LUMEL

60 years of Know-How

OFFER 2013/1

of measuring instruments and Electronics Manufacturing Services

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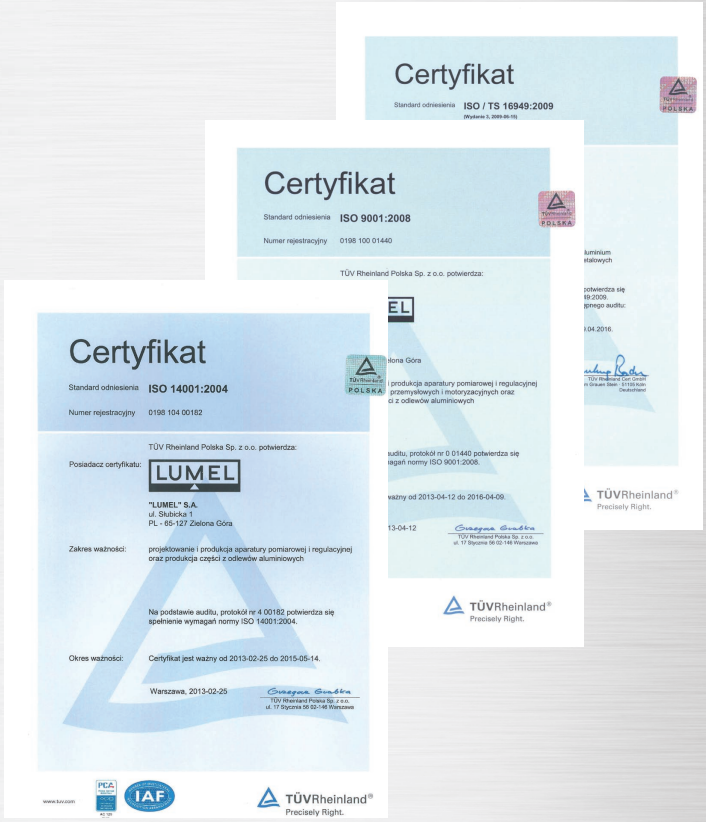
GUARANTEE

- OF THE HIGHEST QUALITY OF PRODUCTION AND SERVICES

To meet the expectation of our customers **we continuously take care of improving the quality management system.** It takes place at every activity level, from the identification of the customer's needs, through the production process, to the research of the recipients satisfaction.

To guarantee the highest quality we continuously supervise the production processes, we aim at the permanent parameter improving and we use materials from suppliers, who meet the highest global standards.



We work in accordance with:
- Certificate **ISO 9001:2008,**
- Certificate **ISO 14001:2004,**
- Technical specification **ISO/TS 16949:2009**.

We fulfill all requirements of 2002/95/EC Directive about limiting Hazardous Substances in our products.

All our products fulfill requirements
- **Electromagnetic compatibility acc to:**
  - immunity against electromagnetic interference EN 61000-6-2
  - emission of electromagnetic interference EN 61000-6-4
- **Safety acc. to:** EN61010-1.

CE

WELCOME TO CO-OPERATION!

MEASUREMENT

RECORDING

CONTROL

STEERING

CONTENTS

ICON'S LEGEND:

- TC and RTD input
- resistance signal measurement
- DC signal input
- AC signal input (1- or 3-phase Network parameters)
- 0...10 V analog input/output
- 4...20 mA analog input/output
- analog output (0...10 V, 0/4...20 mA)
- voltage-free transistor output (OC)
- thermoresistance input
- relay output
- temperature and humidity measurement
- temperature input
- pulse counting input
- relative humidity measurement
- binary input
- Real Time Clock
- internal memory
- USB port
- RS-485 interface
- RS-232 interface
- Modbus protocol

N24

N25

N20 AND N20Z

N27D

Type / Parameters	N24	N25	N20Z	N20	N27D New!
Input	fixed N24T, N25T: Pt100, J, K N24S, N25S: 0/4...20 mA, ±60 mV d.c., ±10 V d.c. N24H, N25H: ±10, ±100, ±250, ±400 V d.c., ±1/5 A d.c. N24Z, N25Z:100, 250, 400 V a.c., 1/5 A a.c., 20...500 Hz		fixed 1 A, 5 A a.c. 100 V, 250 V, 400 V a.c. 20...500 Hz	fixed Pt100, J, K 0/4...20 mA, ± 20 mA 0...60 mV, 0...10 V, ± 10 V	0...500 V a.c. 0...63 A a.c. -31.5...31.5 kW (45...65 Hz) 45...500 Hz
Output	supplying output (24 V/ 30 mA) for S and T versions (option)		2 x OC	· 2 x OC · supplying output (24 V/ 30 mA)	-
Display	red LED 4 digits (20 mm)	red LED 5 digits (14 mm)	3-colour programmable LED 5 digits (14 mm)		yellow LED 4 digits (8.5 mm)
Supply voltage	24 V a.c., 110 V a.c., 230 V a.c., 85...253 V a.c./d.c., 20...40 V a.c./d.c. (option)		85...253 V or 20...40 V a.c./d.c.		230 V a.c.
Protection rating	IP65				IP00
External dimensions	96 x 48 x 64 mm				110 x 53 x 60 mm
Programming	free LPCon software (using PD14 programmer)				-
Additional functions	rescaling				-

N30 SERIES

N27P

Type / Parameters	N30 serie				
	N30U	N30H	N30o	N30P	N27D New!
Input	programmable: Pt100/500/1000 J, K, N, E, R, S ± 20 mA 0...10 V, -10...60 mV 400, 4000 Ω	programmable: 1/5 A d.c., 100/500 V d.c.	pulse input (pulses, frequency, rotational speed, period, operating time counter, encoder)	1-phase power network parameters, programmable: 0...1/5A 0...100/400V	100 V/400 V a.c. 1/5 or 32/63 A direct measurement 1-phase power network parameters
Output	4 x relays (2 NO + 2 NOC (optionally), 1 x analog (option), 1 x pulse (option) in N30P meter, supplying output (24 V/ 30 mA) in N30U and N30O (for supply 85...253 V)				2 relays (2 NO) or 1relay (NO) 1 output 0(4)...20 mA
Interface	1 x RS-485 with MODBUS slave (option)				RS-485 MODBU Slave
Display	3-colour programmable LED 5 digits (14 mm)				OLED 0.96" yellow
Supply voltage	85...253 V a.c./d.c. or 20...40 V a.c./d.c.				85..253 V a.c. 90...300 V d.c.
Protection rating	IP65				IP00 (63A) or IP50 (5A)
External dimensions	96 x 48 x 93 mm				110 x 53 x 60 mm
Programming	free LPCon software (using RS-485) or using buttons				
Additional functions	· Conversion of any measured value into a current or voltage analog signal. · Storage of minimal and maximal values for all measured quantites. · 21-point rescaling for the measured value (does not apply to N30P and N27P) · Password protection. · Programmable current and voltage transformer ratio (apply to N27P).				

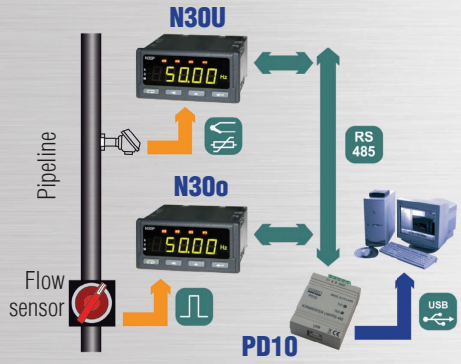
Type / Parameters	NA meters with bargraph indicators		
	NA3	**NA5**	**NA6**
Input	programmable: Pt100/500/1000, J, K, N, E, R, S 0...5/20 mA d.c., 0...2/5 A d.c., 0...60 mV d.c., 0...10/600 V d.c., 0...4 kΩ (NA3)	programmable: Pt100/500/1000, J, K, N, E, R, S ± 40 mA d.c., ± 5 A d.c., ± 300 mV d.c., ±0...600 V d.c., 0...10 kΩ	
Output	1 x relay or 2 x OC (option) 1 x analog (option)	4 x relay or 8 x OC (option) 1 x analog (option)	
Interface	1 x RS-485 MODBUS slave (option)		
Bargraph	3 or 7-colour programmable horizontal	3 or 7-colour programmable vertical	2 x 3 or 7-colour programmable vertical
Display	LED 4 digits (7 mm)	LED 4 digits (7 mm)	2 x LED 4 digits (7 mm)
Supply voltage	95...253 V a.c./d.c., 20....40 V a.c./d.c.		
Protection rating	IP40 (NA3), IP50 (NA5 and NA6)		
External dimensions	96 x 24 x 125 mm	48 x 144 x 100 mm	
Programming	free LPCon software (using RS-485) or using buttons		
Additional functions	· 2-point rescaling · arithmetical functions x2, √x, (+, -, *, / - only in NA6) · logging of the measured signal in programmed time intervals (750 samples) · memory of minimal and maximal values for all measured quanstites · password protection · conversion of any measured value into a current or voltage analog signal		

