



Universal Process Controllers - Single Loop

- Universal standard input for RTD, thermocouples, 0-55 mV, 4-20 mA, 1-5 Vdc and 0-10 Vdc and remote setpoint input for 4-20 mA, 1-5 Vdc and 0-10 Vdc.
- F-Light version for frequency inputs up to 30 kHz, from 300 mVpp to 30 Vpp.
- Up to 2 universal output modules for 4-20 mA, 1-5 Vdc and 0-10 Vdc, one for control and one for retransmission, relay, solid state relay and open collector voltage, isolated from inputs and power supply.
- High control capacity, performing the functions of:
 - Auto-Tune.
 - ON-OFF, P-PI-PD-PID, ratio control.
 - Heating-cooling, time-proportional.
 - Remote setpoint, programmable setpoint up to ten segments.
 - Auto/manual station.
- Several optional:
 - Up to 2 SPDT + 2 SPST relay alarm modules;
 - RS-232 or RS-422/485 Communication;
- Linearization for RTD and TC and also square root extraction.
- Configuration stored in non-volatile memory.

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

Model |
 2050-Light: Universal Input
 2051-Light: Universal Input
 2060-Light: Universal Input
 2050-F-Light: Frequency Input
 2051-F-Light: Frequency Input
 2060-F-Light: Frequency Input

Output 1 (Only for Control) |
 0 - None
 1 - 4-20 mA
 2 - 1-5 Vdc
 3 - 0-10 Vdc
 4 - SPST Relay
 5 - Open Collector Voltage
 6 - Solid State Relay

Output 2 |
 (Retransmitter or auxiliary cooling control)
 Same code as Output 1

Output 3 (Alarm) |
 0 - None
 1 - SPDT Relay
 2 - Open Collector Voltage
 3 - Solid State Relay

Output 4 (Alarm) |
 Same code as Output 3

Power Supply |
 1 - 75 to 264 Vac 50/60 Hz or 100 to 360 Vdc (any polarity)
 2 - 24 Vac or 24 Vdc ($\pm 10\%$)
 3 - 12 Vdc ($\pm 10\%$)
 4 - Others, upon request

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

Case Protection Grade |
 0 - General usage, protected place
 1 - Front Aspersation-proof
 2 - Weather-proof - IP 66
 3 - Explosion-proof (Ex d IIB T6 Gb IP 66), horizontal display*
 4 - Explosion-proof (EX d IIB T6 Gb IP 66), vertical display*

* Explosion-proof box:
Dimensions
 310 x 310 x 200 mm (HxWxD)
Weight
 11 kg nominal

Specifications

Inputs

DCY-2050-Light / 2051-Light / 2060-Light: Configurable input for thermocouple (J, K, T, E, R, S under ITS-90), 0-55 mV, RTD Pt-100 under DIN43760, 4-20 mA, 1-5 Vdc and 0-10 Vdc. Input for remote setpoint configurable for 4-20 mA, 1-5 Vdc and 0-10 Vdc. 250 Ω input impedance for mA, >10 M Ω up to 5 Vdc and 2 M Ω above 5 Vdc.
DCY-2050-F-Light / 2051-F-Light / 2060-F-Light: Frequency input for signals up to 30 kHz, from 300 mVpp to 30 Vpp. DIN-19234 compliance for intrinsically safe NAMUR sensors.

Control Function

ON-OFF, PID, PID with AUTO-TUNE, Heating-cooling, Heating-cooling proportional, Ratio, Remote Set point and programmable set point.

Control Outputs

Analog 4-20 mA (750 Ω maximum load), 1-5 Vdc or 0-10 Vdc. One optional module galvanically isolated to 300 Vac from power supply and inputs. SPST relay rated for 3A/220 Vac. Open collector transistor (24 Vdc/40 mA maximum with isolation). Solid state relay (2A/250 Vac with isolation).

Alarm Outputs

SPDT relay rated for 3A/220 Vac. Open collector transistor (24 Vdc/40 mA maximum with isolation). Solid state relay (2A/250 Vac with isolation).

Serial Communication

RS-232 or RS-422/485 with 50 Vdc isolation. MODBUS®-RTU Communication Protocol.

Indication

DCY-2050-Light / 2050-F-Light: Two 4-digit displays (9 mm).
 DCY-2051-Light / 2051-F-Light: Two 4-digit displays (14 mm / 9 mm).
 DCY-2060-Light / 2060-F-Light: Two 4-digit displays (14 mm).
 Can be configured together with the decimal point.

Configuration

By front-panel push-buttons and internal jumpers.

Sampling Rate

130 ms standard. Half second display update rate.

Accuracy

$\pm 0.1\%$ of full scale for TC, RTD, mA, mV and Vdc inputs.
 $\pm 0.5\%$ of full scale for analog retransmitter output.
 ± 1 display resolution for frequency input.

Linearization

$\pm 0.1^\circ\text{C}$ for RTD and $\pm 0.2^\circ\text{C}$ for TC.

Square Root Extraction

$\pm 0.5\%$ of reading, for inputs above 10 % of span.
 Programmable Cut-off from 0 to 5 %.

Cold Junction Compensation

$\pm 2.0^\circ\text{C}$ at range from 0-60 $^\circ\text{C}$ ambient temperature.

2-wire transmitter Power Supply

24 Vdc/50 mA maximum, isolated from output, with short circuit protection.

Span Temperature Coefficient

$\pm 0.005\%$ of span / $^\circ\text{C}$ using 25 $^\circ\text{C}$ as the reference temperature.

Power Supply

75 to 264 Vac 50/60 Hz or 100 to 360 Vdc
 (10 W nominal); 24 Vac/dc ($\pm 10\%$); 12 Vdc ($\pm 10\%$).

Operating Range

0 to 60 $^\circ\text{C}$ temperature and 90 % maximum relative humidity.

Dimensions

DCY-2050-Light/2050-F-Light: 1/8 DIN (96 x 48 x 187 mm) HxWxD, (92 x 45 mm) HxW panel cutout.
 DCY-2051-Light/2051-F-Light: 1/8 DIN (48 x 96 x 187 mm) HxWxD, (45 x 92 mm) HxW panel cutout.
 DCY-2060-Light/2060-F-Light: 1/4 DIN (96 x 96 x 187 mm) HxWxD, (92 x 92 mm) HxW panel cutout.

Weight

0.5 kg nominal (DCY-2050-Light/2050-F-Light/2051-Light/2051-F-Light).
 0.6 kg nominal (DCY-2060-Light/2060-F-Light).

Warranty

One year.