

2120

PDS 2120

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



Chromalox[®]
PRECISION HEAT AND CONTROL

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.

Special Ramp/Soak 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 one of 10 Wait bands/segment.

Real Time Clock Option:

Allows for auto start a program at specific time and on specific days.

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

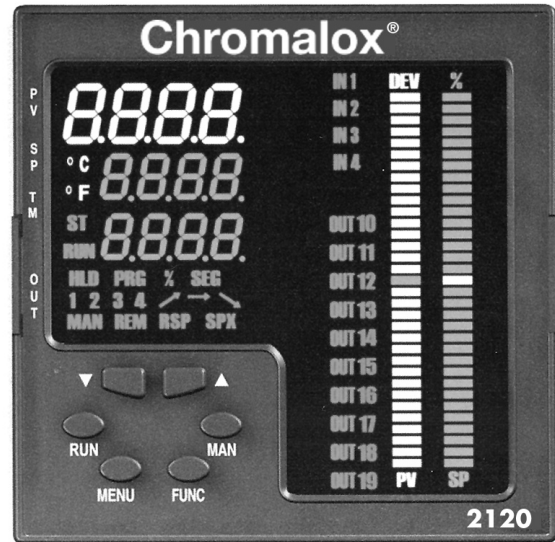
Special Control Features

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.

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DISPLAY INDICATORS

- °C Process Variable in degrees Centigrade
 °F Process Variable in degrees Fahrenheit
ST Flashing or Lit, Smart Algorithm activated
RUN Lit when program is running. Flashing when the time-out of the RUN function is complete.
HLD Lit when program is stopped (HOLD mode). Flashing when the time-out of HOLD function.
PRG Lit in Program mode. Flashing during editing or testing of new program. (Two digits above indicate program number)
 % Lit when the lower display shows control output value.
SEG Lit in Program mode. Flashing when adding segment to a program. (Two digits above indicate segment number).
 ↗ Segment in progress is a ramp up. Flashing slowly when FAST FORWARD in progress. Flashing fast when FAST BACKWARD in progress.
 → Segment in progress is a soak. Flashing slowly when FAST FORWARD in progress. Flashing fast when FAST BACKWARD in progress.
 ↘ Segment in progress is a ramp down. Flashing slowly when FAST FORWARD in progress. Flashing fast when FAST BACKWARD in progress.
MAN Lit in Manual Mode.
REM Lit when Serial Link Enabled.
RSP Lit when Set point trim is used (auxiliary linear input).
SPX Lit when Set point from Serial Link is used.



- 1 Lit when OUT 1 is ON when programmed as Control, Alarm, or Event Output.
 - 2 Lit when OUT 2 is ON when programmed as a Control, Alarm, or Event Output.
 - 3 Lit when OUT 3 is ON when programmed as a Control, Alarm, or Event Output.
 - 4 Lit when OUT 4 is ON when programmed as a Control, Alarm, or Event Output.
- IN1 to IN4** Digital Input 1-4 is ON.
OUT10 to OUT19 Digital Outputs 10-19 is ON.

Keyboard Description

- MENU** = Is used to select a parameter group. Hold for 10 seconds to go to configuration mode.
- FUNC** = "Normal display mode" it changes the indication on the lower display.
 During parameter modification, it stores the new value of the selected parameter and goes to the next parameter (increasing order).
- MAN** = In "normal display mode", enables or disables the manual function.
 During parameter modification, scroll back the parameters and groups without storing new setting.
- ▲** = During parameter modification & manual mode increases the value of the parameter.
 During program execution with the instrument in HOLD status, restarts the program with a speed 60 times faster than normal.
- ▼** = During parameter modification or manual mode decreases the value of the parameter.
 During program execution with the instrument in HOLD status, shifts backward the program with a speed 60 times faster than normal.
- RUN** =
- Rapidly selects the program to execute.
 - Starts program execution, press and hold for 3 seconds.
 - Toggles from RUN to HOLD mode or viceversa (press and hold for more than 3 seconds and less than 10 seconds) or
 - ABORTS program execution (press and hold for more than 10 seconds).
- RUN + ▲** = During program editing are used to add a program segment.
RUN + ▼ = During program editing are used to delete a program segment.
RUN + MENU = During program editing jumps to the first parameter of the next segment.
RUN + MAN = During program editing checks the selected program.
▲ + MAN or **▼ + MAN** = During program execution with the instrument in HOLD status, jumps to the beginning of the next segment or the end of the previous segment.

