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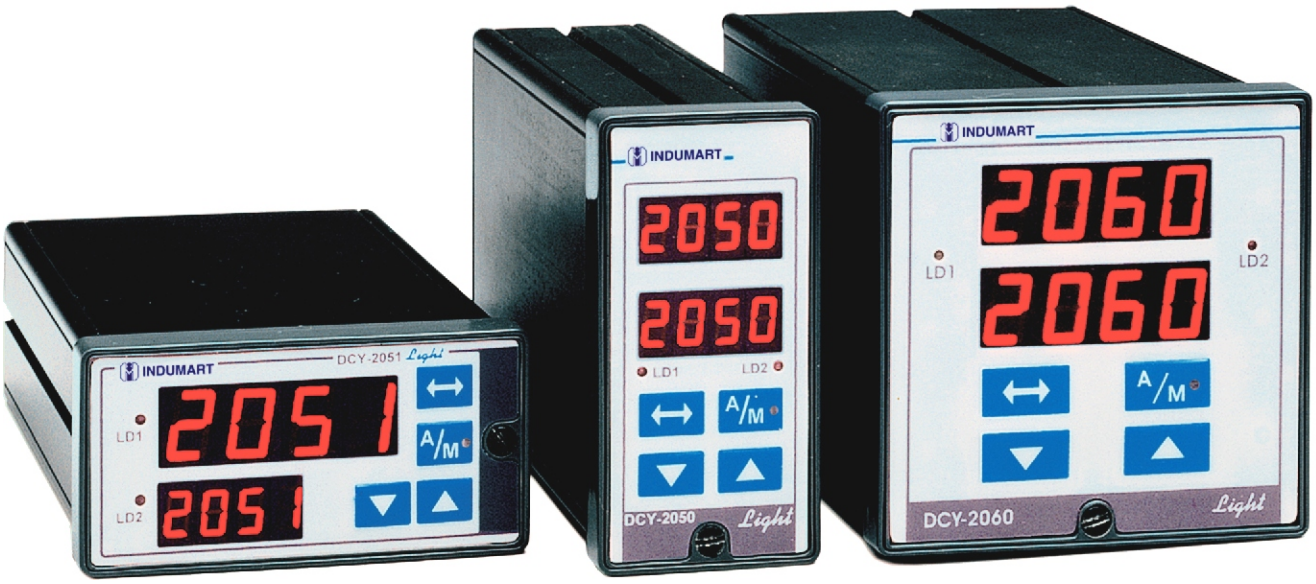
Universal Process Controller

SERIES: DCY-2050-light, DCY-2051-light, DCY-2060-light



- Universal standard input for RTD, thermocouples, 0-55mV, 4-20mA, 1-5Vdc and 0-10Vdc. Available specific models for frequency input signals up to 30kHz, from 300mVpp to 30Vpp.
- Up to two analog output modules of 4-20mA, 1-5Vdc and 0-10Vdc, isolated from input and power supply.
- Reduced dimmensions, large control capacity performing the functions:
  - Auto-tune.
  - On-Off, P-PI-PD-PID and Cascade Control.
  - Heating-cooling, time-proportioning.
  - Remote set-point.
  - Programmable set-point up to 10 segments.
  - Auto-manual station.
- Up to two SPDT relay alarm modules.
- RS-232 or RS-422/485 communication.
- Power supply from 90 to 240Vac, 50/60Hz or dc levels.
- High accuracy.
- Linearization of RTD, thermocouple and also square root extraction.
- Configuration stored in non-volatile memory.

The design of DCY-2050, 2051 and 2060 Light Controllers is characterized by high reliability and precision, electrical noise and EMI immunity, besides well elaborated technical manual. These features make them ideal for industrial applications in Instrumentation and Process Control.

They have an extruded aluminum case and use the best origin components and parts, proven by rigorous tests and specified according to the strictest worldwide norms. They offer one standard universal input that can be 4-20mA, 1-5Vdc, 0-10Vdc, 0-55mVdc, thermocouples and RTD; also standard is the 24Vdc power supply for two-wire transmitter, besides auxiliar linear input for remote set-point. One frequency input is available, in specific instrument, for signals up to 30kHz, from 300mVpp to 30Vpp and 70Vdc max. DIN 19234 compliance for intrinsically safe NAMUR sensors. Power supply is universal and can be connected from 90 to 240Vac or dc levels when specified.

The controllers were projected on modularity and flexibility concepts, having a control output variety as relay, open collector, time proportioning, voltage 1-5Vdc and 0-10Vdc, current 4-20mA and dual (Heating-Cooling). They offer up to two alarm cards and a wide variety of controls: On-Off, PID and Cascade.

