OrionM2M

MULTI-CIRCUIT POWER METER

NDW210

Modbus-RTU · up to 4 three-phase circuits · CTs up to 600 A or x/5 · U, I class 0.5



01 FEATURES

- Up to 4 three-phase circuits: split-core CTs to 600 A or x/5
- U, I, P / Q / S, PF, frequency, phase angle, unbalance, harmonics 2–31
- U and I class 0.5; active energy class 1, reactive class 2
- Four-quadrant energy, 4 rates, 12-month history, 31-day freeze
- 2 DI and 2 relay DO: alarm outputs, 200 event records
- RJ45 expansion: 12 DI + 4 DO, 12 NTC + 4 leakage

APPLICATIONS

- Per-feeder metering in switchboards
- Breaker status and remote control (DI / DO)
- Power quality and harmonics monitoring
- Temperature and leakage current in panels

02 GENERAL

Wiring	**3-ph, 4 / 3**	wire
Current circuits (1S … 4S)	**1 … 4**	× 3-ph
Rated voltage	**3 × 220 / 380**	V AC
Current: D16 / D24 / D36	**100 / 400 / 600**	A
Current: D10, for x/5 CTs	**5**	A
Frequency	**45 … 65**	Hz
Aux. power AC/DC · consumption	**85 … 265 · ≤ 10**	V · VA
Operating temp. · RH	**–20 … +60 · ≤ 95**	°C · %
Dimensions (H × W × D)	**87.8 × 72 × 71.5**	mm
Mounting	**DIN rail**	35 mm

03 ACCURACY

Voltage, current	**0.5**	class
Energy: active / reactive	**1 / 2**	class
Frequency · harmonics 2–31	**0.05 · ±1**	Hz · %

04 I/O & COMMUNICATION

DI: dry contact, built-in supply	**2**	
DO: relay, NO contact	**2**	
DO rating: AC 250 · DC 30 V	**3**	A
Pulse output	**optocoupler**	open coll.
RS-485 · Modbus-RTU	**1200 … 38400**	baud

05 EXPANSION MODULES & ACCESSORIES

ITEM · SUFFIX	FUNCTION	KEY PARAMETERS
NDW-MK · -MK	12 DI + 4 DO	DI — dry contact, built-in supply · DO — NO relay, AC 250 V / 3 A, DC 30 V / 3 A
NDW-TL · -TL	12 NTC + 4 leakage	–20 … +100 °C, ±2 °C · 10 … 3000 mA, 1.0 % · leakage CT NDW-LCT45: 45 mm window, class 1

One module of each type per meter · DC 12 V and Modbus-RTU from the meter via RJ45 · NDW-MK, NDW-TL ≤ 1 W

06 ORDER INFO

SKU	DESCRIPTION
NDW210-[D]-[S][-MK][-TL] CTs per index D included; up to one module of each type	**Multi-circuit power meter and expansion modules**

D — CT SET (WINDOW)

- D16 — 100 A · 16 × 17 mm
- D24 — 400 A · 24 × 23.5 mm
- D36 — 600 A · 33.5 × 35 mm
- D10 — 5 A · customer x/5 CTs

S · MODULES, SELECT

- 1S … 4S — 1 … 4 circuits
- -MK — NDW-MK
- -TL — NDW-TL

ACCESSORIES

- NDW-LCT45 — leakage CT, one per NDW-TL channel

NDW210

INTEGRATION REFERENCE

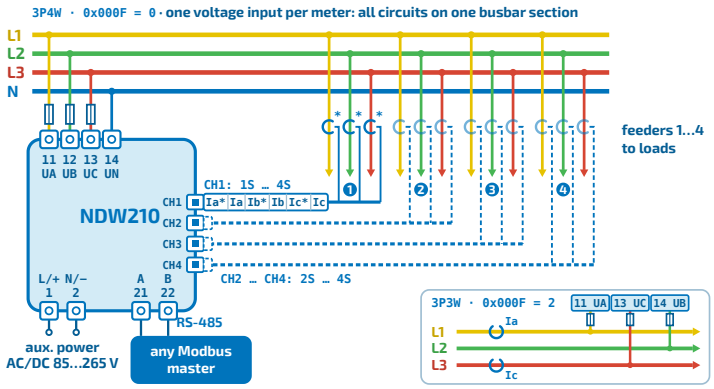
07 MODBUS-RTU PROTOCOL

Read registers	**FC 0x03**	
Baud rate (def. 9600)	**1200 … 38400**	baud
Frame (def. N81)	**N81 · E81 · O81 · N82**	
Address (def. 1)	**1 … 247**	
Measurements	**float32**	2 reg.
Line termination	**120**	Ω

