



# Danfoss WND-WR-MB Opt 38K WattNode Modbus Installation Guide

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ENGINEERING  
TOMORROW

Installation Guide

Watt Node Modbus

Type **WND-WR-MB opt 38K, EP**

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## WND-WR-MB opt 38K Watt Node Modbus

**−40 – +80 °C (−40 – 176 °F)**

Operating Humidity: non-condensing, 5 – 90% relative humidity (RH) up to 40 °C, decreasing linearly to 50% RH at 55 °C.

**L × W × H:**

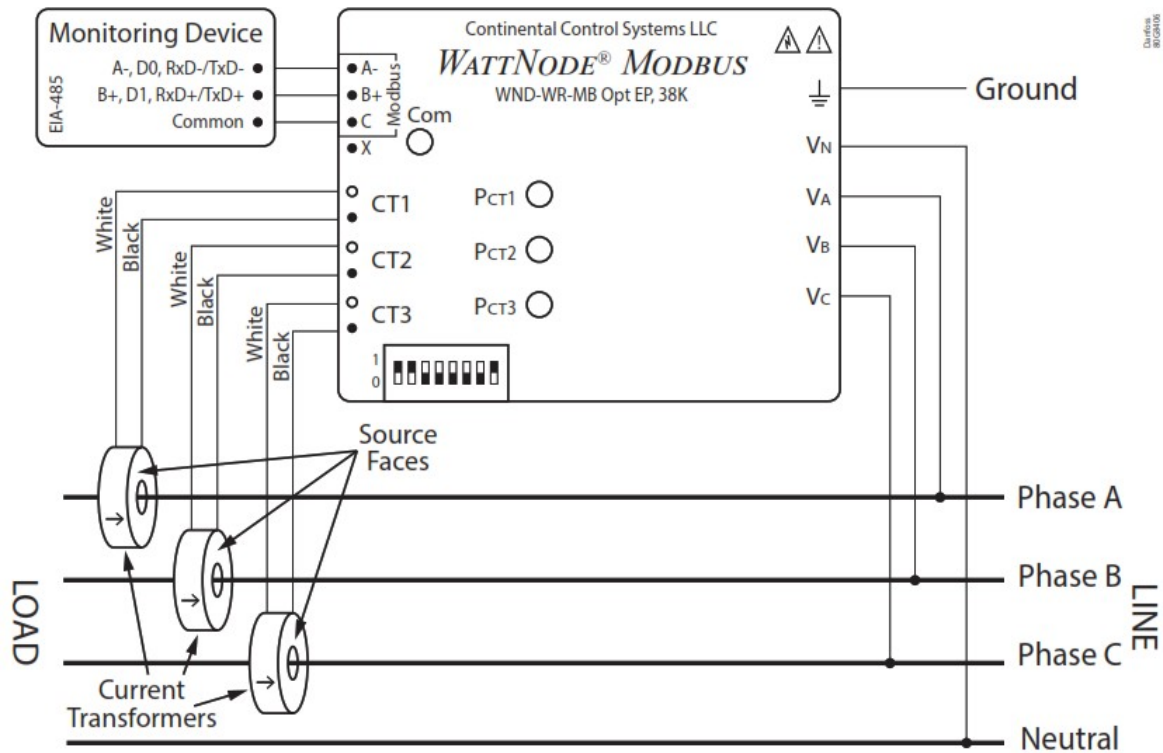
155 mm × 85 mm × 38 mm (6.1" × 3.35" × 1.5")

**Mounting holes:**

center-to center 136.6 mm (5.375 in)

**CT:**

0,333 V AC at rated current



Code	Electrical Service Type (Load type)	Line-to-Neutral (V AC)	Line-to-Line (V A C)	Meter Powered by
080Z2129	Single Phase 2-wire with neutral	96 – 347	120 – 600	Line to Neutral or Line to Line
	Single Phase 3-wire with neutral	96 – 347	120 – 600	Line to Neutral or Line to Line
	Three Phase 4-wire wye (star) with neutral	96 – 347	120 – 600	Line to Neutral or Line to Line