NA3

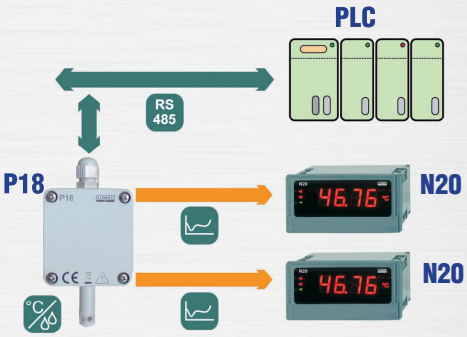
NA5 AND NA6

APPLICATION EXAMPLES

Temperature and flow measurement in a pipeline

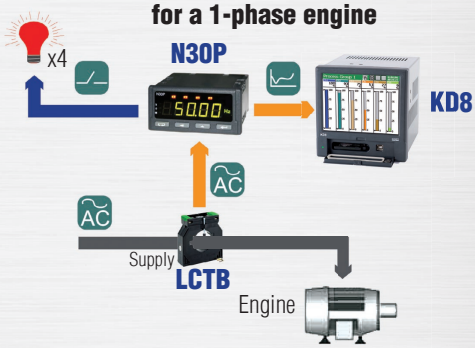


Air temperature and humidity measurement



Current measurement in an electroplating plant

Measurement, alarming ang logging of load current for a 1-phase engine



P20Z

P20, P20H AND P20G

P17, P17G

Type / Parameters	P20 and P17 transducers				Separators	
	P20	P20Z	P20H	P17	P20G	P17G
Input	programmable Pt100/250/500/1000, J, K, S, N 0/4...20, ±20 mA 0...5/10, ±5, ±10 V ±60, ±150 mV 0...400/4000 Ω	fixed 0..60/100/150 /250/400/50 0/600 V a.c. 0..1/5 A a.c.	fixed 100, 250, 400 V d.c. ±100, ±250, ±400 V d.c. ±1, ±5 A d.c.	fixed Pt100 J, K, N, E, 0...10 V 0...60 mV 0...150/25 Ω	programmable 0/4...20 mA ±20 mA 0...5/10 V ±5V, ±10 V ±60 mV, ±150 mV	0/4...20mA
Output	0/4...20 mA or 0...10 V		0/4...20 mA or 0...10 V	0/4...20 mA	programmable -20...20 mA -10...10 V	active output 0/4...20 mA
Interface	-	-	RS485 Modbus Slave	-	-	-
Supply voltage	85...253 V a.c./d.c. or 20...85 V d.c., 20...65 V a.c.			supplied from a current loop	85...253 V a.c./d.c. or 20...85 V d.c., 20...65 V a.c.	supply not required
Protection rating	IP40				IP50	IP50
External dimensions	22.5 x 120 x 100 mm			6.2 x 77.5 x 100 mm		
Additional functions	free LPCon software (using PD14 programmer)	-	free LPCon software (using PD14 programmer)	-	free LPCon software (using PD14 programmer)	-

P30U

P30o

P12 SERIES

Type / Parameters	P30 and P12 transducers				
	P30U	P30o New!	P12H	P120	P12P
Input	programmable Pt100/250/500/1000, Cu100, Ni100, Ni1000 J, K, N, E, R, S, T, B 0...4/20, ±20 mA -5...20, , ±75, ±200 mV, 400, 2000, 5500 Ω , RS485 Master or Slave	2 programmable inputs: pulse counter, frequency, rotational speed, period, operating time counter, pulse differantial counter on inputs or encoder	programmable ±1 A ±5 A ±100 V ±600 V	programmable pulse input (pulses, frequency, rotational speed, period, operating time counter)	1-phase power network parameters fixed 1A (X/1A) 5A (X/5A) 100 V(x/100 V) 400 V
Output	2 x relays (1 x NO + 1 x NO) 0/4...20 mA, 0...10 V		2 x relays NO 0/4...20 mA, 0...10 V		
	supplying output (24 V/ 30 mA – optionally) - P30U, P120				
Interface	RS-485 Modbus **Ethernet 10/100 Base-T (option)**	RS-485 Modbus (Slave) Ethernet 10/100 Base-T (option)	RS-485 Modbus		
Display	display LCD 2x8 characters backlighted		version without display or display LCD 2x8 characters		
Supply voltage	85...253 V a.c./d.c., 20...40 V a.c., 20...50 V d.c.		85...253 V a.c./d.c. or 20...40 V a.c./d.c.		
Protection rating	IP40				
External dimensions	45 x 120 x 100 mm				
Programming	using buttons or RS485 Modbus, **HTTP (option)**		using buttons or RS485		
Additional functions	• rescaling (up to 21 points) (P30o - independent for both inputs) (P12P – 2-points linear) • alarms indicated on the display • internal memory 534336 samples (P30U, P30o), 750 samples (P12)				
	• mathemetic functions (P30o-independent for both inputs) • WWW server, FTP, Modbus TCP/IP Slave • memory of min. and max. values (P30o - for both inputs) • filtration of periodic signals • data logging in internal memory in SD card (P30U, P30o optionally)				

Type / Parameters	Power transducers		
	P41	**P12P**	**P43**
Input	1-phase power network parameters programmable 1, 5 A 100, 400 V	1-phase power network parameters fixed 1A(X/1A),5A(X/5A),100V(x/100V),400V	3-phase power network parameters fixed 1 A or 5 A, 100 V or 400 V
Output	±20 mA (programmable)	2 x relays NO 0/4...20 mA, 0...5 mA, 0...10 V	4 relays or 2 relays + 2 analog programmable ±20mA or 4 analog programmable ±20mA
Interface	RS-485 Modbus		
Display	-	version without display or display LCD 2x8 characters	-
Supply voltage	85...253 V a.c. 40...400 Hz; 90...300 V d.c. or 20...40 V a.c. 40...400 Hz; 20...60 V d.c.	85...253 V a.c./d.c. or 20...40 V a.c./d.c.	85...253 V a.c. 40...400 Hz; 90...300 V d.c. or 20...40 V a.c. 40...400 Hz; 20...60 V d.c.
Protection rating	IP40		
External dimensions	45 x 120 x 100mm		90 x 120 x 100mm
Programming	free LPCon software	using buttons or RS485	free LPCon software
Additional functions	· memory for selected measured value - 9 000 samples · memory of minimal and maximal values · programmable current and voltage transformer ratios	· 2-points linear rescaling · alarms indicated on the display · internal memory 750 samples	· memory for average power – 9 000 samples · memory of minimal and maximal values · programmable current and voltage transformer ratios · pulse output

P41

P12 SERIES

P43

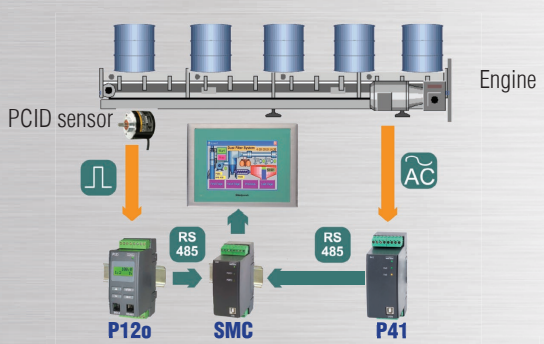
Type / Parameters	P18 and P18L temperature and humidity transducers		
	P18	**P18D** *New!*	**P18L**
Input	-30 ... -20 ... 60 ... 85°C, 0...100% RH		-30 ... -20 ... 60 ... 85°C or 0...100% RH
Output	2 x 4...20 mA or 0...10 V (option)		4...20 mA
Interface	RS-485 Modbus		-
Supply voltage	9 ... 24 V d.c./a.c		19...30 V d.c. (supplied by a current loop)
Protection rating	IP65		
External dimensions	38 x 58 x 118 mm		
Additional functions	· calculation of other quantities (dew-point temp.; absolute humidity) · memory of measured and calculated min. and max. values	· data presentation on a LCD display	-

P18 AND P18L

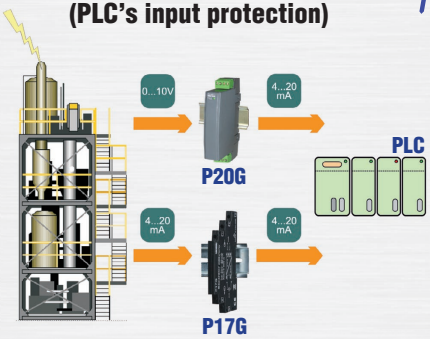
P18D

APPLICATIONS EXAMPLE

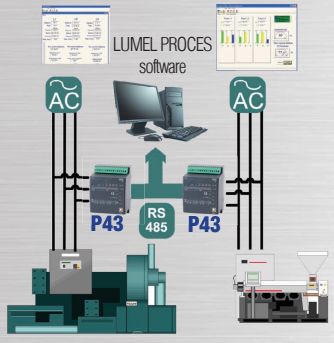
Measurement of conveyor belt speed and engine load



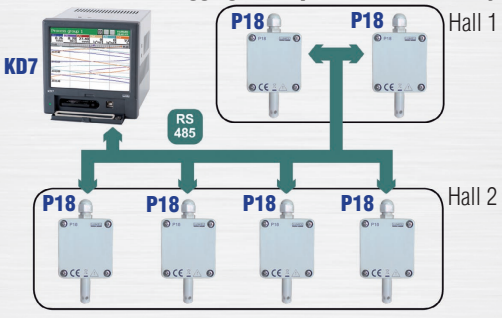
Galvanic insulation (PLC's input protection)