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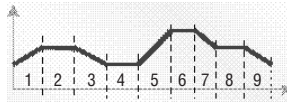
RAMP/SOAK FEATURES

Program Flexibility

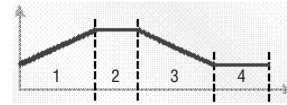
These controls allow the user to create programs with different number of segments. In the example, 4 programs are created.

The 105 remaining segments (95 of 200_ are used) may be used to create new programs or to modify the already existing one's.

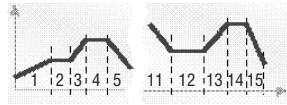
Program 1 is composed of 9 segments.



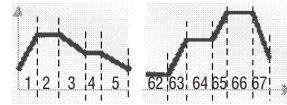
Program 22 is composed of 4 segments.



Program 8 is composed of 15 segments.



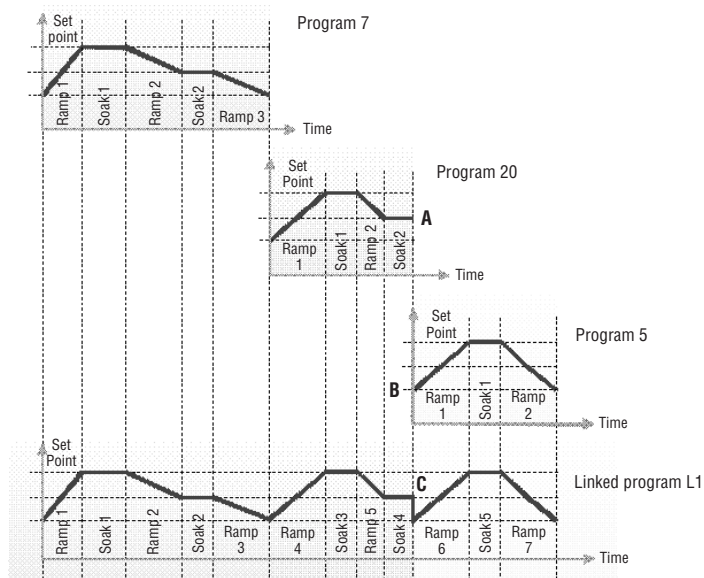
Program 45 is composed of 67 segments.



Linked Programs

Right side shows a linked program (L1).

It is formed of 3 single programs (7, 20, 5). If a difference between the final set point of a program (A) and the initial set point of the next program (B) occurs; the wait function will guarantee the correct execution of the first segment of the next program (C).

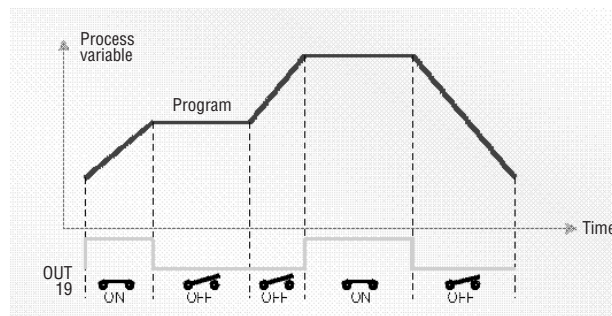
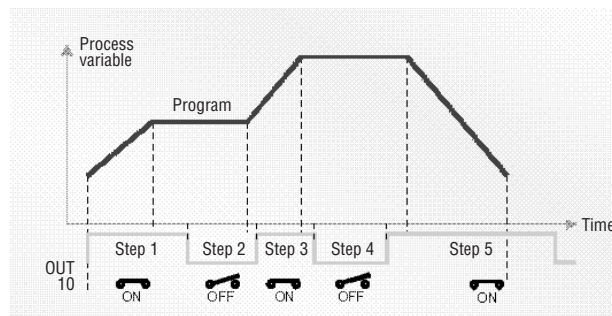


Timer events

This function allows the user to program one or more outputs as timer events (ex. OUT 19). These timers start at the beginning of the program. Each is composed of a maximum number of five steps and are independent of the program profile. For each step, the output state can be turned ON or OFF, as shown in the example, and is programmable from 1 second to 99 hours and 59 minutes.

