WS-03-SERIES

ELECTRONIC MODULE FOR WATER METER

WS-03-L-1



WS-03-L-2



Specification

Model		WS-03-1	WS-03-2
Battery Type		3350 mAh 3.7 V (18650)	
Battery Life		5 Year @ 1 Messages / 12 Hr.	
Transmission duty cycle		1-24 Hrs. / Message	
Communication		LoRaWAN 1.0.3, 1.0.4	
		ABP, OTTA	
		Class A	
		NFC for Configurations	
Alarm Functions		Reverse Flow	
		Leakage Alarm	
		Battery Low	
		Counter Overflow	
Compatible water meter		"B METERS" CPR-M3-I, GMB-I, DIN 15-50 (1 Liter / Pulsce)	"B METERS" WDE-K-50 DIN 50-200 (10 Liter / Pulsce)
Ambient Operation	Temperature	0°C to 50°C	
	Humidity	85% RH Non-Condensing	
Ambient Storage	Temperature	-20°C to 70°C	
	Humidity	85% RH Non-Condensing	
IP rating		IP 65	
Material		ABS-V0	
Size (mm.)		87 x 82 x 64	100 x 112 x 69
Weight (kg.)		150	180

Description

- Electronic Pulse Module for Water Meter: WS-03-Series is a device used with a water meter to count pulse signals from the water meter.
- RM-015-L is a device that transmits water consumption data via the LoRaWAN network to a LoRa Gateway for data collection and storage.
- Wireless communication via LoRaWAN with a range of up to 100 m. indoors (depending on interior walls) and 800 m outdoors (line of sight).
- Supports transmission of water meter data from more than 1,000 units per one LoRa Gateway system.
- Can calculate Carbon Footprint (tCO_2e).
- Data transmission interval can be set from 1 to 24 hours for convenient water usage recording.
- Pulse/Liter, water leakage detection rate, and Emission Factor (EF) for carbon footprint calculation can be configured via a mobile application through NFC.
- Can count forward flow and reverse flow water usage.
- Includes alert functions for Reverse Flow, Water Leakage, Battery Low, Counter Flow.
- Powered by a 3,350 mAh 3.7 V (18650) battery, with an operating life of up to 5 years, and the battery is replaceable.
- Supports real-time data viewing, reducing the need for personnel to manually record water meter readings.

Operation

WS-03-Series is an Electronic Module for Water Meter with an integrated LoRa module, consisting of WS-03-Series and RM-015-L combined in a single unit. The unit is installed and mounted directly on the water meter dial. The WS-03-Series reads pulse signals from the water meter and calculates accurate water consumption by applying a multiplier (Multiply) and divisor (Divisor). The calculated water usage, carbon footprint values, and other functional data are then transmitted to a LoRaWAN Gateway, which is connected to a computer for data logging, data processing, billing, and invoice generation using Bill Soft software.

In addition, it can detect both forward and reverse flow directions, enabling the calculation of incoming water flow (Forward Count) and reverse water flow (Reverse Count) to ensure accurate water meter readings.
The total water volume (Total Count) is:

Total Count = Forward Count - Reverse Count

The module can also display the Carbon Footprint resulting from water usage by multiplying the water consumption value by the Emission Factor (EF), with the unit expressed as tCO_2e. The calculation can be performed in two ways, depending on the configuration:

Calculation Formula 1 = Total Count × Emission Factor (*0)

Calculation Formula 2 = (Forward Count – Reverse Count) × Emission Factor (*1)

Operation[Con]

If the Total value is less than 0, the Carbon Footprint value will be set to 0. The module is available for use with two water meter sizes: small sizes from DN15 to DN50 and large sizes from DN50 to DN200.

For water leakage detection, the module monitors the water consumption rate according to the preset threshold; if the water usage exceeds the specified rate continuously for 12 hours, the module will trigger a Water Leakage Alarm, which will remain active until it is reset via a smartphone application through NFC.

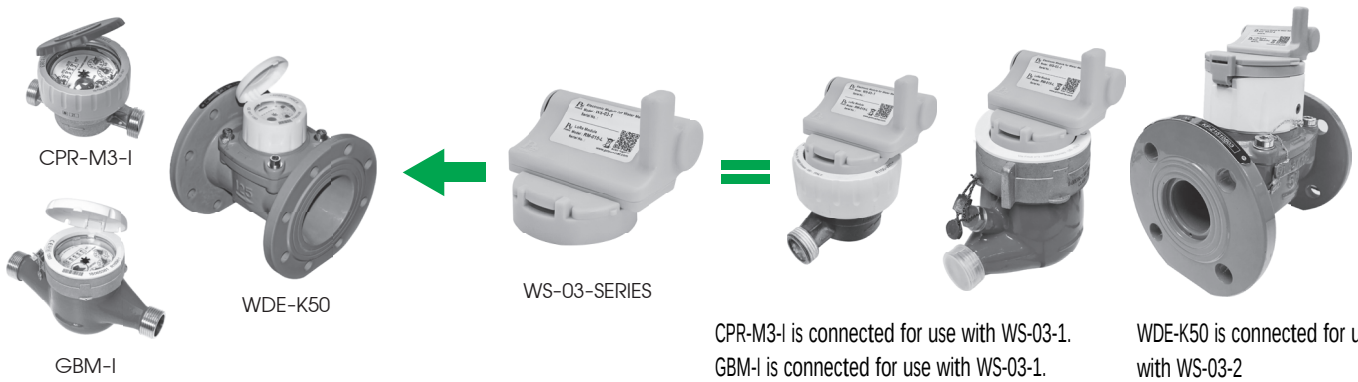
M-015-L is a wireless device used to transmit water consumption data to a LoRaWAN Gateway for data logging and processing on a computer, and it is installed in the same unit as the WS-03 (due to NBTC regulatory requirements, the wireless module must be separated from the main module model).