Measurement of 3-phase network parameters



Measurement and logging of temperature and humidity



METERS AND ANALYZERS OF POWER NETWORK PARAMETERS

N43

N14

ND10

ND20

N10/N10A

ND1

Type / Parameters	N43 New!	N14	ND10	ND20	N10/ N10A	ND1
Measurement	voltage: phase , mean 3-phase, phase-to-phase, mean phase-to-phase current: phase, mean 3-phase, in neutral wire power: active, reactive, apparent 3-phase power, power factor, angle, tg φ, frequency, 15-min. active power **4-quandrats power and energy measurement** (N14, ND10, ND20, ND1)					
	-	3-phase active and reactive energy			3-phase active, reactive and apparent energy	
	-	-	-	-	-	energy tarrifs (4)
	THD U, I	-	THD U, I	THD U, I	THD U, I	THD U, I
	-	-	-	harmonics up to 21st	harmonics up to 25th	harmonics up to 51st
	-	-	-	-	-	voltage dips and swells
	-	-	-	-	-	voltage asymmetry
Input	1 A/ 5 A; 63 A 3 x 57.7/100 V 3 x 230/ 400 V 3 x 290/ 500 V	1 A or 5 A 57,7/100 V, 230/400 V or 400/690 V	1 A or 5 A 57,7/100 V or 230/400 V	1 A or 5 A 57,7/100 V or 230/400 V	1 A or 5 A 57,7/100 V or 230/400 V pulse (N10)	1 A or 5 A 57,7/100 V, 230/400 V or 400/690 V 12 x logic
Output	3 x relay 1 x pulse	1 x relay 1 x pulse	2 x relays 1 x pulse	1 x 0/4...20 mA (option) 1 x relay 1 x pulse	N10: 1 x 0/4..20 mA 3 x relays 1 x pulse N10A: 3 x -5...+5 mA 1 x relay	4 x 0/4...20 mA 6 x relays 2 x supplying outputs
Interface	RS-485 Modbus Slave - standard	RS-485 Modbus Slave - standard	RS-485 Modbus Slave - option	RS-485 Modbus Slave - standard	RS-485 Modbus Slave - option	RS-485 Modbus 1 x Master, 1 x Slave **Ethernet** (HTTP, NTP, FTP, Modbus TCP), USB
Display	LCD 4 x 3 digits + 1 x 7 digts backlighted	LED 3 x 3 digits (14 mm)	3.5" LCD 3 x 4 digits (16 mm)	3.5" LCD 3 x 4 (11 mm) + 1 x 5 digits (9 mm)	LED 4 x 5 digits (14 mm)	5.7" TFT touch screen, 320x240 pixel 256 colours, backlighted
Supply voltage	85...253 V a.c.; 90...300 V d.c. 20...40 V a.c.; 20...60 V d.c.	85..253 V a.c./d.c.	195 .. 253 V a.c. or 49 .. 64 V a.c.	85.. 253 V a.c/d.c. or 20..40 V a.c/d.c.	85..253 V a.c./d.c.	
Protection rating	IP50	IP40	IP65		IP40	IP65
External dimensions	105 x 110 x 60 mm	96 x 96x 70,5 mm	96 x 96 x 77 mm		144 x 144 x 77 mm	144 x 144 x 155 mm
Programming	free eCon software	free LPCon software (using RS-485) or using buttons				NDSetup program (using USB or CF card) or using touch screen
Additional functions	· for direct measurement up to 76 A	· galvanic isolation of current inputs		· memory 9000 samples for mean power · galvanic isolation of current inputs	· selection of displayed quantities on each of the 20 programmable pages · galvanic isolation of current and voltage inputs	· measurement and logging of energy quality acc. to EN50160 · memory - CF card 4GB · oscilloscope · galvanic isolation of current and voltage inputs

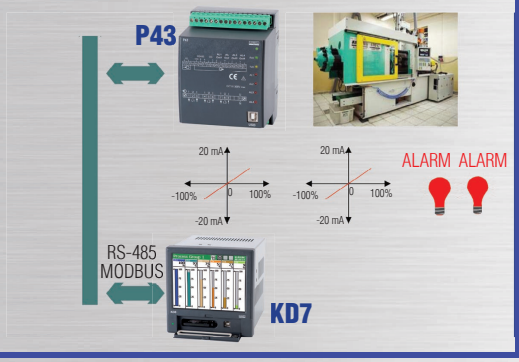
Type / Parameters	KS3 synchronizing units	
	KS3.1	KS3.2
Input	100.0 V (Ku=1) 110.0 V (Ku=1) 240.0 V (Ku=1) 400.0 V (Ku=1)	
Output	2 x relays	
Interface	RS-485 Modbus - option	
Display	4 x 5 digits LED (14 mm), red colour	synchronoscope: circle with 72 diodes; differential voltage and frequency: bargraph with zero in the middle (68 diodes)
Supply voltage	85...253 V AC/DC or 20...40 V AC/DC	
Protection rating	IP40	
External dimensions	144 x 144 x 77 mm	
Additional functions	· signalling of synchronizing condition (AL1) · programmable parameters · signalling of any network voltage range exceeding beyond 80-120% of the rated value (AL2) · measurement of min. and max. values of voltage and frequency	

KS3.1

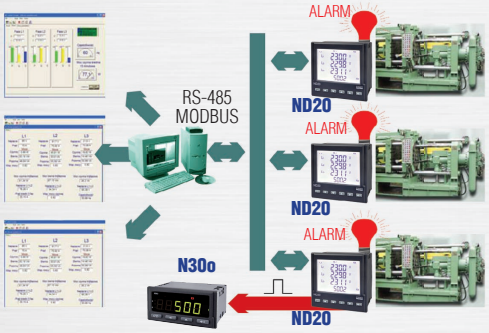
KS3.2

APPLICATION EXAMPLES

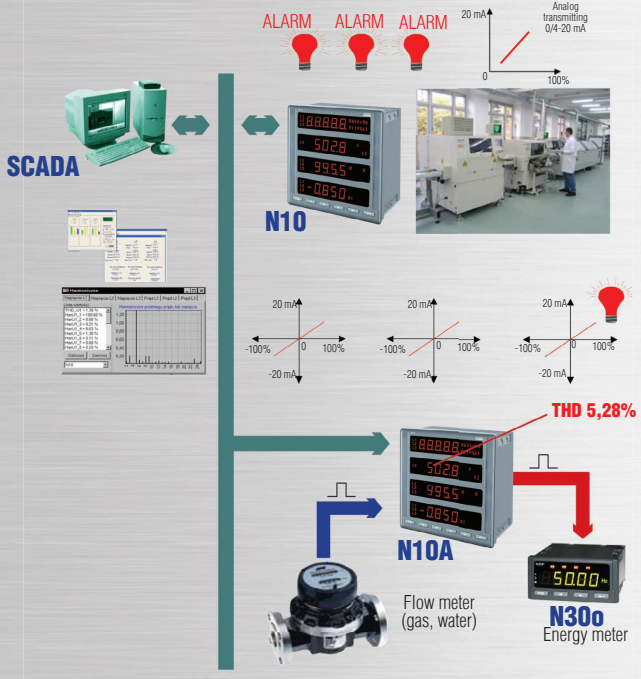
Measurement and monitoring of the power consumption of the machine and archiving by KD7 paperless recorder



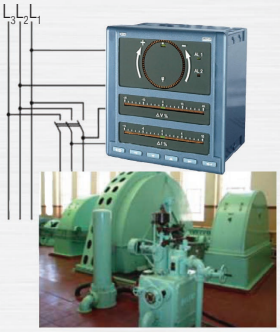
Measurement and displaying of the network parameters and energy of the 3-phase machines



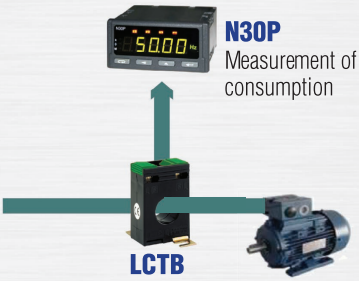
Measurement and displaying of the network parameters and energy of the 3-phase machines



Automatic synchronization, while connecting a generator to the main power network



Measurement of a.c. current of 1-phase engine




RE22


RE70


RE71


RE72


RE81


RE82


RE92


RE19

Type / Parameters	RE22	RE70 New!	RE71	RE81	RE72	RE82	RE92 New!	RE19
	Industrial process controllers							
Number of channels	1	1	1	1	1	1	2	2
Input	program-mable Pt100/1000 J, T, K, S, R, B, E, N, L 0(4)...20 mA 0...5/10 V	program-mable Pt100/1000 J, T, K, S, R, B, N	fixed Pt100 J, K, S		programmable Pt100/1000 J, T, K, S, R, B, E, N, L 0(4)...20 mA 0...5/10 V		programmable: 2x Pt100/500/1000, Ni100, Cu100 J, T, K, S, R, B, E, N, L 0(4)...20 mA 0...(5)10 V	programmable: 2x Pt100/500/ /1000, Ni100, Cu100 J, T, K, S, R, B, E, N, 0(4)...20 mA 0...(5)10 V
Additional input	-	-	-	-	logic/ current transformer input/ 0(4)... 20 mA (option)	2 x logic/ current trans-former input/ 0(4)...20 mA	3x logic and 0(4)...20 mA / 0...(5)10 V / potentiometer (100)1000 Ω (option)	2x logic and 0...(5)10 V / 0(4)...20 mA / potentiometer (100)1000 Ω (option)
Output	relay or OC 0/5 V	relay	relays or 0/6 V	max. 2x relays / 1x OC 0/6 V (option)	2 x relays / OC 0/5 V / analog 0(4)...20mA / 0...10 V / supplying output 24 V d.c. 30 mA (option)	2x relays and 2x relays / OC 0/5V / analog 0(4)...20 mA / 0...10 V (option) supplying output 24 V d.c. 30 mA (option)	max. 6x relays / 2x OC / 2x analog analog 0(4)... 20 mA / 0...10 V (option) supplying output 24 V d.c. 30 mA (option)	max. 4x relays / 4x OC / 2x binary 0/15 V / 2x analog 0(4)...20 mA, 0...10 V (option)
Interface	-	RS-485 Modbus (for configu-ration)	-		RS-485 Modbus		RS-485 Modbus, Ethernet (optionally)	RS-485 Modbus (optionally)
Alarm	-	-	-	1	max. 2	max. 3	max. 6	max. 3
Control	on/off or PID with self-tuning heating or cooling	on/off or SMART PID, heating or cooling	on/off / SMART PID heating or cooling	on/off or SMART PID, heating/ cooling/ step-by-step	programmed on/off SMART PID heating/cooling/step-by-step		programmed on/off SMART PID heating/cooling/ step-by-step	programmed on/off, PID with self-tuning heating/ cooling/ ste-by-step
Display	red LED 4 digits (9,2 mm)		red LED 4 digits (7,6 mm)	red and green LED 2 x 4 digits (7,6 mm)		red and green LED 2 x 4 digits (7,6 mm) + 2 bargraphs	LCD 3.5" TFT 320 x 240 pixels colour	red and green LED 2 x 5 digits (10mm) + LCD 2 x 16 cha-racters
Supply voltage	230; 110; 24 V a.c.	230 V a.c.			85...253 V a.c./ d.c. 20...40 V a.c./d.c.		85...253 V a.c./d.c.	85...253 V a.c./d.c. 18...23 V d.c.
Protection rating	IP65							IP40
External dimensions	48 x 48 x 93 mm			48 x 96 x 93 mm	48 x 48 x 93 mm	48 x 96 x 93 mm	96 x 96 x 99 mm	96 x 96 x 81 mm
Additional functions	· soft start	-	-	-	· soft start · 6 types of alarms · alarm LATCH function · programmed control (15 programs with 15 segments in each)		· programmed control (20 programs with 15 seg-ments in each)	· programmed control (15 programs with 15 segments in each)