Break events

Any of the digital outputs can be programmed as break events. With this feature the event may be programmed to be ON or OFF during each segment. (ex. OUT 10).



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FUNCTIONS

Wait and guaranteed soak functions

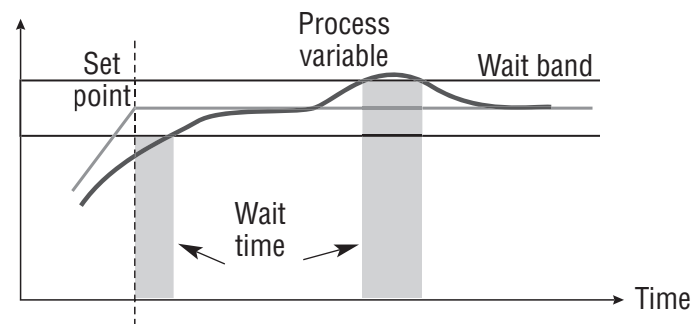
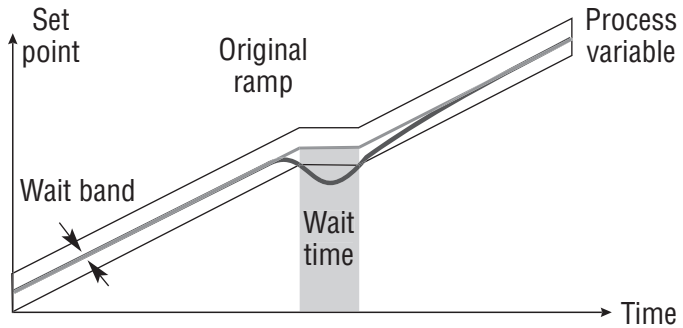
Up to 10 wait bands are available to correctly carry out ramps and soaks. Each segment may have different wait bands. For each wait band the value above and below set point is also programmable.

Wait function

If the process variable is outside the programmed wait band, the ramp in progress will be stopped; it will be restarted when the process variable returns inside the wait band.

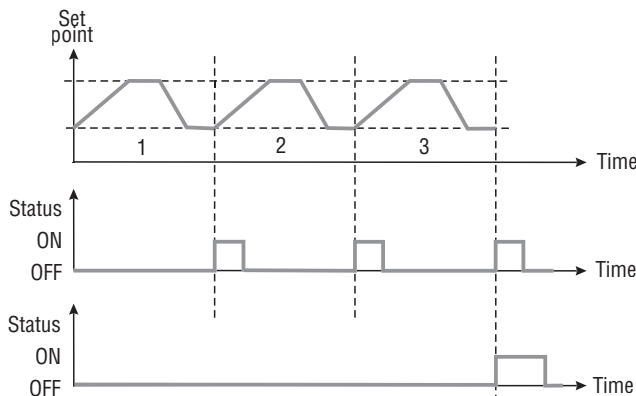
Guaranteed soak function

This function assures that, during a soak, the process is maintained at the temperature set point for the entire programmed time. If the process variable is outside the programmed wait band, the soak time count will be stopped. It will restart when the process variable is returned inside the wait band.



END OF CYCLE AND END OF PROFILE FUNCTIONS

This example shows a program with 4 segments that is repeated 3 times.



END OF CYCLE

Digital output automatically indicates whenever a program cycle is ended. The status (ON or OFF) of the output and its duration can be programmed.

END OF PROFILE

Digital output automatically indicates whenever a profile is ended. The status (ON or OFF) of the output and its duration can be programmed.

