2120

1/4 DIN Ramp/Soak Controller

- **200 Segments**
- **90 Independent Programs**
- **9 Linked Programs**
- **11 Logic Inputs and 14 Digital Outputs**
- **Real Time Clock/Calendar Option**
- **Universal Inputs (TC, RTD, Linear)**
- **Wide Range of Outputs: Relay, SSR Drive, Triac, or Analog**
- **Special Control Functions: Output Linearization and Split Outputs**
- **Output Failure Detection**
- **Nema 4X and IP65 Face Plate**
- **3 Year Warranty**

Description

The 2120 Ramp/Soak Controller is a fully functional controller with flexibility to meet many demanding control applications. The controller has many standard and special features that allow precise programming for any profile application.

Features

Program

The 200 segments can be used in up to 90 programs. These programs can be linked together or run separately. For each of the programs, it is possible to:

- Use up to 99 segments.
- Set program repetitions.
- At the end of program, either turn on an "end of program" digital output, turn off the control outputs, set the control output to a set value, or use the last set point of the program for control.
- Set up to 14 events.
- Choose one of 5 PID groups/segment.
- Choose on of 10 Wait bands/segment.

Real Time Clock Option: Allows for auto start a program at specific time and on specific days.

Special Control Features

The 2120 provides special programming features that will improve the control for some applications. The 2120 has the capability of splitting the control output between 2 outputs in the "Split Range" feature. Another program feature allows use with quick opening and equal percentage type valves.

The RS-485 Digital communications option can communicate via Modbus or J-Bus protocol to the 2120 configuration software and to ChromaSoft™ SpecView®.

Digital Inputs

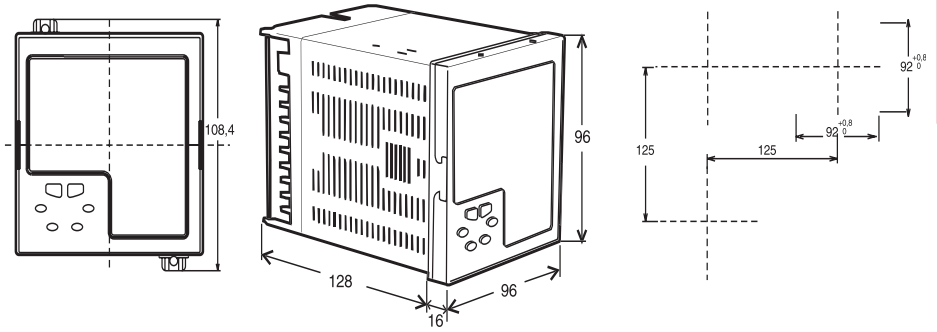
Three Digital inputs are standard on the 2120 with options for up to 8 additional inputs. These inputs can be programmed to:

- Select between Run/Hold
- Abort a program
- Select a program
- Auto/manual selection
- Set output limit
- Reset alarm
- Reverse or direct control action

Digital Outputs

Outputs 2, 3 and 4 can be used as digital outputs. In addition, options are available for 5 or 10 additional outputs. These outputs can be programmed as:

- Break event
- Timer event
- End of cycle annunciator
- Program in Run, Hold or Wait State
- Controller in manual or auto state
- Error annunciation



SINGLE CHANNEL

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Specifications

Front protection:	IP 65 and NEMA 4X for indoor locations
Installation:	panel mounting
Dimensions:	96 x 96 mm, Depth 128 mm.
Weight:	1.5 lbs (700g)
Power consumption:	20 VA max.
Common mode rejection ratio:	> 120 dB @ 50/60 Hz.
Normal mode rejection ratio:	> 60 dB @ 50/60 Hz.
Electromagnetic compatibility and safety requirements:	CE approved. Conforming to council directives 89/336/EEC (reference harmonized standard EN 50081-2 EN 50082-2) and to council directives 73/23/EEC and 93/68/EEC (reference harmonized standard EN 61010-1).
Sampling time:	125 ms for linear inputs 250 ms for TC or RTD
Accuracy:	± 0.2% f.s.v., @ 25 ˚C and nominal power supply Operating temperature: from 0 to +50 ˚C
Storage temperature:	from -20 to +70 ˚C
Humidity:	from 20% to 85% RH non-condensing.
Power Supply:	100V to 240VAC 50/60Hz (-15% to 10% of the nominal value) 24V AC/DC (±10% of nominal value)
Power Consumption:	20VA Max.