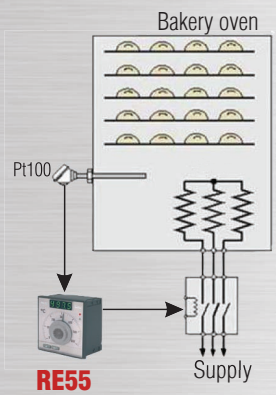
Type / Parameters	Industrial process controllers	
	RE55	RE60
Number of channels	1	1
Input	fixed: Pt100 J, K, S	
Additional input	-	
Output	max. 2x relays / 1x logic 0/5 V (option)	max. 3x relays / 1x logic 0/5 V (option)
Alarm	1	max 2
Control	on/off, PID or PID with self-tuning, heating or cooling	on/off, PID, heating or cooling
Interface	-	
Display	green LED 4 digits (10 mm)	LCD (2 x 8 characters)
Supply voltage	85 .. 253 V d.c./a.c.	24, 110, 230 V a.c. 18...72 V d.c.
Protection rating	IP40	
External dimensions	96 x 96 x 65 mm	45 x 100 x 120 mm
Additional functions	-	-

RE55

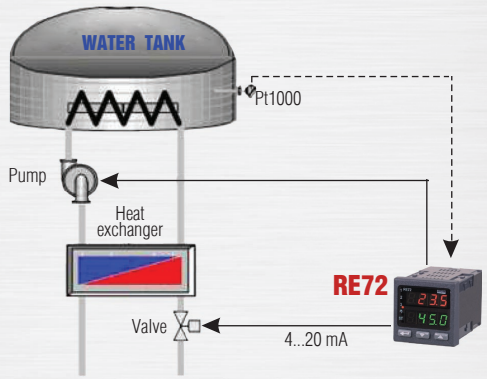
RE60

APPLICATION EXAMPLES

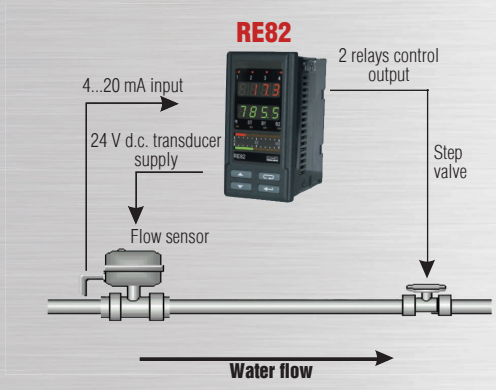
Bakery oven control



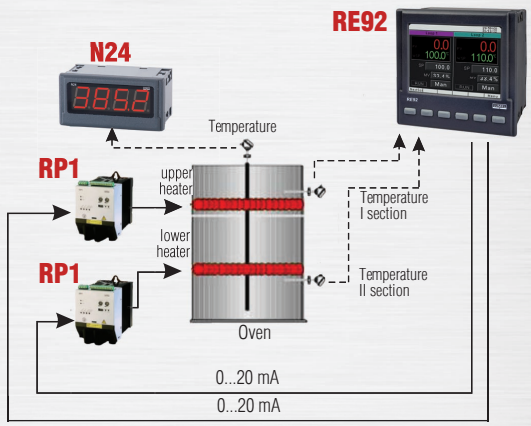
Temperature measurement and control in a water tank



Water flow measurement and 3-stage valve control



Batch temperature measurement with a smooth heater power control in a hardening furnace



CONTROLLER FOR INJECTION MOULDS

SR11

Type / Parameters	System for injection moulds with heated channels
	SR11
Number of channels	1...8
Input	fixed Fe-CuNi (J) logic 24 V d.c.
Output	1 output per control zone (15 A)
Control	Fuzzy Logic, PID with self-tuning
Interface	RS-485 with MODBUS protocol (option)
Display	LED 14 mm 2 x 3 digits
Supply voltage	230 V a.c. (for system with 1 control zone) 3 x 230/ 400 V a.c. (for system with 2...8 control zones)
Protection rating	IP30
External dimensions	77.5 x 200 x 355mm (1 control zone) 215 x 197 x 355mm (2 or 3 control zones) 365 x 197 x 355mm (4, 5 or 6 control zones) 465 x 197 x 355 (7 or 8 control zones)
Additional functions	· Fuzzy Logic algorythm ensures a high accuracy temperature control and optimal energy consumption · soft-start function and leakage current monitoring ensure prolonged heaters reliability and operation safety for users · during a break in system operation, a decreased temperature is maintained, what ensures a fast restart of the system · damage detection: - too high heater leakage current, - damage of the load circuit, - short-circuit, break or inverse polarization in the sensor circuit.

APPLICATION EXAMPLE

Temperature control in an injection mould

SR11 system

Injection mould

Type / Parameters	RP7	RP1	RPL1	RP3
Version	1-phase			3-phase
Control	phase	phase, pulse, on/off		
Input signal	0..5/10V, 0/4..20mA potentiometer			
Output	-	voltage (1) – Master/Slave (for co-operation with second power controller) relays (2)		
Max. output current	15A	125A		3 x 450A
Load supply voltage	230 V	230 V, 400 V a.c.	230, 400, 500 V a.c.	400 V a.c.
Load configuration	2-wire	2 or 3-wire		3, 4 or 6-wire
External dimensions	50 x 105 x 105 mm	135 x 201 x 199 mm 135 x 231 x 199 mm	135 x 201 x 199 mm 135 x 231 x 199 mm - RPL1-x4xx (version with fan)	212 x 318 x 177 mm (40, 70, 125 A versions) 383 x 433 x 281 mm (200, 300, 450 A versions)


RP7

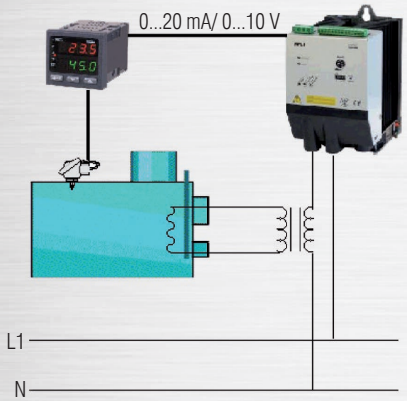

RP1


RPL1

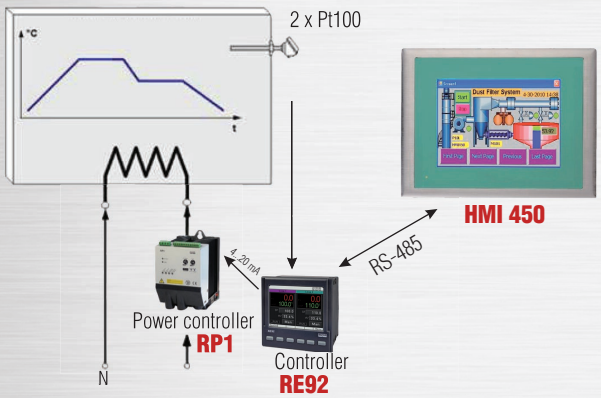

RP3

APPLICATION EXAMPLES

Continuous temperature control in the furnace



Program following temperature control in a high power oven with electrical heaters