The RM-015-L allows configuration of the data transmission interval from 1 to 24 hours and transmits Forward Count, Reverse Count, Alarm Status, and Carbon Footprint data, with all settings configurable via a smartphone application through NFC.

Example Application NFC



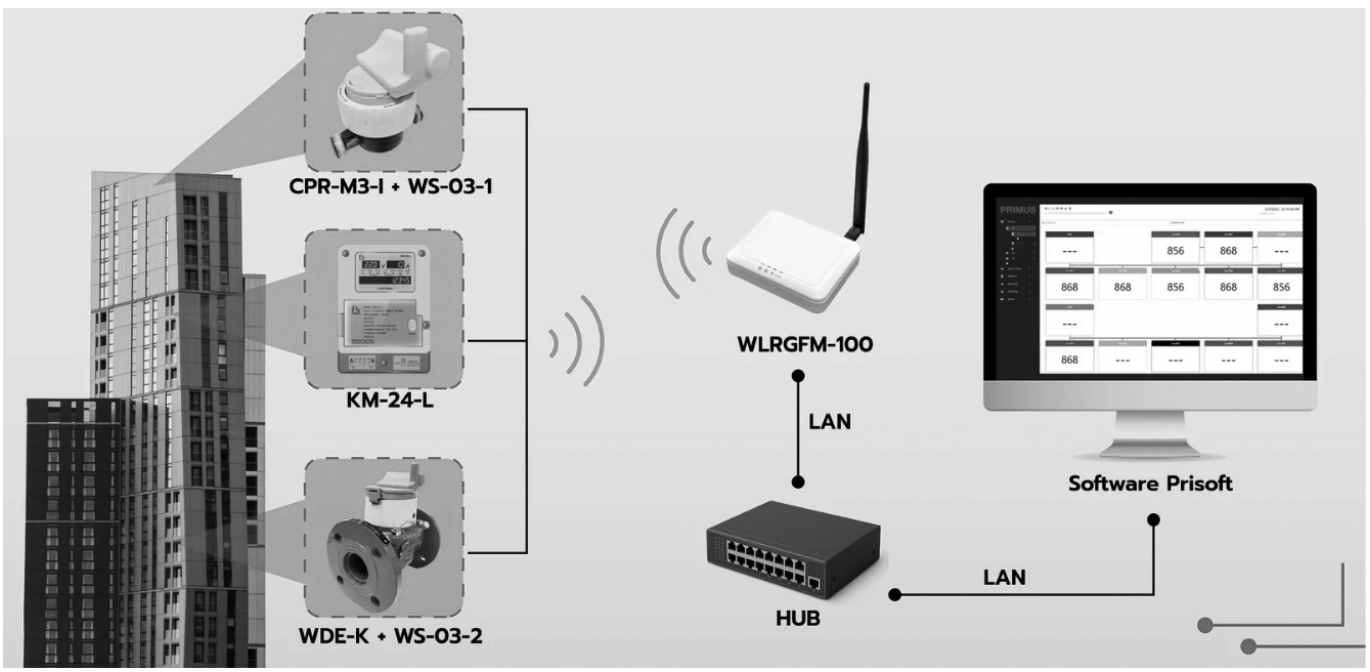
Installation



CPR-M3-I is connected for use with WS-03-1.
GBM-I is connected for use with WS-03-1.

WDE-K50 is connected for use with WS-03-2

Applications with Software



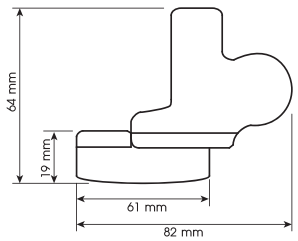
WS-03-SERIES

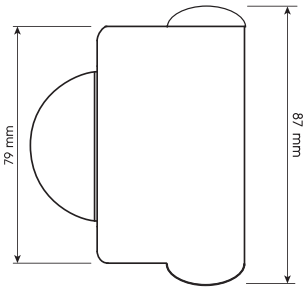
ELECTRONIC MODULE FOR WATER METER

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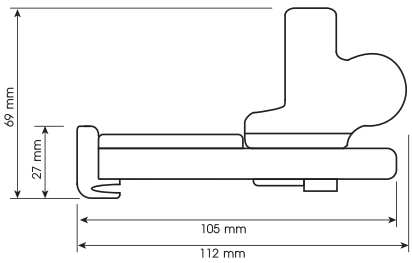
Dimension

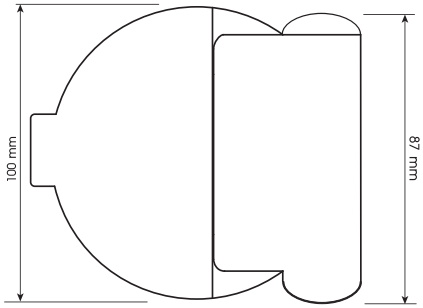
WS-03-1





WS-03-2





Ordering Code

WS-03 - [Size]

1	Small Size : B METERS CPR-M3-I, GMB-I, (DIN 15-50)
2	Big Size : B METERS WDE-K-50, (DIN 50-200)