

# DIGITAL PROCESS METER DMP 11

230 V or 24 V power supply

for current and voltage signals

INPUT SIGNALS	
Preset	
CURRENT	0 – 20 mA DC
	4 – 20 mA DC
VOLTAGE	0 – 10 V DC
POTENCIOMETER	0 – 100 %
Adjustable by user	
CURRENT	- 4 – 21 mA DC
VOLTAGE	+/- 0 – 10,5 V DC
	+/- 0 – 295 mV DC
POTENCIOMETER	100 Ω – 2.0 kΩ

OPTIONAL ACCESSORIES	
2 or 4 relays outputs	
relay output L1, L2, L3 a L4	230 VAC @ 5A Independent. set
Isolated analogue output	
CURRENT	0 – 20 mA DC
	4 – 20 mA DC
due wirrings	active / passive
VOLTAGE	0 – 10 V DC
Excitation power supply	
upto 21,6 VDC @ 130mA +/- 10%	

## INTRODUCTION

Digital process meter DMP 11 provides physical value measuring with displaying it within -60000 to +60000 digits range. Internal analogue sigma-delta converter offers resolution of one digit even in full scale range. Device provides adjustable input signal scale, output signal scale, decimal point and etc. to fit any kind of application. User can even set his own calibration for current, voltage (low, high) and potentiometers signals. Potentiometer measuring is based on the ratio measurement, slow changes in total potentiometer resistance do not affect measurement accuracy. Device has implemented NAMUR NE43 input current loop 4-20mA checking, with defined behaviour in case of current loop error.

## FUNCTIONS

- DISPLAYS** measured physical value
- INPUT SIGNAL SELECTION** by user
- SCALE RANGE** upto -60000 to +60000 digits
- EXCITATION POWER SUPPLY** included
- 4 RELAYS FUNCTION**
  - direct / inverse level mode – relays closes / opens when limit is reached
  - direct window mode – relays closes in range defined by numeral hysteresis and limit value
  - inverse window mode – relays closes when signal is out of range defined by numeral hysteresis and limit value
- NUMERAL HYSTERESIS** for each limit
- TIME HYSTERESIS** for each limit
- ANALOGUE OUTPUT** fully adjustable by user
  - 0 / 4 – 20 mA DC, 0 – 10 V DC
  - inverse AO : 20 – 4 / 0 mA , 10 – 0 V DC
  - fully adjustable eg. 12-18 mA , 1,6 – 8,3 V
- TARA and HOLD FUNCTION** as standart equipment
- DIGITAL INPUT** for TARA and HOLD function (optional acc.)
- INPUT 4-20 mA CURRENT LOOP CHECK**
  - comply to NAMUR NE43 \*
  - defined relays and analogue output behavior
- DISPLAY BRIGHTNESS** in 4 levels
- LIMIT L1 VALUE RANGE RESTRICTION** for operating personnel
- DIGITAL FILTERS** for measured signal
- GALVANIC INSULATION**
  - Power supply from: input, output, excitation power supply & relays
  - input signal from output signal
  - relays output betweeneach other

\*) valid signal is within range 3,8 mA to 20,5 mA

\*\*) 130mA excitation power supply is an optional accessory

\*\*\*) DMP11-10010 version only

\*\*\*\*) DMP11-22121 version has max. operating temp 45°C

TECHNICAL DATA	
DISPLAY	-60 000 to +60 000 – red LED 14,2 mm
PWR.SUPPLY 230V	230 VAC (-20% / +15%)
POWER SUPPLY 24V	24 VAC or 24 VDC (-15% / +20%)
	21,6 to 52,8 VDC – <b>with all accessories</b>
	10,6 VDC to 52,8 VDC – <b>without accessories ***</b>
CONSUPTION	2,5 W – without accessories
	+ 0,7 W – 2 relays
	+ 1,4 W – 4 relays
	+ 0,7 W – isolated analogue output
Device has <i>T500mA fuse</i>	+ 1,0 W / 3.0 W – excitation power supply
Exc. power supply	21,6V @ 30mA or 21,6V @ 130mA **
INPUT RESITANCE	current input – 50Ω + 13 Ω PTC
	voltage input 10 V – 370kΩ
	voltage input 295 mV – greater than 10 MΩ
POTENCIOMETER	3-wires connection (input resistance greater than 1MΩ)
SAMPLES	16,7 meas/sec (internal) ; 4 samples/sec – (display)
DIG.RESOLUTION	analogue input – 20 bits / analogue output – 14 bits
RESPONSE TIME	10% to 90% – input / output : <b>180 ms</b> (w/out filters)
ACCURACY	+/- 0,1 % from full range +/- 2digits
TEMP.COEFFIC.	0,005 % from full range / °C @ T <sub>ref</sub> = 23°C
ISOLATION STRENGTH - 230 V	<b>3 kV power supply vs.input/output/relay</b>
	<b>1 kV input vs.output. vs. digital input</b>
ISOLATION STRENGTH - 24 V	<b>1,5 kV power supply vs.input/output/relay</b>
	<b>1 kV input vs.output. vs. digital input</b>
ANALOG.OUTPUT	max. 21,5 mA or max. 10,5 V DC
OUTPUT IMPEDANCE	<b>current</b> : max. 600 Ω   <b>voltage</b> : min. 5 kΩ
MAX. OUTPUT OVERLOAD	current: unlimited ( <i>short-circuit resistant</i> )
	voltage: unlimited ( <i>short-circuit resistant</i> )
RELAYS OUPUT	2 or 4 switching contacts 230 VAC @ 5A
LIMITS L1 – L4	adjustable in full range of scale ( +/- 60 000 )
LIMITS L1 – L4 HYSTERESIS	value –adjustable in range 0 to 30 000
	timing – adjustable in range 0,0 to 299,9 sec
LIMITS L1 – L4 LOGIC FUNCTION	level mode – direct / inverse
	window mode – direct / inverse
DIMENSIONS	96 x 48 x 85 mm (w x h x d) – <b>cutout 91 x 44 mm</b> (w x h)
ENCLOSURE	IP40
WIRRING CONNECTION	terminal strip <i>max. conductor cross-section is 2,5mm</i>
WEIGHT	270 g – <b>with all accessories</b>
STABILISATION	5 minutes
OPERATING TEMP.	-25 °C to +50 °C ****
STORAGE TEMP.	-40 °C to +85 °C
HUMIDITY	20% < rH < 80% (without consdesation)
OPERATION	continous
SITE ALTITUDE	max. 2000 above sea level
APPLICATION	<b>intended solely for industrial or professional use</b>
EMC compatibility	ČSN EN 61326-1 ed.2 : 2013
EMC radiation	ČSN EN 55011 ed.3 : 2010 + A1:2011,class.B grp. 1
ELECTRICAL SAFETY	ČSN EN 61010-1 ed. 2 : 2011,ČSN EN 61010-2-030:2011
EMC immunity influence	max. +/- 0,1% from full signal with unshielded wires