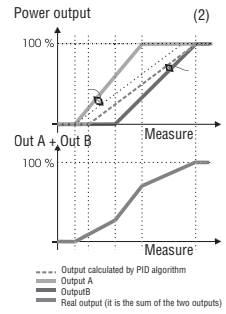
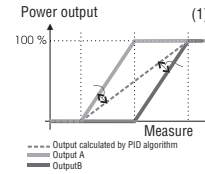
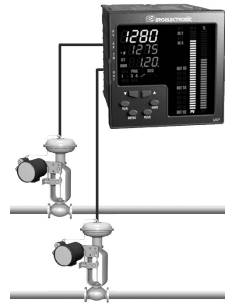
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SPECIAL CONTROL FEATURES

Split range output

This function drives two different physical outputs (two different actuators) with the same calculated output. The possibility to set different bias and gain for two physical outputs provides:

Example: better control accuracy [ex. for a better flow control it is possible to use two small valves instead of a large one and set the instrument as in drawing (1)]



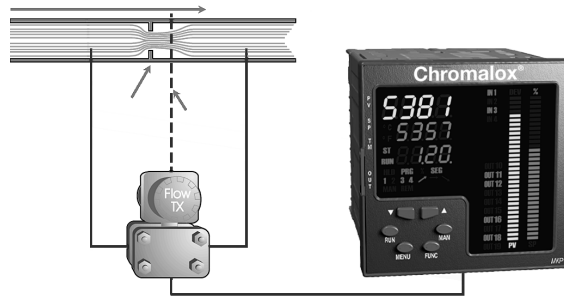
Example: energy saving possibilities (ex. for air ventilation it is advisable to drive only a part of the available fan and to drive the remaining one when the first part reaches the 100 % of its capability)

Example: a 3-segment output characteristics as shown by the drawing (2)

Square root extraction on measured value.

This feature extracts the square root of the measured value.

This function allows the user to measure flow with a standard DP transmitter eliminating the need for other devices.



Auxiliary power supply.

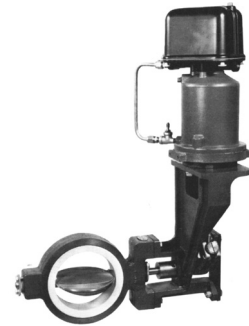
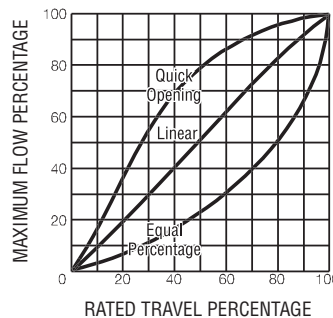
These controls can be equipped with a non-isolated auxiliary power supply — simplifying the connection with a 2, 3 or 4-wire transmitter.

Preprogrammed output characteristics

This feature allows the user to select an output linearization in accordance with the two most common valve flow characteristics:

- Quick opening
- Equal percentage.

This function enables linearization of the ratio between flow rate and valve travel to obtain better process control.



Output Value Alarm

This feature allows the user to set alarm thresholds directly on the control output percentage of the instrument. This simplifies the control of processes where it is necessary to generate an action related only with the control output percentage. Example: the instrument is controlling a process by driving an air flow valve. The air flow generator is composed of 3 fans; the first one is always ON while the second and third are turned ON when the power output reaches the programmed value [33 % (AL 1) and 66% (AL 2)]. This feature reduces power consumption and improves control quality.

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DESIGN AND CONFIGURATION

PLUG-IN DESIGN

Innovative mechanical design makes instrument removal easy. Tools are not required and the unit slides out easily. Front lock provides a safe and vibration resistant position.



