



# DCP31

DigitroniK

Digital Control Programmer

The DCP31 is a high-function programmable controller supporting up to 19 program patterns to which thermocouple, resistance temperature detector (RTD), DC voltage and DC currents can be applied as input signals.

The DCP31 supports extensive digital I/O functions, including 3 event outputs, 5 times event outputs (optional) and 12 external switch inputs.



CONTROLLERS

## Specifications

General	Memory backup	RAM backed up by lithium battery
	Power supply voltage	90 to 264Vac, 50/60Hz
	Power consumption	25VA max.
	Ambient temperature	0 to 50°C
	Ambient humidity	10 to 90%RH (no condensation allowed)
Weight	Weight	Approx. 900g
	No. of programs	19
Program Pattern	No. of segments	30/program
	Segment time	0 to 99h 59min, or 0 to 99min 59s (selectable)
	No. of channels	1
PV input	Type	Thermocouple, RTD, DC voltage, DC current multi-range
	Sampling cycle	0.1s
	Bias	-1000 to +1000 U (U: industrial unit)
	Indicator	2 or 4-digit, 7-segment LED (green or orange)
Indication & Setting	Profile display	6 orange LED's
	Control mode	Program or constant value control
Output	PID auto-tuning	Automatic setting of PID value by limit cycle system + neural/fuzzy (2 degrees of freedom PID) & smart system
	No. of PID sets	8 (for program operation) + 1 (for constant value operation) (heat/cool: 4 + 1 respectively)
	MV limit (%)	Lower: -10.0 to upper limit Upper: Lower limit to 110.0
	MV change limit	0.0 to 10.0% / 0.1s
Event (EV) Output	No. of outputs	Event: 3, Time event: 5
	Type	Event: PV, DEV,  DEV , SP, MV, MFB and control status events, Time event: Time and segment No. events
Remote Switch (RSW)	No. of inputs	12
	Type	Dry relay contact, or open collector
Input	Function	Fixed: RUN, HOLD RESET, ADV, program No. Variable: FAST, PV start, AT, AUTO/MANUAL, G.Soak cancel, direct/reverse action
	No. of outputs	Max. 2 (1 for 2G and heat/cool models)
Auxiliary (AUX) Output	Type	PV, SP, DEV, MV MFB
	Output	4 to 20mAdc, load resistance: 680Ω max.
Communications		RS-485

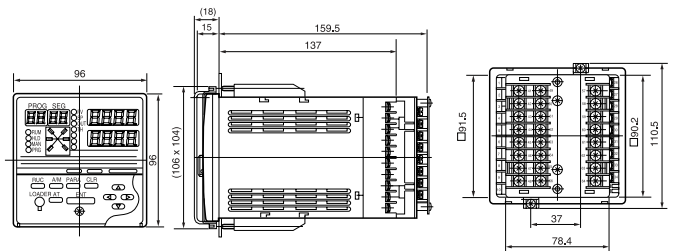
\* User's manual No. : CP-UM-1757E (operation), CP-SP-1066E (CPL communications), CP-UM-1759 (SLP)

## Selection Guide

Table	Selection	Description					
I	Basic Model No. P31A	↓	↓	Digital indicating programmer			
II	Control output	0D	○	–	Time proportional PID or ON/OFF (relay contact)		
		2G	○	○	Position proportional PID (M/M drive relay contact)		
		5G	○	–	Continuous proportional PID (4 to 20mAcd) (changeable to 6D)		
		6D	○	–	Time proportional PID or ON/OFF (voltage) (changeable to 5G)		
		3D	○	–	Heat-cool, Time proportional PID or ON/OFF (relay contact)		
	5K	○	○	Heat-cool, Continuous proportional PID (4 to 20mAcd)			
III	Function	0	○	1 input channel			
IV	Power	AS	○	90 to 264Vac 50/60Hz			
V	Auxiliary output	00	○	○	None		
		01	○	○	1 output		
		02	○	○	2 outputs		
VI	Option (1)				External switch input	Time event	Communication
		0	○	○	4 inputs	–	–
		1	○	○	12 inputs	5 events	–
		2	○	○	12 inputs	5 events	RS-485
VII	Option (2)	00	○	○	None		
		T0	○	○	Tropicalization		
		K0	○	○	Antisulfidization		
		D0	○	○	With test data		
		B0	○	○	Tropicalization + test data		
		L0	○	○	Antisulfidization + test data		

## Dimensions

(unit:mm)



## Input Types and Ranges

### • Thermocouple

Range code	Input type	Range (°C)
00	K (CA)	0 to 1200
01		0.0 to 800.0
02		0.0 to 400.0
03		-200 to +1200
04		-200.0 to +300.0
05		-200.0 to +200.0
06	E (CRC)	0.0 to 800.0
07	J (IC)	0.0 to 800.0
08	T (CC)	-200.0 to +300.0
09	B (PR30-6)	0 to 1800
10	R (PR13)	0 to 1600

Range code	Input type	Range (°C)
11	S (PR10)	0 to 1600
12	W (WRe5-26)	0 to 2300
13		0 to 1400
14	PR40-20	0 to 1900
15	Ni-Ni-Mo	0 to 1300
16	N	0 to 1300
17	PL II	0 to 1300
18	DIN U	-200.0 to +400.0
19	DIN L	-200.0 to +800.0
20	Golden iron chromel	0.0 to 300.0K (K: Kelvin)

### • Resistance temperature detector (RTD)

Range code	Input type	Range (°C)
32	JIS '89 Pt100 (IEC Pt100Ω)	-200.0 to +500.0
33		-200.0 to +200.0
34		-100.0 to +150.0
35		-50.0 to +200.0
36		-60.0 to +40.0
37		-40.0 to +60.0
38		0.0 to 500.0
39		0.0 to 300.0
40		0.00 to 100.00

Range code	Input type	Range (°C)
48	JIS '89 JPt100	-200.0 to +500.0
49		-200.0 to +200.0
50		-100.0 to +150.0
51		-50.0 to +200.0
52		-60.0 to +40.0
53		-40.0 to +60.0
54		0.0 to 500.0
55		0.0 to 300.0
56		0.00 to 100.00

### • DC current/voltage

Range code	Input type	Range (programmable)
64	4 to 20mA	-1999 to +9999
65	0 to 20mA	
66	0 to 10mA	
67	-10 to +10mV	
68	0 to 100mV	

Range code	Input type	Range (programmable)
69	0 to 1V	-1999 to +9999
70	-1 to +1V	
71	1 to 5V	
72	0 to 5V	
73	0 to 10V	

## Optional Parts

Part No.	Description
SLP-P30J20	PC loader
81446083-001	Hard dust-proof cover
80446087-001	Soft dust-proof cover
81446084-001	Terminal cover
81446431-001	Lithium battery