The DCY controllers have two auto-tune algorithms: start-up or demand (controlled variable is far or near the set-point). Also they have all standard control features: bumpless auto-manual transference, output saturation, remote set-point, programable set-point up to 10 segments, reset wind-up prevention.

Order Code: DCY-[ ]-[ ]-[ ]-[ ]-[ ]-[ ]-[ ]-[ ]-[ ]

Model
Process Controllers
2050-Light: Universal standard input plus auxiliar linear input, 1/8 DIN vertical orientation
2051-Light: Universal standard input plus auxiliar linear input, 1/8 DIN horizontal orientation
2060-Light: Universal standard input plus auxiliar linear input, 1/4 DIN higher visibility
2050-F-Light: Frequency input, 1/8 DIN vertical orientation
2051-F-Light: Frequency input, 1/8 DIN horizontal orientation
2060-F-Light: Frequency input, 1/4 DIN higher visibility

Output 1 (only for Control)
0 - None
1 - 4-20mA
2 - 1-5Vdc
3 - 0-10Vdc
4 - SPST Relay
5 - Open Collector Voltage

Output 2
(Cooling Control or Retransmitter)
Same code of Output 1

Output 3 (Only for Alarm)
0 - None
1 - SPDT Relay
2 - Open Collector Voltage

Output 4 (Only for Alarm)
Same code of Output 3

Power Supply
1 - 90 to 240Vac or 130 to 340Vdc
2 - 24Vdc
3 - 12Vdc
4 - Others, under consult

Communication
0 - None
1 - RS-232
2 - RS-485
3 - RS-422

Case Protection Grade
0 - General usage, protected place
1 - Front aspersion-proof
2 - Weather-proof

Specifications

Inputs
Universal input model for thermocouple (J, K, T, E, R or S under ITS-90), 0-55mV, RTD under DIN 43760, 4-20mA, 1-5Vdc and 0-10Vdc selected by user. Auxiliar input for 4-20mA, 1-5Vdc and 0-10Vdc used as remote set-point. Input impedance of 250W for mA, 10 MW for 5Vdc and 2 MW above 5Vdc.
Frequency input model for signals up to 30kHz, from 300mVpp to 30Vpp and 70Vdc max. DIN 19234 compliance for intrinsically safe NAMUR sensors.
Note: Universal or frequency input require different instruments. See order code.

Control Function:
On-Off Control
PID Control
PID Control with Auto-Tune
Heating-Cooling Control
Cascade Control
Programmable set-point up to 10 segments
Remote set-point

Control Outputs
4-20mA (750W maximum load), 1-5Vdc or 0-10Vdc analogic output. Up to two optional modules galvanically isolated to 300Vac from power supply and inputs.
SPST relays rated for 3A at 220Vac.
Logic signal, open collector transistor, 40mA/24Vdc maximum with isolation.

Alarm Outputs
SPDT relays rated for 3A at 220Vac.
Logic signal, open collector transistor, 40mA/24Vdc maximum with isolation.

Serial Communication
RS-232 or RS-422/485 with 50Vdc isolation.

Indication
DCY-2050-Light: Two 9mm red leds displays with four digits.
DCY-2051-Light: 14mm and 9mm displays with four digits.
DCY-2060-Light: Two 14mm red leds displays with four digits.
Displays can be configured together with the decimal point.

Configuration
By front panel push-buttons, serial communication and internal jumpers.

Sampling Rate
140 ms standard. Half second display update rate.

Accuracy
± 0.1% of full scale for TC, RTD, mA, mV and Vdc input.
± 0.5% of full scale for analogic output.
± the display resolution for frequency input.

Linearization
± 0.1% of full scale for RTD and – 0.2% of full scale for TC.

Square Root Extration
± 0.5% of reading, for input above 10% of span. Cut-Off programmable from 0 to 5%.

Digital Filters
First order digital filters applied to the inputs with time constant from 0.0 to 25.0 seconds.

Cold Junction Compensation
± 2.0°C at range from 0 to 50°C ambient temperature.

2-Wire Transmitter Power Supply
24Vdc/50mA maximum, isolated from output with short circuit protection.

Span Temperature Coefficient
± 0.005% of input span for °C, at 25°C ambient temperature.

Power Supply
90 to 240Vac 50/60Hz, 24Vdc, 12Vdc or other values. 10W nominal. See order code.

Operating Ambient
0 to 50°C temperature and 90% maximum relative humidity

Dimensions
DCY-2050-Light: 1/8 DIN (96x48x170mm) HxWxD, (92x45mm) HxW panel cutout.
DCY-2051-Light: 1/8 DIN (48x96x170mm) HxWxD, (45x92mm) HxW panel cutout.
DCY-2060-Light: 1/4 DIN (96x96x170mm) HxWxD, (92x92mm) HxW panel cutout.

Weight
0.5 kg nominal.

Warranty
One-year warranty.

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