COMMUNICATIONS SOFTWARE

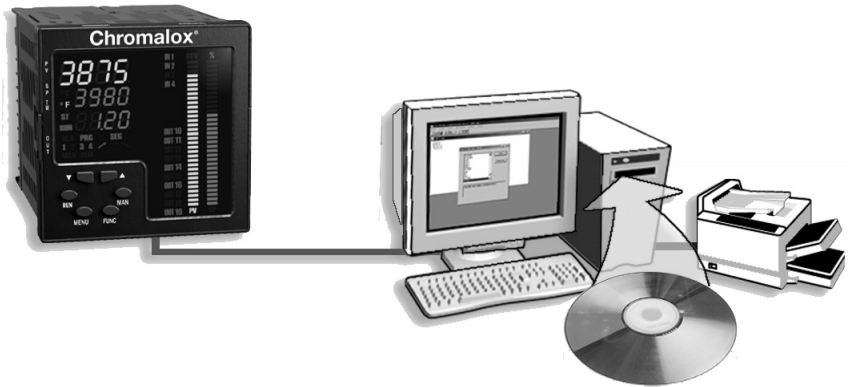
CONFIGURATION PROGRAM

The configuration package is designed to simplify instrument set up, run time parameter settings and program construction. The capability to store a complete configuration set, offers a quick and reliable configuration system and deletes maintenance time loss. Configuration reports may be printed for record keeping (as required by Quality Systems) and simplifying process analysis.

The Configuration Program for the 2120 part numbers CNFG-21200 requires that the 2120 have a digital communications option.

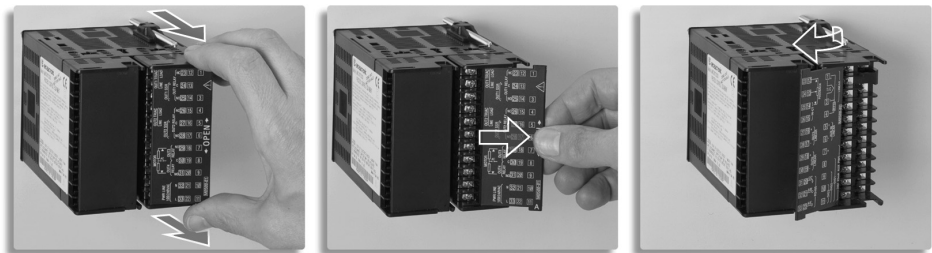
CHROMASOFT SPECVIEW PROGRAM

ChromaSoft SpecView communicates with multiple Chromalox controllers from a single computer. This flexible Windows based package allows an operator to view, change, data log any controller parameter.



REAR PROTECTION

Particular care has been dedicated to the safety rear cover design. The system assures an easy access to the terminals and it details a clear description of the connection diagrams without removing protective cover.



OUTPUT FAILURE DETECTION (option)

The models equipped with this feature are able to measure by means of a current transformer (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).

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GENERAL SPECIFICATIONS

Case:	Polycarbonate
Self extinguishing degree:	According to UL 746 C.
Front protection:	designed and tested for IP 65 and NEMA 4X for indoor locations (when panel gasket is installed). Test performed in accordance with IEC 529, CEI 70-1 and NEMA 250-1991 STD.
Installation:	panel mounting
Rear terminal board:	54 screw terminals with connection diagram and safety rear cover
Dimensions:	96 x 96 mm
(according to DIN 43700)	Depth 128 mm.
Weight:	1.5 lbs (700g)
Power supply: (switching type)	from 100 to 240 VAC 50/60 Hz (from +10 % to -15% of the nominal value) or 24 VDC/AC (+10% of the nominal value).
Power consumption:	20 VA max.
Insulation:	a double or reinforced insulation is guaranteed between the power supply and all the instrument inputs and outputs.
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). 30000 counts.
Resolution:	125 ms for linear inputs
Sampling time:	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.

MEASURING INPUT

All inputs are factory calibrated and selectable by front keyboard. It is possible to apply a first order digital filter on the displayed value. The time constant of the filter may be programmed from 0 to 8 seconds.

RTD input	RTD type:	Pt 100Ω 3 wires connection
	Calibration:	according to DIN 43760, = 0.00385
	Line resistance:	Max. 20 Ω/wire with no measurable error.
	Burn out:	Detection of open sensor and one or more open wires. The instrument indicates short circuit when the resistance is less than 12Ω.
	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	Line resistance compensation error:	max. ± 0.1% of input span with input impedance <100Ω.
	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.
	Input impedance:	> 1MΩ.
	Calibration:	according to IEC 584-1.