N30B

KD7

KD8

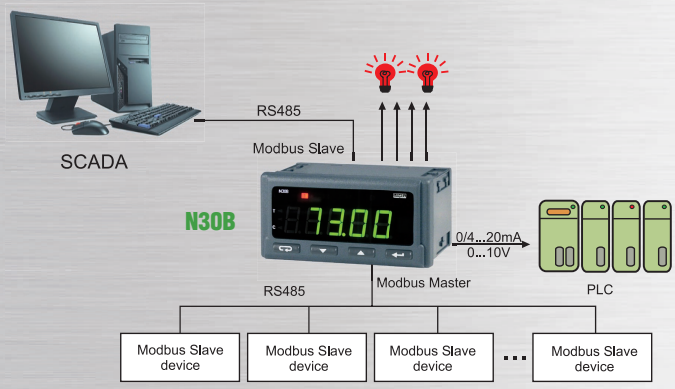
PD22

SM61

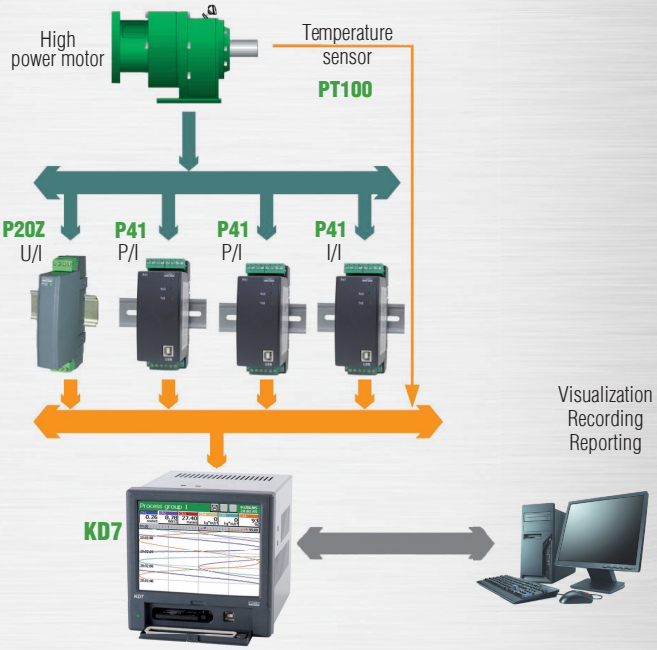
Type / Parameters	N30B	KD7	KD8	PD22	SM61 New!
Number of channels	up to 100	up to 32 (24 for recording)	up to 6	up to 1000	up to 2500
Input	Modbus RTU Master 10 groups 10 registers each	programmable (3, 6, 9 or 12 inputs) Pt100/500/1000, Ni100, Cu100, J, K, N, E, R, S, T, B, L, ± 20mA ± 9999mV 50...2000 Ω 0...2000 Ω logic input 0/5...24 V d.c. (8 or 16 pcs.) Modbus RTU Master (24 registers)	programmable (3 or 6 inputs) Pt100/500/1000 Ni100, Cu100, J, K, N, E, R, S, T, B, L, ± 20mA ± 9999mV 50...2000 Ω 0...2000 Ω logic 0/5...24 V d.c. (4 or 8 pcs.)	Port I: Modbus RTU Master (50 groups 20 registers each)	Port II: Modbus RTU Master, (100 groups 25 registers each) 2 x logic (option)
Output	4 x relays (2 NO + optionally 2 changeover), 1 x analog (option)	relays (8 or 16) relays OptoMOS (8 or 16) analog (4 or 8) 0...5, 0/4...20 mA 0... 5 V, 1...5 V, 0...10 V supplying output (2 x 24 V d.c. 30 mA)	relays (6 or 12)	Port II: Modbus RTU Slave	Port I: Modbus RTU/TCP Slave, 2 x relays (option)
Interface	max 2 x RS-485 Modbus Master and Slave (option)	2 x RS-485 (Modbus Slave and Master) 1 x RS232 (Modbus Slave) USB Device 1.1. Ethernet 10 Base-T	RS-485 (Modbus Slave) USB Device 1.1.	3 x RS-485 (Modbus Slave and Master) 1 x RS-232 (Modbus Slave) USB Device 1.1.	2 x RS-485 (Modbus Slave and Master) 1 x RS-232 (Modbus Slave) USB Device 1.1. Ethernet 10/100 Base-T
Memory	internal - 308000 samples external – MMC/SD card up to 4 GB	internal – up to 6 MB external – CF card up to 4 GB		512 kB, 390.000 samples 44.000 events	1 GB
Display	3-colour LED 5 digits (14 mm)	LCD 5,7" TFT type 320 x 240 pixels with touch panel		-	
Supply voltage	85...253 V a.c. (40...400 Hz); 90...320 V d.c., 20...40 V a.c. (40...400 Hz); 20 ...60 V d.c.	90...253 V a.c. or 18...30 V d.c.		20...50 V a.c./d.c. 85...230...253 V a.c./d.c.	20...24...50 V a.c./d.c. 85...230...253 V a.c./d.c.
Protecting rating	IP65			IP40/IP20	
External dimensions	96 x 48 x 93 mm	144 x 144 x 171 mm	144 x 144 x 171 mm	45 x 120 x 100 mm	
Additional functions	· 21-point rescaling · free software for data analysis · data logging on PC in MySQL database	· many forms of data presentation: linear, bargraph, chart, digital and analog indicators, · WWW and FTP Server (KD7) · Windows® CE operating system · PC software KD SETUP, KD CHECK, KD CONNECT, KD ARCHIVE · user access rights · menu available in 8 language versions.		· RTC	· HTTP (WEB server -visualization in format of synoptic maps), · DHCP · ftp server, · RTC

APPLICATION EXAMPLES

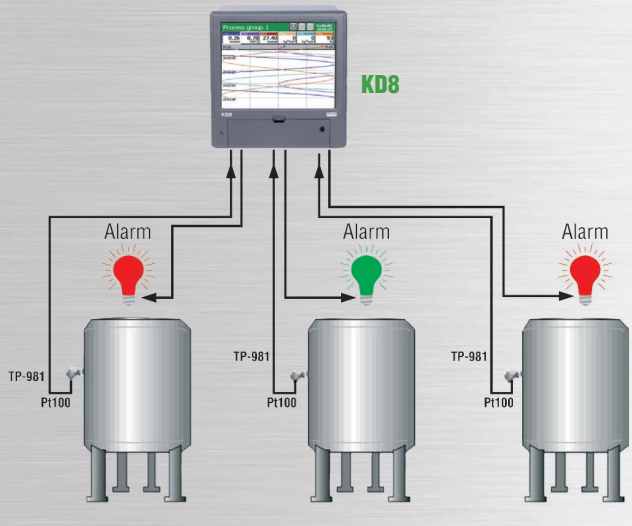
Data presentation and logging from automation devices



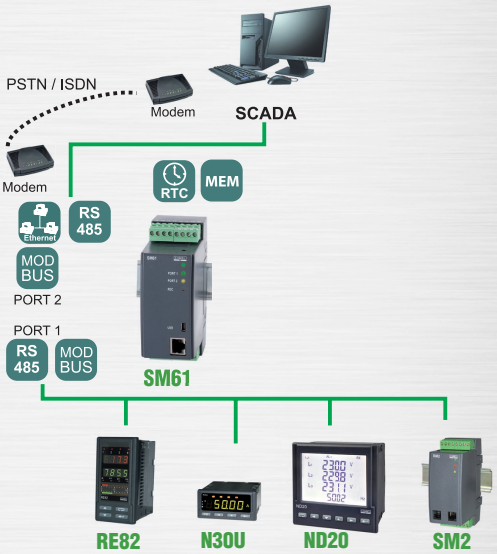
Measurement and visualization of motor working parameters (temperature and motor load)



Temperature measurement, logging and alarming



Archiving of process data



DISTRIBUTED CONTROL SYSTEMS (DCS)


SM1 AND SM3


SM2


SM4 AND SM5

Type / Parameters	Input/Output modules				
	SM1	SM2	SM3	SM5	SM4
Number of channels	2	4	2	8	4 or 8
Inputs/outputs	inputs: Pt100(-200...850°C) 0/4...20 mA 0...10 V 0...400 Ω		inputs: logic on/off or pulse counter up to 1 kHz 0...4 294 967 295 pulses	inputs: logic on/off	outputs: 4 x relays or 8 x OC
Interface	RS-485 Modbus (ASCII i RTU), RS232 for configuration				
Baud rate	2400; 4800; 9600; 19.2 k; 38.4 k; 57.6 k; 115 k bit/s				
Supply voltage	85...253 V a.c./d.c.; 20...50 V a.c./d.c.				
Protection rating	IP40/IP20				
External dimensions	22.5 x 120 x 100 mm	45 x 120 x 100 mm	22.5 x 120 x 100 mm	45 x 120 x 100 mm	45 x 120 x 100 mm


PD22


SM61

Type / Parameters	Data logger	
	PD22	SM61 New!
Number of channels	up to 1000 digital channels	up 2500 digital channels
Input	Port I: Modbus RTU Master (50 groups 20 register rach)	Port II: Modbus RTU Master (100 groups 25 registers each), 2 x logic
Output	Port II: Modbus RTU Slave	Port I: Modbus RTU/TCP Slave, 2 x relay
Interface	3 x RS-485 (Modbus Slave and Master) 1 x RS232 (Modbus Slave) USB Device 1.1.	2 x RS-485 (Modbus Slave and Master) 1 x RS232 (Modbus Slave) USB Device 1.1. Ethernet 10/100 Base-T
Memory	512 kB, 390.000 samples, 44.000 events	1 GB
Galvanic isollation		input/output/supply
Supply voltage	20... 50 V a.c./d.c. 85...230...253 V a.c./d.c.	20...24...50 V a.c./d.c. 85...230...253 V a.c./d.c.
Protection rating frontal/rear side	IP40/ IP20	
External dimensions	45 x 120 x 100 mm	
Mounting	on a rail	
Additional functions	· RTC	· HTTP (web server - visualization in format of synoptic maps), · DHCP, · FTP server, · RTC


SM9

Type / Parameters	Power supplier
	SM9
Supply voltage	105...250 V a.c.
Protection rating	IP20
External dimensions	52 x 44 x 24 mm
Additional functions	· power supplier 24 V d.c., · max current output: 1 A d.c.

Typ / Parameters	Interface/protocol converters				Radio transmission modules	
	PD51	PD8	PD8W New!	PD10	SM7	MR03
Interface 1	RS-232	RS-485, RS-232		RS-485	RS-232 or RS-485	RS-232 RS-485
Interface 2	RS-485	Ethernet RJ45	Ethernet Wi-Fi	USB	radio frequency 433/869 MHz	radio frequency 869.4 – 869.65 MHz
Interface 3	-	USB*		-	-	-
Galvanic isollation	supply/RS-485/RS-232	supply/RS-485/Ethernet		USB/RS-485	RS-485/RS-232/supply	
Power output	-	-		-	10 mW (-20 do 10 dBm)	500 mW
Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 [bit/s]	300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 56000 bit/s (RS485) 10, 100 Mbit/s (Ethernet)		do 1 Mb/s	serial interface: 4800...115200 bit/s radio band: 4800, 9600, 19200, 38400, 76800 bit/s	Port 1 - RS-232 1200...115200 bit/s Port 2 - RS-485 1200...115200 bit/s radio band 4800 bit/s
Distance	-	-		-	up to 300m	up to 1.5 km
Supply voltage	7...35 V d.c. or 20...24...40 V a.c./d.c. or 85...230...253 V a.c./d.c.	85..230..253 V a.c./d.c. 20..24..50 V a.c./d.c.		supplied from USB port	85..230..253 V a.c./d.c. or 20..24..50 V a.c./d.c. 7..35 V d.c.	8..30 V a.c./d.c.
Protection rating frontal	IP40				IP20	IP54
Ambient temperature	0...23...55°C	-23...23....45°C		0...55°C	0...23...45°C	0...23...50°C
External dimensions	22.5 x 120 x 100 mm	45 x 120x 100 mm		52 x 44 x 24 mm	45 x 120 x 100 mm	115 x 65 x 40 mm
Additional functions	• converter/repeater • galvanic isollation	• galvanic isollation • Digi RealPort®, TCP/IP, HTTP, ICMP, DHCP, ARP		• galvanic isollation	-	-


PD51


PD8W


PD10

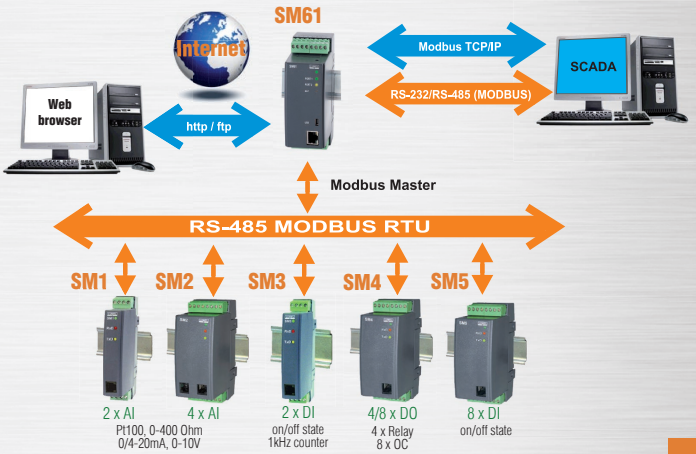

SM7


MR03

APPLICATION EXAMPLES

Radio transmission with MR03 radio modules. Modules can realize transmission in a 1.5 km distance in open area. The transmitted data are archived in the KD7 recorder.