08 CONFIGURATION REGISTERS

0x0000 address	**1 … 247**	
0x0001 baud code	**0 … 5**	1200–38400
0x0002 frame	**0 … 3**	N81…N82
0x000F wiring	**0 / 2**	3P4W / 3P3W
0x0013 primary U	**220 … 65000**	V
0x0014–17 primary I CH1…4	**5 … 50000**	A
0x0018 secondary I (per D)	**5 / 100 / 400 / 600**	A
0x003C–3D DO1 / DO2	**0 / 1**	open / close

09 WIRING DIAGRAMS



CT polarity per * marks. D10: Ø10 CTs on customer x/5 CT secondaries, more than 1 m from the primary side transformer.

10 TERMINALS

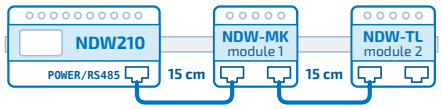
Aux. power	**1 L/+ · 2 N/−**	85…265 V
Voltage 3P4W	**11 UA · 12 UB · 13 UC · 14 UN**	
Voltage 3P3W	**11 UA · 13 UC · 14 UB**	
Current (CT)	**CH1 … CH4**	Ia* Ia … Ic
RS-485 · pulse	**21 A · 22 B · 17 EP+ · 18 EP−**	
DI · DO	**30 · 31 · 39 COM · 40 · 42 · 49 COM**	

11 MEASUREMENT REGISTERS — FC 0x03

OFFSET	VALUE · CH1 0x0100, CH2 0x0156, CH3 0x01AC, CH4 0x0202	FORMAT
+0x00–0B	U phase A/B/C, line AB/BC/CA	V · f32
+0x0C	Frequency	Hz · f32
+0x0E–15	Current A/B/C, zero sequence	A · f32
+0x16–1D	Active power A/B/C, total	W · f32
+0x1E–25	Reactive power A/B/C, total	var · f32
+0x26–2D	Apparent power A/B/C, total	VA · f32
+0x2E–35	PF A/B/C, total	– · f32
+0x36–45	Active energy fwd / rev A/B/C, total	kWh · f32
+0x46–55	Reactive energy fwd / rev A/B/C, total	kvarh · f32
OTHER BLOCKS — ABSOLUTE ADDRESSES		
0x0036–37	DI1, DI2	u16
0x003C–3D	DO1, DO2	u16
0x0300–35	U, I angles · U, I unbalance · U, F deviation	f32
0x0336–506	THD U, I · harmonics 2–31	0.01 % · s16
0x0600–807	Multi-rate energy: present, 12 months	kWh · f32
0x1600–74F	Demand I, P: maximum and real-time	A, W · f32
0x2000–1E	Energy freeze, days 1–31 (len 0x44)	f32
0x2100–C7	Event log: 200 records (len 0x08)	–

float32 — two registers, high word first.
Address = circuit base + offset.

12 MODULE CONNECTION

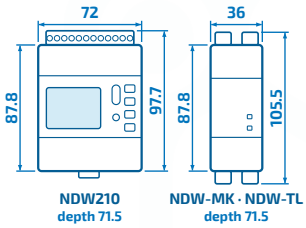


DC 12 V and Modbus-RTU via RJ45
two RJ45 each on NDW-MK and NDW-TL
NDW-MK: DI1…DI12 — terminals 1…12, COM — 19; DO1…DO4 — pairs 21/22 … 27/28

	T 1…12	LEAKAGE 1…4	DI 1…12	DO 1…4	DO COMMAND
Module 1	**0x17A0–AB**	**0x17AC–AF**	**0x17C4–CF**	**0x17D0–D3**	**0x002A–2D**
Module 2	**0x17B2–BD**	**0x17BE–C1**	**0x17D4–DF**	**0x17E0–E3**	**0x002E–31**

T in 0.1 °C (s16), leakage in 1 mA (u16), RH in 0.1 % (u16); module 1 is nearest the meter; module T / RH — 0x17B0–B1 / 0x17C2–C3; module relay mode 0x003E: 0 = level, 1 … 9999 = pulse; no module — zeros.

13 DIMENSIONS



Dimensions in mm
tolerance ±1 mm
35 mm DIN rail mounting

14 TYPICAL APPLICATION