STANDARD RANGES TABLE:

TC type	°C	Range	°F
B	0 / 1820		+32 / 3300
C	0 / 2300		0 / 4170
D	0 / 2300		0 / 4170
E	-100 / 800		-150 / 1470
G	0 / 2300		0 / 4170
L	-100 / 900		-150 / 1650
J	-100 / 1000		-150 / 1830
K	-100 / 1370		-150 / 2500
N	-100 / 1400		-150 / 2550
Ni/NiMo	0 / 1100		0 / 2000
R	-50 / 1760		-60 / 3200
S	-50 / 1760		-60 / 3200
T	-200 / 400		-330 / 750
U	-200 / 600		-330 / 1110

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Linear inputs (mA and V) Input linearization: programmable square root extraction.
Readout: keyboard programmable from -1999 to 9999.
Decimal point: programmable in any position.

STANDARD RANGES TABLE

Input	Impedance
0 - 20 mA	5 Ω
4 - 20 mA	5 Ω
0 - 60 mV	> 1 MΩ
12 - 60 mV	> 1 MΩ
0 - 5 V	> 200 kΩ
1 - 5 V	> 200 kΩ
0 - 10 V	> 400 kΩ
2 - 10 V	> 400 kΩ

Auxiliary input (optional) Function: This input can be used as trim function, algebraically added between this value and the operative set point.
Type: not isolated
Scaling: programmable from -1999 to 9999, the decimal point is automatically positioned as for main input.
Sampling time: 500 ms.
Accuracy: ± 0.2% of full scale value
 ± 1 digit @ 25 °C and nominal power supply voltage.
Temperature drift: 300 ppm/°C.

STANDARD RANGES TABLE

Input	Impedance
0 - 20 mA	5 Ω
4 - 20 mA	5 Ω
0 - 5 V	> 200 kΩ
1 - 5 V	> 200 kΩ
0 - 10 V	> 400 kΩ
2 - 10 V	> 400 kΩ

OUTPUTS

Types: supplied with up to 4 digital outputs (relay, SSR, TRIAC or servomotor drive) and up to 2 linear outputs (mA).

**Digital outputs
OUT 1 and 2**

Function: singularly programmed as:
 - control output
 - alarm output
 - event output.
Type: relay, SSR drive or TRIAC.

OUT 1 and 2 - Relay

Relay type: SPDT
Contact rating: 3 A @ 250 VAC on resistive load.

OUT 1 and 2 - SSR Drive

Type: non isolated voltage outputs.
 - Logic level 1: 14 V @ 20 mA max. 24 V @ 1 mA.
 - Logic level 0: < 0.5 Vdc.

OUT 1 and 2 - TRIAC

Switching mode: isolated zero crossing type.
Triac rating: from 50 mA to 1 A
 from 24 VAC to 250 VAC

OUT 3 and 4

Function: singularly programmed as
 - control output
 - alarm output
 - event output
 - Servomotor drive (OUT 3 open, OUT 4 closed).
Type: relay SPST.
Contact rating: 3 A @ 250 VAC on resistive load. The OUT 3 and 4 commons are connected together on the same rear terminal.

Servomotor output

Type: two relays interlocked (OUT 3 and 4).
Servomotor output type:
 - Closed loop
 - Open loop with valve position indication only.
 - Open loop without valve position indication.

Feedback potentiometer input: from 100 Ω to 10 k Ω.
Servomotor travel time: from 12 seconds to 3 minutes.
Servomotor dead band: from 1% to 50% of the feedback span or of the valve travel time.

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Analog outputs OUT 5 and 6

Function:	programmable as -Control output - Analog retransmission of the measured value - Analog retransmission of the operative set point.
Output type:	Isolated output programmable as: 0-20 mA 4-20 mA.
Scaling:	programmable from -1999 to 9999.
Maximum load:	600 W.
Accuracy:	0.1% when used as control output. 0.05% when used as analog retransmission.
Filter:	It is possible to apply a first order digital filter on the retransmitted value. The time constant of the filter may be programmed from 0 to 8 seconds.