Single Phase 2-wire with neutral	Single Phase 3-wire with neutral
<p>The diagram shows the WATTNODE MODBUS meter connected to a single phase 2-wire system with a neutral. The meter's CT1, CT2, and CT3 terminals are connected to the power lines. The V<sub>N</sub> terminal is connected to the neutral line, and the V<sub>A</sub>, V<sub>B</sub>, and V<sub>C</sub> terminals are connected to the power lines. The meter is labeled 'WATTNODE MODBUS'.</p>	<p>The diagram shows the WATTNODE MODBUS meter connected to a single phase 3-wire system with a neutral. The meter's CT1, CT2, and CT3 terminals are connected to the power lines. The V<sub>N</sub> terminal is connected to the neutral line, and the V<sub>A</sub>, V<sub>B</sub>, and V<sub>C</sub> terminals are connected to the power lines. The meter is labeled 'WATTNODE MODBUS'.</p>

Modbus address

DIP Switch	1	2	3	4	5	6
Up (1) Value	1	2	4	8	16	32
Address	Examples					
1	Up	Down	Down	Down	Down	Down
$1+2+4 = 7$	Up	Up	Up	Down	Down	Down
$4+16 = 20$	Down	Down	Up	Down	Up	Down
$1+2+16+32 = 51$	Up	Up	Down	Down	Up	Up

#### Modbus integration with the AK-SM 800A

Step 1: Set the Modbus address

Step 2: Perform a network scan from the AK-SM 800A\*

\*For more information about data communication see document RC8AC and the AK-SM 800A manual. Pay special attention to the AK-SM 800A manual if devices with a different baud rate than 38.400 baud are connected to the AK-SM 800A, e.g. the variable speed compressor type SLV.

#### Phase Status LED

All/ Single phase	LED Indication	Description
All	Red, Yellow, Green for 3 x 1 second	Power up sequence
All	Red / Green continuous flashing	Overvoltage warning. Line voltage too high. DISCONNECT power immediately!
All	OFF	Watt Node not operating. Check that the wiring and voltages are correct
All	Red for 3 seconds or more	Watt Node Error. If you see this happen repeatedly, replace the meter
Single	Green	No power but line voltage is present on this phase
Single	OFF	No voltage on this phase
Single	Red continuous flashing	Negative power on this phase (Re-versed CT's, swapped CT wires or CT not matching line voltage phase)
Single	Flashing Green	Positive power on this phase

#### Modbus Com LED

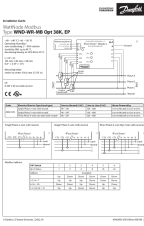
LED Indication	Description
Green flash	Valid packet for this device
Yellow flash	Valid packets for different device
Red for 1 second	Invalid packet (bad baud rate, noise, ...)
Red / Yellow continuous flashing	Possible address conflict (two devices with same address)
Red	Address set to 0 (zero)

## Precautions

1. Only qualified personnel or licensed electricians should install the Watt Node meter. The mains voltages can be lethal!
2. Follow all applicable local and national electrical and safety codes.
3. The terminal block screws are not insulated. Do not contact metal tools to the screw terminals if the circuit is live!
4. Verify that circuit voltages and currents are within the proper range for the meter model.
5. Use only UL listed or UL recognized current transformers (CTs) with built-in burden resistors, that generate 0.333 Vac (333 millivolts AC) at rated current. Do not use current output (ratio) CTs such as 1 amp or 5 amp output CTs: they will destroy the meter and may create a shock hazard.
6. Protect the line voltage phase conductors, typically #14 or #12 AWG with 3 pole 15 A or 20 A breaker. Depending on location, breaker may provide disconnect means.
7. Equipment must be disconnected from the HAZARDOUS LIVE voltages before access.
8. If the meter is not installed correctly, the safety protections may be impaired.

**AN430921567693en-000101**  
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## Documents / Resources

	<p><a href="#">Danfoss WND-WR-MB Opt 38K WattNode Modbus</a> [pdf] Installation Guide  WND-WR-MB Opt 38K, EP, WND-WR-MB Opt 38K, WattNode Modbus, WND-WR-MB Opt 38K WattNode Modbus, Modbus</p>
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