MEASURING INPUT

RTD input

RTD type:	Pt 100 3 wires connection
Calibration:	according to DIN 43760, = 0.00385
Standard ranges:	from -200 to 850 ˚C or from -199.9 to 850.0 ˚C from -330 to 1560 ˚F or from -199.9 to 999.9 ˚F.

Thermocouples

Burn out:	Detection of open input circuit (wire or sensor) with underrange or overrange selectable indication.
Cold junction:	automatic compensation for an ambient temperature between 0 and 50˚C.
Cold junction compensation error:	0.1 ˚C/˚C.
TC type:	B, C, D, E, G, L, J, K, N, Ni/NiMo, R, S, T, U

Linear inputs (mA and V)

Input linearization:	programmable square root extraction.
Readout:	keyboard programmable from -1999 to 9999.
Decimal point:	programmable in any position.
Input:	0 - 20mA, 4 - 20mA 0 - 60mV, 12 - 60mV 0 - 5 V, 0 - 10 V, 2 - 10 V

Auxiliary input (optional)

Function:	This input can be used as trim function, algebraically added between this value and the operative set point.
Scaling:	programmable from -1999 to 9999.
Sampling time:	500 ms.
Accuracy:	± 0.2% of full scale value ± 1digit @ 25 ˚C and nominal power supply voltage.

STANDARD RANGES TABLE

Input	0 - 20mA, 4 - 20mA 0 - 5V, 1 - 5V, 0 - 10V, 2 - 10V

OUTPUTS

Types:	supplied with up to 4 digital outputs (relay, SSR, TRIAC or servomotor drive) and up to 2 linear outputs (mA).
OUT 1 and 2 - Relay	SPDT, 3A @ 250 VAC
OUT 1 and 2 - SSR Drive	- Logic level 1: 14 V @ 20mA max. 24V @ 1mA.
OUT 1 and 2 - TRIAC	Rating from 50mA to 1A, from 24 VAC to 250 VAC
OUT 3 and 4 - Relay	SPST, 3A @ 250 VAC on resistive load.

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Specifications

Analog outputs: OUT 5 and 6

Output type:	Isolated output programmable as: 0-20mA, 4-20mA.
Scaling:	programmable from -1999 to 9999.
Maximum load:	600 ohms.

CONTROL ACTION

Algorithm:	PID + SMART
Types:	- one control output (digital or analog output) - one control output split into two outputs (split range). - two control outputs. The outputs can be freely selected among analog, digital or servo.
Digital output types:	relay, SSR drive or TRIAC.
Analog output types:	linear (20mA).
Servomotor output:	Two relays interlocked.
Proportional band:	programmable from 0.5% to 999.0% of the input span. Setting a PB equal to 0 the control action becomes ON/OFF.
Hysteresis (for ON/OFF control action):	programmable from 0.1% to 10.0% of the input span.
Integral time:	programmable from 1 second to 20 minutes or excluded.
Derivative time:	programmable from 1 second to 10 minutes or excluded.
Integral preload:	programmable - for one control output, from 0 to 100% of the output range. - for two control outputs, from -100% to +100% of the heating/cooling output range.
Main output cycle time:	from 1 second to 200 seconds.
Output cycle time:	from 1 second to 200 seconds
Relative secondary output gain:	programmable from 0.20 to 2.00 referred to proportional band.
Overlap/dead band:	programmable from -20% (dead band) to +50% (overlap) of the proportional band.
Output limiters:	for main and/or secondary control outputs it is possible to set: - output high limits - output low limits - output max. rate of rise.
AUTO/MANUAL mode:	selectable by front pushbutton or logic input.