ORDER CODE		
<b>DMP 11 - . . . . .</b>		
<b>A B C D E</b>		
<b>A</b>	<b>Power supply</b>	1 – 24 VAC / VDC , -15 to +20 % 2 – 230 VAC , -20 to +15%
<b>B</b>	<b>Relay output</b>	0 – w/out relays output 1 – 2 relays output 2 – 4 relays output
<b>C</b>	<b>Analogue output</b>	0 – w/out analogue output 1 – with analogue output
<b>D</b>	<b>Excitation power supply</b>	1 – exc.power supply 21,6 VDC @ 30 mA 2 – exc.power supply 21,6 VDC @ 130 mA
<b>E</b>	<b>Digital input</b>	0 – w/out digital input 1 – with digital input

### TERMINAL STRIP

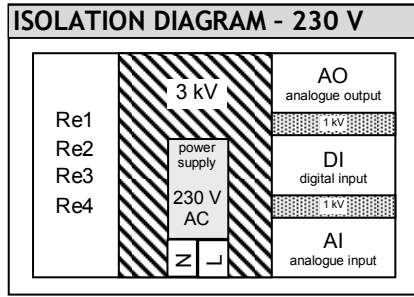
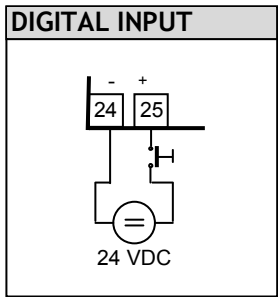
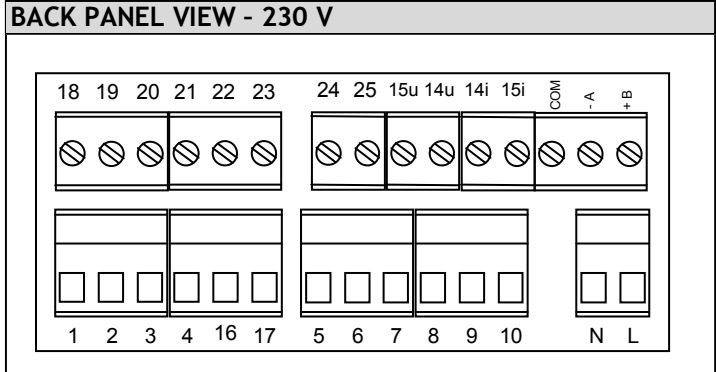
**LEGEND:**

- strips 1, 2, 3, 4, 16 a 17 analogue input & exc.pwr.supply (AI+PN)
- strips 5 - 10, 18 - 23 relays output
  - 5, 6, 7 relay Re1 (limit L1)
  - 8,9,10 relay Re2 (limit L2)
  - 18,19,20 relay Re3 (limit L3)
  - 21,22,23 relay Re4 (limit L4)
- strips 14 i , 15 i, 14 u, 15 u analogue output (AO)
- strips 24, 25 digital input (DI)
- strips COM, +A a -B communication link RS 485
- strips L, N power supply **230V AC**
- strips I, II power supply **24V DC / 24V AC**

### ORDER EXAMPLE

**DMP 11 – 21110**

- power supply 230 VAC
- 2 relays output
- with analogue output
- excitation power supply 30mA
- w/out digital input



### INPUT SIGNALS WIRINGS for DMP 11

#### CURRENT INPUT

**ACTIVE SENS.**

- two wires: 0/4 – 20 mA
- three wires: 0/4 – 20 mA, +/- 0 – 20 mA

**PASSIVE SENS.**

- two wires: 4 – 20 mA
- two wires: 4 – 20 mA, external supply

#### VOLTAGE INPUT

- two wires: 0 – 10 VDC
- three wires: 0 – 10 VDC, supply from DMP11
- two wires: 0 – 295 mVDC, +/- 295mVDC

#### POTENCIOMETER

- potenciometer(three wires)
- 10 Ω – 500 kΩ
- supply from DMP11

### OUTPUT SIGNALS WIRINGS for DMP 11

#### CURRENT OUTPUT

**current active**

- 0/4 – 20 mA
- DMP 11 generates current

**current passive**

- 4 – 20 mA
- DMP 11 is current hole

#### VOLTAGE OUTPUT

**voltage actives**

- 0 – 10 V DC
- DMP 11 generates voltage