Visualization of production process.

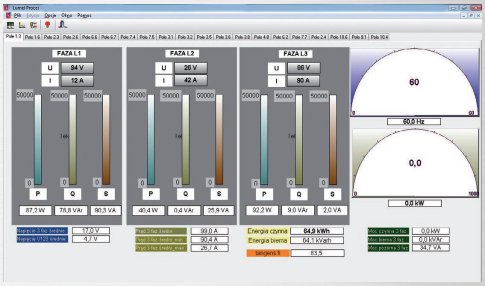


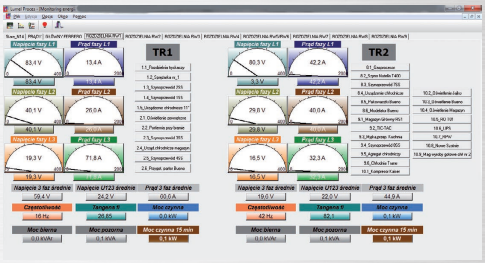
PLC CONTROLLER

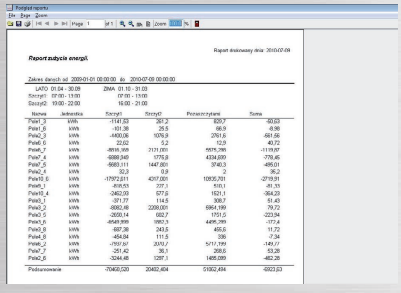
Type / Parameters	PLC controller SMC
Interface	Port 1: RS-485, RS-232, USB 1.1 Modbus Slave (for communication with PC or HMI); Port 2: 2 x RS-485 Modbus Master (for communication with I/O modules)
Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bits/s
Supply voltage	20...24...50 V a.c./d.c. or 85...230...253 V a.c./d.c.
Display	-
Protection rating	IP40
External dimensions	45 x 120 x 100 mm
Additional functions	• programming in ST, FBD, LD, IL languages acc. to the IEC61131-3 (CPDev software) • on-line and off -line simulation of created algorithms (CPDev software) • communication with input / output modules and other control and measurement devices through RS-485 interface with MODBUS protocol • rich libraries of functional blocks (incl. PID) with possiblity to create a user's library • real time clock (RTC).

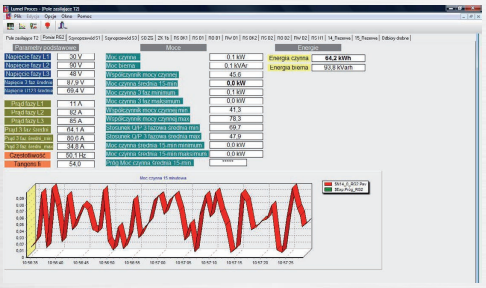
LUMEL-PROCES SOFTWARE

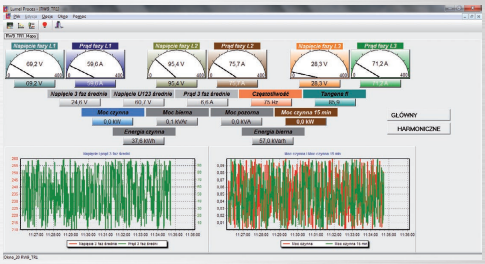
- modern integration and data presentation system,
- control and measurement applications for industrial installations, intelligent buildings, heat engineering, gas engineering, power engineering and laboratories,
- for systems built with the application of LUMEL's instruments, compatible with devices from other manufacturers,
- data exchange using Modbus transmission protocol,
- visualization of process parameters in form of mimic maps, tables, bargraphs and trends,
- remote configuration and control of devices,
- data logging,
- recording of alarm events in the system,
- data sharing with other applications using DDE data exchange protocol (client DDE),
- sharing data with other computers with a LUMEL Proces program in the local computer network with the TCP/IP protocol,
- report templates,
- report monitoring on the base of archived data,
- report printing and export to pdf, txt, html formats,
- **view of synoptic map via web broser!**









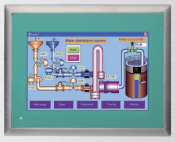


LUMEL

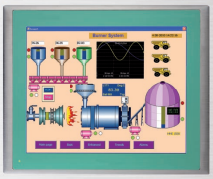
	Type / Parameters	HMI 450	HMI 730	HMI 750	HMI 1050	HMI 1550
Display	Size	4,3" TFT	7" TFT	7" TFT	10" TFT	15" TFT
	Colors	65 536				
	Resolution (W x H in pixels)	480 x 272	800 x 480	800 x 480	1024 x 768	1024 x 768
	Touch screen type	resistive analog				
	Active Display Area (W x H)	95 x 54	152 x 91	152 x 91	203 x 152	304 x 228
	Display position	both horizontal and vertical				
	MTBF backlight at 25°C	30 000 hrs	50 000 hrs			
	Backlight	LED				CCFL
	Brightness Adjustment	yes				
	Screen Saver	yes				
	Language Fonts	yes				
Main Hardware	Processor, CPU speed	ARM11, 533 MHz	ARM11, 533 MHz	ARM Cortex-A8, 667 MHz	ARM Cortex-A8, 667 MHz	ARM Cortex-A8, 667 MHz
	Flash Memory (ROM)	128 MB				
	SDRAM (RAM)	128 MB		256 MB		
	Operation System	WinCE 6.0				
	Real Time Clock	yes				
	Buzzer	yes				
	Sound output	-		option		
	SD card slot	yes	-	yes		
Interfaces	RS-232C, DB9 Male	yes				
	RS-232C/ RS422/ RS485, DB25 Female	yes				
	USB Host	yes				
	Ethernet 10/100 Mbps, RJ45	option		yes	yes, 2 ports	


HMI 450


HMI 730

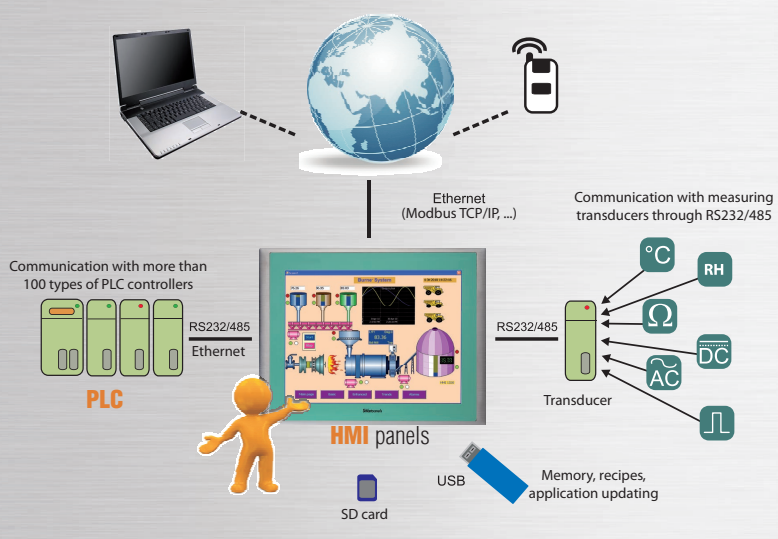

HMI 750


HMI 1050

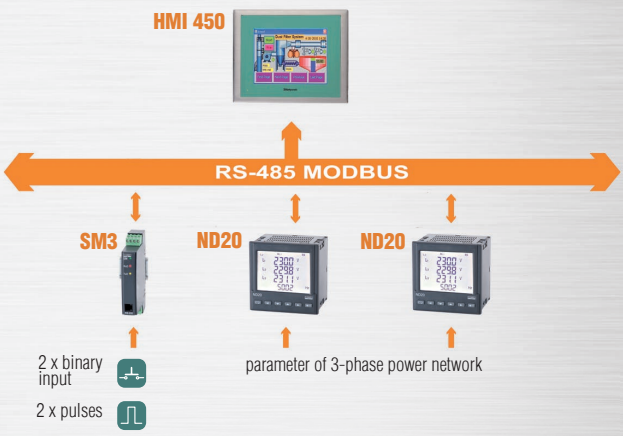

HMI 1550

APPLICATION EXAMPLES

Communication possibilities of HMI panels



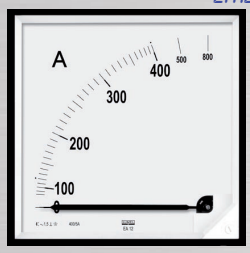
Monitoring of machine park capacity



ANALOG PANEL METERS

EB16

EA12



Type	Moving-iron meters				
	EB16	EA16	EA17	EA19	EA12
Measuring ranges: - current: · direct · through a transformer (on request, with twice or six-times overload) - voltage: · direct · through a transformer	100 mA ... 25 A xA x/5 A; xA/1 A 6 V ... 600 V xV/100 V; xV/110 V		100 mA ... 100 A xA x/5 A; xA x/1A 6 V ... 1000 V xV/ 100 V; xV/110 V		
Frequency of measured value	40...45..65...72 Hz				
Protection rating	IP52	IP50 (on request IP65)			IP50 (on request IP54)
Climate version	normal or tropical		normal, tropical or similar to marine		
External dimensions	53 x 90 mm	48 x 48 mm	72 x 72 mm	96 x 96 mm	144 x 144 mm

