

DUCA-LCD – Technical characteristics

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POWER SUPPLY			
Voltage	Frequency	Power consumption	Fuse
24÷240VAC/DC (-5% +10%)	45 ÷ 65Hz	< 13VA	Fit external fuse: T 0.5A
48÷240VAC/DC (-5% +10%) only for model: DUCA-LCD ETH			
MEASUREMENTS AVAILABLE ON THE DISPLAY			
Measurements		Notes	
Frequency			
Phase-to-Neutral Voltage [V _{L1-N} , V _{L2-N} , V _{L3-N}]		True RMS	
Phase-to-Phase Voltage [V _{L1-L2} , V _{L2-L3} , V _{L1-L3}] and Three-Phase Voltage		True RMS	
Line and Three-Phase Current		True RMS	
Line and Three-Phase Active, Reactive and Apparent Power		With inductive and capacitive symbols for reactive power and sign for active power (in cogeneration mode)	
Single-Phase and Three-Phase Power Factor (PF)		With inductive and capacitive symbols	
Line and Three-Phase Active, Reactive and Apparent Energy		All energies are measured both in absorption and generation	
Voltage and current Total Harmonic Distortion for each phase			
Current and voltage harmonics		Up to 31-th order	
Voltage and current time graphs		Real time	
MAX, MIN AND AVERAGE (15 MINUTES CALCULATION PERIOD) VALUES			
Max values	Min values	Average values	Max – Demand
Phase-to-Neutral Voltage [V _{L1-N} , V _{L2-N} , V _{L3-N}]	Phase-to-Neutral Voltage [V _{L1-N} , V _{L2-N} , V _{L3-N}]	Line and Three-Phase Active Power	Line and Three-Phase Active Power
Phase-to-Phase Voltage [V _{L1-L2} , V _{L2-L3} , V _{L3-L1}] and Three-Phase voltage	Linked Voltage [V _{L1-L2} , V _{L2-L3} , V _{L3-L1}] and Three-Phase voltage		
Line Current	Line Current	Line and Three-Phase Reactive Power	Line and Three-Phase Apparent Power
Line and Three-Phase Active, Reactive and Apparent Power	Line and Three-Phase Active, Reactive and Apparent Power	Line and Three-Phase Apparent Power	
QUANTITIES SELECTABLE FOR ALARMS			
Phase-to-Phase Voltage [V _{L1-L2} , V _{L2-L3} , V _{L1-L3}] and Three-Phase Voltage			
Phase-to-Neutral Voltage [V _{L1-N} , V _{L2-N} , V _{L3-N}]			
Line and Three-Phase Current			
Active, Reactive and Apparent Single-Phase and Three-Phase Power			
Single-Phase and Three-Phase Power Factor (PF)			
“Count-down” counter			
Frequency			
Voltage and Current THD			
ACCURACY OF THE MEASUREMENTS			
Voltage:	±0,5% F.S. ±1 digit in the range 10Vac÷300Vac rms V _{L-N}		
Current:	±0,5% F.S. ±1 digit in the range 50mA÷5A rms		
Active Power:	±1% ±0,1% F.S. (from cosφ = 0,3 Ind. to cosφ = -0,3 Cap.)		
Frequency:	40.0 ÷ 99.9Hz: ±0,2% ±0,1Hz 100 ÷ 500Hz: ±0,2% ±1Hz		
VOLTMETER INPUTS			
Range:	10 ÷ 300V rms (L-N)		
Max non destructive value:	550V rms		
L-N input impedance:	About 1MΩ		
AMMETER INPUTS			
Range:	50mA ÷ 5A rms		
Overload:	1,1 permanent		
Max dispersed power:	1,4W (with I _{max} = 5A rms for each phase input)		
Direction of CTs current:	Detection and automatic adjustment at power up, independent for each phase		
Metering mode	Use always external CTs		

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DIGITAL OUTPUTS	
Number of outputs:	2 with common for energy pulses or alarms with threshold, polarity, hysteresis and activation delay
Pulse duration:	50ms OFF (min)/50ms ON
Vmax on contact:	48V (peak DC or AC)
Max power dissipation:	450mW
Max frequency:	10 pulses/sec
Imax on contact:	100mA (peak DC or AC)
Insulation:	750Vmax
DIGITAL INPUTS	
Number of inputs:	2 with common for active and reactive energies or for active energy and generated active energy or for active energy and synchronism
Nominal voltage:	24 VDC
Max Voltage:	32 VDC
Max voltage for OFF state:	8 VDC
Min voltage for ON state:	18 VDC
ENERGY COUNT	
Max value for the single-phase energy:	10GWh (o GVArh o GVAh) xKA xKV
Max value for the three-phase energy:	30GWh (o GVArh o GVAh) xKA xKV
Minimum quantum of energy that can be displayed (by means of display or through communication interfaces)	10 Wh(o VArh oVAh) xKA xKV
Accuracy:	Class 1
AVAILABLE INTERFACES	
RS485 serial interface with galvanic insulation (available protocols: ASCII Ducati and ModBus-RTU) only for models DUCA-LCD 485	
Ethernet interface with RJ45 insulated interface connector with MDI/MDIX auto-crossover functionality, Modbus-TCP protocol and Web Server functionality – only for model DUCA-LCD ETH	
Graphic multilanguage LCD display with backlight level user-selectable	
DIMENSIONS AND WEIGHT	
Dimensions :	70 mm x 90 mm x 63 mm (LxHxW) -- DIN EN 50022 (IEC 60715)
Weight:	about 250 gr.
PROTECTION	
IP50 on the front panel and IP20 on the terminal blocks	
OPERATIVE CONDITIONS	
Storage temperature:	-10°C ÷ 60°C
Operating temperature:	-5°C ÷ 55°C
Relative humidity:	93% max. (without condense) at 40°C