ALARMS

Alarm action:	Direct or reverse function programmable.
Alarm functions:	each alarm can be configured as process alarm, band alarm, deviation alarm or process alarm on the output value.
Alarm reset:	Automatic or manual reset programmable for each alarm.
Alarm masking:	each alarm can be configured as masked alarm or standard alarm. This function ignores alarm conditions at startup and after setpoint change until the controller reaches setpoint the first time.

OUTPUT FAILURE DETECTION - OFD FUNCTION (OPTIONAL)

The models equipped with this feature are able to measure, by means of a CT, load current of one control output.

- During output ON, the control measures load current and generates an alarm condition when this current is lower than a pre-programmed threshold value (a low current shows a partial or total break down of the load or of the actuator).
- During output OFF, the control measures leakage current through the load and it generates an alarm condition when this current is higher than a pre-programmed threshold value (a high leakage current shows a short circuit of the actuator or SCR).

Input range:	50mA AC.
Scaling:	programmable from 10A to 100A (with 1A step).
Active period:	- For relay output: NO or NC programmable. - For SSR output: logic level 1 or 0.

Serial interface (optional)	Type:	RS 485 isolated.
	Protocol type:	MODBUS, JBUS.
	Baud rate:	programmable from 600 to 19200 BAUD.
	Address:	from 1 to 255.

Auxiliary power supply type: (Optional)	24 V DC ± 20% not isolated.	
	Max. current:	25mA.

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1/4 DIN Ramp/Soak Controller *(cont'd.)*

In Stock

Model	PCN
2120-4415930	330050

Ordering Information

Model

2120	1/4 DIN Programmer Controller with up to 200 segments in up to to 99 programs
2121	1/4 DIN Programmer Controller with up to 200 segments in up to to 99 programs with Output Failure Detection

Code	Outputs 1/2 Control, Alarm, or Event Assignable
11	Relay/Relay (2-SPDT 3A @ 250Vac)
44	Triac/Triac (2-1Amp resistance load only)
61	SSR Drive/ Relay
66	SSR Drive/ SSR Drive (2-14Vdc @ 20mA)

Code	Output 3/4 Control, Alarm, or Event Assignable
1	Relay/Relay (2 SPST 3A @ 250Vac)
2	Relay/Relay interlockable by jumper for servo motor

Code	Output 5/6 Analog mA, Control or Retransmit Assignable
0	None
5	Two mA outputs (2, 4-20 or 0-20mA, 600ohms max)
7	One mA output (4-20 or 0-20mA, 600ohms max)

Code	Options
0	None
1	Auxilliary Power Supply 24Vdc, 25mA non-isolated
2	RS485+ Aux.Power Supply
4	RS485+ Aux.Pws.+Clock
5	Auxilliary Power Supply+Clock
6	RS485+ Aux.Pws.+4 Logic inputs+ 5 Digital outputs
7	RS485+ Aux.Pws.+ 8 Logic inputs+ 10 Digital outputs
8	RS485+ Aux.Pws.+4 Logic inputs+ 5 Digital outputs+Clock
9	RS485+ Aux.Pws.+ 8 Logic inputs+ 10 Digital outputs+Clock

Code	Power Supply
3	100-240Vac
5	24Vac/Vdc

Code	
0	

2120	**-**	**66**	**1**	**5**	**0**	**3**	**0**	**Typical Model Number**

Accessories

CNFG-21200 Configuration SW, Windows compatible (requires RS485 digital communications hardware option)

Current transformers for use with 2121's output failure detection

Description	Part No.	PCN
Current Transformer, for 0.0-10.0 Amp Load Current	0149-01340	306480
Current Transformer, for 0-25 Amp Load Current	0149-01341	306350
Current Transformer, for 0-50 Amp Load Current	0149-01342	306368