EV96

EV72

Type	Moving-iron meters	
	EV72	EV96
Measuring ranges: - current: · through a transformer (with twice times overload) - voltage: · direct	x/2x x/5 A 500 V	
Frequency of measured value	45...65 Hz	
Protection rating	IP52	
External dimensions	72 x 72 mm	96 x 96 mm

MA12

Type	Moving-coil meters with rectifiers		
	MA17P	MA19P	MA12P
Measuring ranges (direct): - current: - voltage:	400 mA...1 A (30...1000...10000 Hz) 1 A...6 A (49...50...51 Hz) 6mV...1,5 V (49..50...51 Hz) 2,5 V...600 V (30...1000...10 000 Hz)		400 mA...1 A (30...1000...10 000 Hz) 2,5 V...600 V (30...1000...10 000 Hz)
Protection rating	IP50 (IP65 on request)		IP50 (IP54 on request)
Climate version	normal, tropical or similar to marine		
External dimensions	72 x 72 mm	96 x 96 mm	144 x 144 mm

EP29

Type	3-phase voltmeters	
	EP27	EP29
Voltage measuring ranges: - direct phase-to-phase: - through a transformer:	500 V xV/100 V; xV/110 V	
Frequency	40...45...65...72 Hz	
Protection rating	IP50	
Climate version	normal, tropical or similar to marine	
External dimensions	72 x 72 mm	96 x 96 mm

PA39

Type	Power meters
	PA39
Power measuring ranges:	50W...1000 MW or 50 var...1000 Mvar
Frequency	50 Hz, 60 Hz or 400 Hz
Protection rating	IP50 (on request IP65)
Climate version:	normal, tropical or similar to marine
External dimensions	96 x 96 mm

Type	Moving-coil meters				
	MB16	MA16	MA17	MA19	MA12
Measuring ranges: - current: · direct measurement · indirect measurement (through the shunt) - voltage: · direct	40 mA...25 A 1 A...15 kA 60 mV...1000 V		100 mA...25 A 1 A...15 kA 60 mV...1000 V		
Protection rating	IP52	IP50 (on request IP65)			IP50 (on request IP54)
Climate version:	normal or tropical		normal, tropical or similar to marine		
Rated operational conditions: - ambient temperature: - relative air humidity	5...23...55°C 25...85%				
External dimensions	53 x 90 mm	48 x 48 mm	72 x 72 mm	96 x 96 mm	144 x 144 m

MA12

Type	Max demand ammeters - Bimetalic or Bimetalic and moving-iron			
	BA27	BA39	BE27	BE39
Measuring ranges: - bimetalic element: · direct measurement · indirect measurement (through a transformers) - moving-iron element: · direct measurement · indirect (through a transformer)	0...1.2 A or 0...6 A 0...1.2(x) A x/1 A or 0...1,2(x) A x/5 A - -		0...1.2 A or 0...6 A 1.2(x) A x/1 A or 1.2(x) A x/5 A 0...1/2 A or 0...5/10 A 0...2(x) A x/1 A or 0...2(x) A x/5 A	
Protection rating	IP50			
Climate version:	normal, tropical or similar to marine			
External dimensions	72 x 72 mm	96 x 96 mm	72 x 72 mm	96 x 96 mm

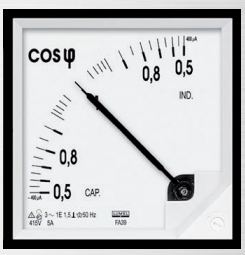
BA39

BE39

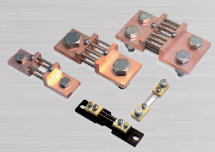
Type	Power factor and frequency meters				
	FA39	FA32	CA37	CA39	CA32
Measuring ranges:	0.5_{Cap}....1...$0.5_{IND.}$ 0.8_{Cap}....1...$0.2_{IND.}$ 0.85_{Cap}....1...$0.85_{IND.}$ $0_{IND.}$ ...1		Class 0,5: 45...55 Hz; 45...65 Hz; 55...65 Hz; 360...440 Hz; Class 0,2: 48...52 Hz; 58...62 Hz; 140...160 Hz; 180...220 Hz; 380...420 Hz		
Frequency	45...50...60...65 Hz		-		
Protection rating	IP50 (IP65 on request)	IP50 (IP54 on request)	IP50 (IP65 on request)		IP50 (IP54 on request)
Climate version:	normal, tropical or similar to marine				
External dimensions	96 x 96 mm	144 x 144 mm	72 x 72 mm	96 x 96 mm	144 x 144 mm

CA39

FA39



SHUNTS



Type / Parameters	Shunts				
	B2	B3	B4	B5	B6
Voltage drop	60 mV	150 mV	50 mV	75 mV	100 mV
Rated current	1 A...15 kA (1; 1.5; 2.5; 4; 6 and their decimal multiples)				
Accuracy class	0.5				

- all shunts from 1...25 A are fixed on insulating basis with the possibility to be mounted on a DIN rail
- shunts of other ranges are fixed directly on the DC rail or cable
- dimensions acc. DIN 43703

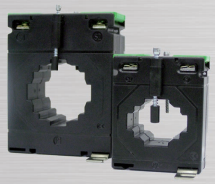
CURRENT TRANSFORMERS

LCTM

Type / Parameters	LCTM current transformers with a primary winding	
	LCTM 62/W (40)	LCTM 74W (45)
Primary current [A]	1...25	1...60
External dimensions	40 x 62 mm	45 x 74 mm
Accuracy class	0.2; 0.5; 1	0.2; 0.5; 1

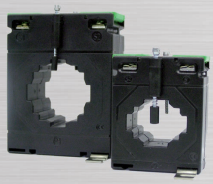
LCTR

Type / Parameters	LCTR current transformers for a round conductor			
	LCTR 45/14(40)	LCTR 50/14 (30)	LCTR 50/14 (50)	LCTR 62/R
Primary current[A]	30..300	40...300	30...300	50...600
Hole diameter	⌀14	⌀14	⌀14	⌀22
Accuracy class	0.5; 1	0.5; 1	0.5; 1	0.2; 0.5; 1



LCTB

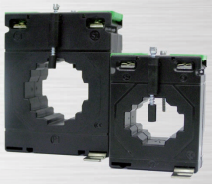
Type / Parameters	LCTB current transformers for a bur conductor					
	LCTB 45/21(40)	LCTB 50/21 (30)	LCTB 50/21 (50)	LCTB 62/20 (40)	LCTB 74/20 (45)	LCTB 50/30 (30)
Primary current [A]	5...400	50...400	50...400	50...400	30...400	75...600
Hole diameter	⌀20	⌀21	⌀21	-	⌀20.4	⌀36
Busbar (mm)	20 x 10	20 x 10	30 x 10; 20 x 15 20 x 20; 2 x 20 x 10	20 x 12 2 x 15 x 6	20 x 10	30x10; 20x15 20x20 2x20x10
Accuracy class	0.5; 1	0.5; 1	0.5; 1	0.2S; 0.2; 0.5; 1	0.2S; 0.2; 0.5; 1	0.5; 1



LCTB

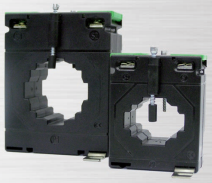
Type / Parameters	LCTB current transformers for a bur conductor					
	LCTB 50/30 (50)	LCTB 62/30 (40)	LCTB 62/30 (50)	LCTB 74/30 (45)	LCTB 62/40 (40)	LCTB 86/40 (45)
Primary current [A]	75...600	50...800	40...800	30...800	100...800	50...1000
Hole diameter	⌀26	⌀30.5	⌀28	⌀26	⌀31	⌀36
Busbar (mm)	30x10; 20x15; 20x20; 2x20x10	30x10 2x25x10	30x10 2x25x10	30x15 2x20x10	40x10 2x30x10	40x10 2x30x15
Accuracy class	0.5; 1	0.2S; 0.2; 0.5; 1				

Type / Parameters	LCTB current transformers for a bar conductor					
	LCTB 74/40 (45)	LCTB 74/50 (45)	LCTB 86/50 (45)	LCTB 86/60 (45)	LCTB 104/60 (45)	LCTB 104/80 (45)
Primary current [A]	40...1000	100...1000	100...1250	100...1600	100...1600	200...2000
Hole diameter	⌀35	⌀41	⌀45	⌀51	⌀54	⌀65
Busbar (mm)	40x12 2x30x15	50x12 2x40x10	50x12 2x40x15	60x12 2x50x15	60x12 2x50x15 2x40x20	80x12 2x60x15 2x50x25
Accuracy class	0.2S; 0.2; 0.5; 1					



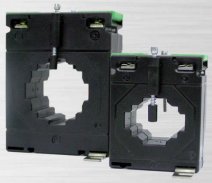
LCTB

Type / Parameters	LCTB current transformers for a bar conductor			
	LCTB 140/80 (45)	LCTB 140/100H (45)	LCTB 225/125 (50)	LCTB 225/167 (50)
Primary current [A]	200...2000	200...4000	600...6000	1000...7500
Hole diameter	⌀72	⌀86	-	-
Busbar (mm)	80x30 2x60x25	100x30 2x80x25 2x70x30	124x92	166x65
Accuracy class	0.2S; 0.2; 0.5; 1	0.2S; 0.2; 0.5; 1	0.2S; 0.2; 0.5; 1	0.2S; 0.2; 0.5; 1



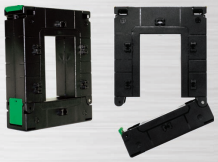
LCTB

Type / Parameters	LCTB current transformers for a bar conductor			
	LCTB 100/100V (45)	LCTB 140/100V (45)	LCTB 100/130V (45)	LCTB 140/130V (45)
Primary current [A]	400...2500	200...3000	400...3200	400...5000
Hole diameter	-	-	-	-
Busbar (mm)	41 x 103	100x30 2x80x25 2x70x30	38 x 128	70 x 130
Accuracy class	0.2S; 0.2; 0.5; 1		0.2; 0.5; 1	0.2S; 0.2; 0.5; 1



LCTB

Type / Parameters	LCTS split core current transformers			
	LCTS 93/30SC (40)	LCTS 125/50SC (40)	LCTS 155/80SC (40)	LCTS 195/80SC (64)
Primary current [A]	100...400	250...1000	250...3000	500...5000
Hole dimensions (depth x width)	23 x 33 mm	82 x 52 mm	82 x 122 mm	82 x 162 mm
Accuracy class	0.5; 1			

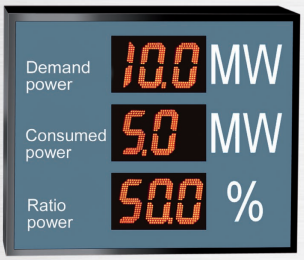


LCTS

We offer: On customers request we offer transformer calibration certificates.

