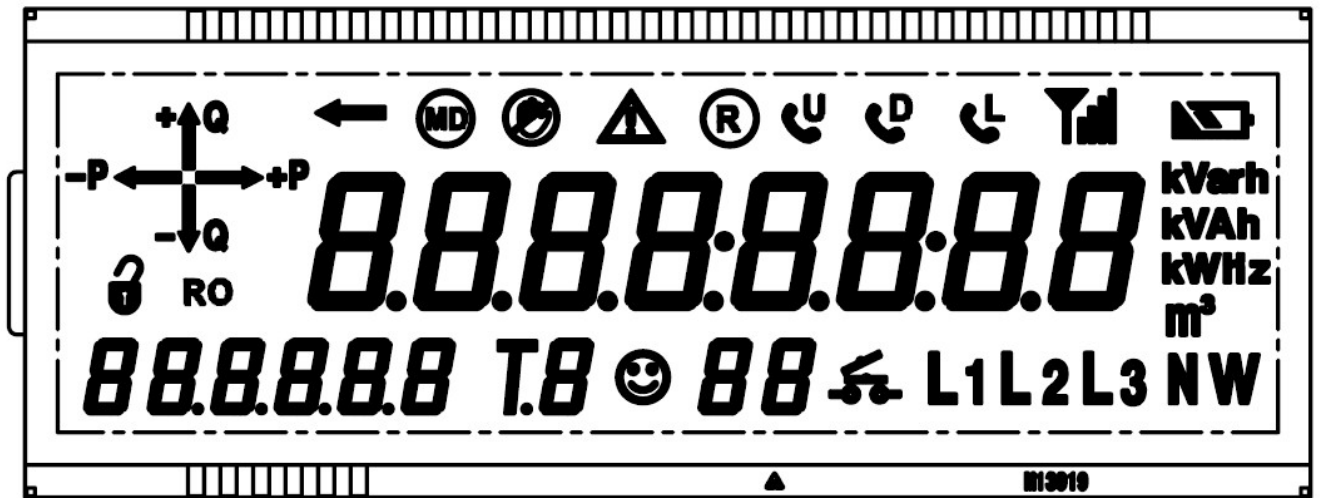
No	Description		Technical Parameters
			DC (whole current)
		Field replaceable communication module (GPRS/3G/4G/LTE and NB-IOT)	Yes
		M-BUS	No
16	Firmware upgrade	Local via Optical port	Yes
		Local via RS485	Yes
		Remote via PLC	Yes
		Remote via GPRS	Yes
17	Event & Alarm	Recording	Yes
		Auto-notification	Yes
19	Data Security	Encryption AES128-GCM	Yes
		Bi-directional authentication	Yes
		Access levels via password	Yes
21	Configuration software		Yes

PRODUCT LAYOUT

Meter Layout:

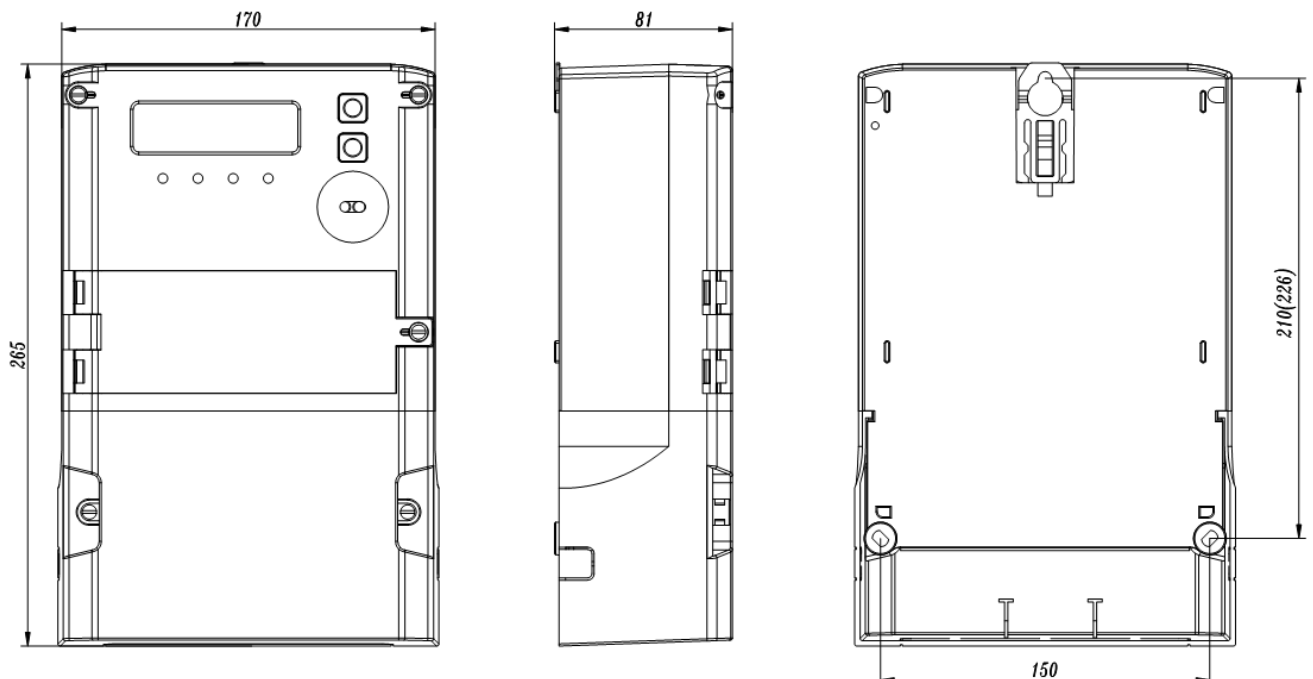


Display Layout



LCD Display Layout

Outline Dimension



- ✧ Installation Dimension: 265mm(H) x 170mm(W) x 81mm(D)
- ✧ Compatible to install on SEC 42-SDMS-01 Rev05 specification compliance meter box
- ✧ Weight: < 2.0kg
- ✧ Mounting Arrangements
 - Bottom – Two Plastic mounting
 - Top – One adjustable metal mounting clip.