DISPLAYS

DL21



DN

DL

Type / Parameters	Outdoor or indoor displays
	DN1, DN2, DN3
Display	numerical
Digit height	100/200/300 mm
Number of rows	1 or 2
Characters per row	3,4 or 5
Display colour	red, yellow or green
Displayed values	value measured by external device, transmitted through RS-485 interface
Interface (Master)	RS-485 for value download
Protection rating	IP54 (IP65 option)
Additional functions	· good visibility in range up to 120m · brightness sensor installed (display brightness changes depending on outside conditions)

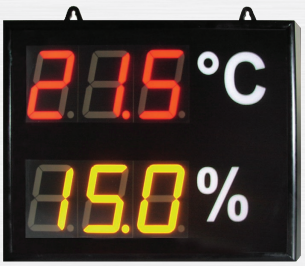
Type / Parameters	Indoor displays				
	DL11, DL12, DL13	DL21	DLZ	DA1	DNL
Display	numerical			alphanumerical	numerical
Digit height	100 mm			60 mm	230 mm (DNL2), 305 mm (DNL3)
Number of rows	1, 2 or 3	1	1	2 or 3	1 or 2
Characters per row	3	3	7	20 or 24 for text version	4
Display colour	red, yellow or green	red/orange/green (programmable)	red	red, yellow or green	red, yellow
Displayed values	value measured by external device, transmitted through RS-485 interface		current time, humidity and temperature (version with P18 transducer)	value measured by external device, transmitted through RS-485 interface, programmed texts, current time	value measured by external device, transmitted through RS-485 interface
Interface (Master)	Modbus RTU RS-485 for value transmission				
Interface (Slave)	RS-485 for configuration			RS-485 or RS-232 for configuration	RS-485 for configuration
Programming	using dedicated software	using LPCon software		using dedicated software	using LPCon software
Additional functions	· unit field can be printed in each row · 15 V d.c. supply for P18 transducer	· 3-colour, display colour changes on value change. Ranges of colour changes can be programmed	· digits brightness can change depending on day time	-	· visibility up to 120m · brightness sensor (digital brightness changes depending on outside conditions) · analog input 4...20 mA

APPLICATION EXAMPLES

PC

Slave

RS-485



DL12

Master

RS-485

P18

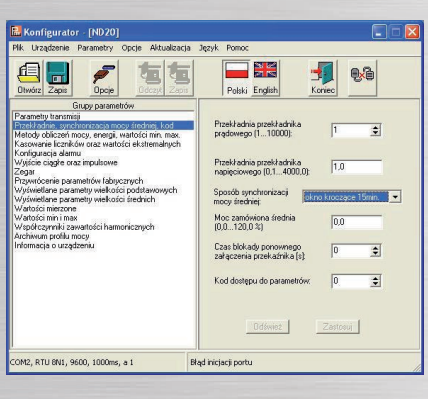
Clamp meters NC10 NEW!

- Unique design of rotating clamp jaws facilitate the measurement at positions difficult to access.
- Large Jaw Opening:
  - Clamp meter NC10 1000A: Jaw opening of 55 mm for standard wire diameter of 50 mm
  - Clamp meter NC10 300A: Jaw opening of 44 mm for standard wire diameter of 40 mm
- Current measurement up to 300 and 1000 A.
- Temperature measurement from -200 to 800 °C using Pt 100 and Pt 1000 sensors.
- Backlit digital display with analog indicator.
- Auto Power Off - battery saving function.
- DATA Hold Function.
- MIN, MAX function - recording function of min. and max. values.
- NULL ZERO Correction for Resistance - for low ohm measurement, the lead resistance can be compensated by pressing the shift key (Yellow Key).
- NULL ZERO Correction for Capacitance. For nF range, stray capacitance can be compensated by shift key (Yellow Key).
- AUTO and MANUAL ranging modes.
- Diode Measurement - for testing diode and transistors, diode measurement function is available.
- Protection rate IP20.
- Applicable International Safety standards - 600 V CAT IV/1000V CAT III as per International Safety standard IEC 61010-1- 2001.

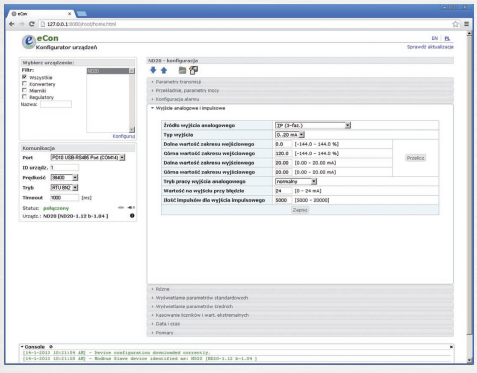
LPCON AND ECON FREE SOFTWARE FOR CONFIGURATION OF LUMEL S.A. PRODUCTS

PD14 – PROGRAMMER TO CONFIGURE NON RS-485 DEVICES USING LPCON AND ECON
PD10 – RS-485 TO USB CONVERTER THAT CAN BE USED TO CONFIGURE USING LPCON AND ECON A DEVICE EQUIPPED WITH RS48

- Easy configuration of Lumel products
- Upload / download full configuration of a device connected to a PC computer using RS485 or PD14 programmer (USB)
- Full device configuration can be saved to a file and stored on a PC computer for later use
- A device template can be created for a RS485 Modbus device not listed in LPCon
- Firmware update for Lumel products
- Work over the web browser (only for *eCon*)



LPCon



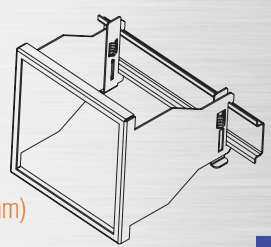
eCon

programmer **PD14**

ADAPTERS FOR DIN RAIL TS35

- Designed for mounting of panel instruments on the DIN rail TS35.

	Adapter ATS				
	ATS1	ATS2	ATS3	ATS4	ATS5
Adapter dimensions [mm]	$92^{+0.8}$ x $92^{+0.8}$	$92^{+0.8}$ x $45^{+0.6}$	$68^{+0.7}$ x $68^{+0.7}$	$45^{+0.6}$ x $92^{+0.8}$	$45^{+0.6}$ x $45^{+0.6}$
Panel instruments dimensions [mm]	96 x 96	96 x 48	72 x 72	48 x 96	48 x 48



Adapter **ATS1** ($92^{+0.8}$ x $92^{+0.8}$ mm)

ELECTRONIC MANUFACTURING SERVICES

We offer:

- one-sided and double-sided assembling of SMD elements in the technology of reflow soldering, in accordance with European Directive for RoHS,
- assembly of THT elements by flow soldering,
- complementary assembly of THT elements and mechanical parts,
- mixed assembly,
- optical inspection of assembled PCB.

Assembly can be carried out on the base of own or committed elements

Taking advantage of the acquired experience in design and testing of our apparatus we also offer:

- design of PCB;
- completion of elements to assembly, ensuring PCB and templates for coating with soldering paste or glue in compliance with the transmitted documentation
- testing of assembled systems acc. to the customer's instructions,
- testing in the climatic chamber;
- testing of vibration resistance.

EMS

Our machine park

The assembly line is composed of:

- automatic silkscreen printer JUKI Type KS-1710
- placement machine JUKI KE-2060
- reflow oven ERSA Hotflow 2/14
- magazine loader and line unloader JOT
- soldering aggregate Kirsten
- optical control stand
- stand for thread assembly with Weller soldering stations.

All stands and devices are equipped with the protection against static electricity in compliance with EN 61340 5-1 and 5-2 standards.

material storage area

SMT line

wave soldering line

visual control

flying probe test

optical control

OFFER OF PRECISE DIE-CASTING AND CNC MACHINING

LUMEL S.A. We are also one of the European leading manufacturers of precise pressure aluminium castings.

Our offer includes:

- technical consulting,
- design of moulds and appropriate tools,
- execution of moulds and tools,
- precise die casting,
- CNC machining,
- precise surface treatment,
- varnishing and powdering process, assembly.

precise
die-casting

We fulfill all requirements of 2002/95/EC Directive about limiting Hazardous Substances in our products.

You can find more technical details in our web site in our catalog CUSTOMIZED SOLUTIONS and in our web **www.odlewy.lumel.com.pl**

R&D

foundry

laboratory

X-ray inspection cabin

CNC hall

October 2013

LUMEL S.A. – we are one of leading European manufacturers of electrical devices for automation and high pressure aluminium castings. We have been on the market since 1953. We have achieved our high position on the market due to continuous development policy, competence of our employees and modern equipment for research, design and production.

The activity of LUMEL S.A. is focused on 4 main branches:

- production of automatic devices for measurement, conversion, control and recording, transmission and visualization of various industrial processes;
- production and machining of high pressure castings and manufacturing of moulds and tools;
- design and manufacturing of control and measuring systems,
- SMT assembly, precision engineering and production of plastics parts.

We provide comprehensive solutions for various branches of industry: power industry, chemical industry, metallurgy, food industry,light industry, automotive industry, white industry and mining.
We have been working according to: ISO 9001:2008, ISO 14001:2004 and ISO/TS 16949.

Welcome to co-operation!

LUMEL

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