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.
Digital output control action:	proportional time
Analog output types:	linear (20 mA).
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.
Secondary 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.

Process alarm

Operative mode:	minimum or maximum programmable.
Threshold:	programmable in engineering units within input range.
Hysteresis:	programmable in engineering units from 1 to 200 digits.

Band alarm

Operative mode:	inside or outside programmable.
Threshold:	two thresholds are programmable: low - from 0 to -1000 units. high - from 0 to +1000 units.
Hysteresis:	programmable in engineering units from 1 to 200 digits.

Deviation alarm

Operative mode:	high or low programmable.
Threshold:	programmable from -1000 to +1000 units.
Hysteresis:	programmable in engineering units from 1 to 200 digits.

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Alarm on the main output values	<p>It is possible to obtain an alarm condition when the main control output is lower or higher than a programmed value.</p> <p>Operative mode: minimum or maximum programmable. threshold: programmable from 0.1 to 100.0% of the output. Hysteresis: programmable in engineering units from 0.1 to 20.0% of the output.</p>
Alarm on the secondary output values	<p>It is possible to obtain an alarm condition when the secondary control output is lower or higher than a programmed value.</p> <p>Operative mode: minimum or maximum programmable. threshold: programmable from 0.1 to 100.0% of the output. Hysteresis: programmable in engineering units from 0.1 to 20.0% of the output.</p>
Output failure detection (OFD function) (optional)	<p>The models equipped with this feature are able to measure, by means of a CT, load current of one control output.</p> <p>- 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).</p> <p>- 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).</p> <p>Input range: 50 mA AC. Scaling: programmable from 10 A to 100 A (with 1A step). Resolution: - For full scale up to 20A : 0.1A resolution. - For full scale from 21 A to 100 A: 1A resolution. Active period: - For relay output: NO or NC programmable. - For SSR output: logic level 1 or 0.</p> <p>Minimum active period to perform the measurement: 120 ms. This function is applicable only to a control output programmed as proportional time output (relay or SSR)</p>
Serial interface (optional)	<p>Type: RS 485 isolated. Protocol type: MODBUS, JBUS. Baud rate: programmable from 600 to 19200 BAUD. Byte format: 8 bit. Parity: even, odd or none programmable. Stop bit: one. Address: from 1 to 255. Output voltage levels: According to EIA standard.</p>
Auxiliary power supply (Optional)	<p>Type: 24 V DC \pm 20% not isolated. Max. current: 25 mA.</p>

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PROGRAMMERS SPECIFICATIONS

SEGMENTS

Up to 200 segments are available.

Within each segment it is possible to:

- set program duration in hours and minutes (up to 99 h and 59 m) or minutes and seconds (up to 99 m and 59 s);
- program a group of PID parameters (5 sets available)
- program a wait band (up to 10)
- program one or more break event.

SIMPLE PROGRAMS

Up to 90 simple programs are available.

For each simple program it is possible to:

- use a different number of segments up to 99;
- set the program repetitions;
- set the instrument behavior after the last programmed cycle is carried out;
- program up to 14 timer events;
- program an end of cycle indication;
- program an end of profile indication;

LINKED PROGRAMS

Up to 9 linked programs are available.

- each linked program can include up to 9 simple programs.

FUNCTIONS AVAILABLE when a program is in progress

EDIT WAIT

The Edit mode allows user to create, modify or delete programs. Automatically freezes the progress of the operating program if the process value is outside the wait band.

The progress of the program will automatically restart when the process value returns inside the wait band.

HOLD ABORT FAST

Temporarily stops the operating program.

Stops the operating program, the instrument reverts to Edit mode.

A particular point of the profile, forward or backward, from where it is desired to restart the program. Locates 60 times faster than the normal speed.

JUMP

By this function it is possible to jump from the operating segment to the beginning of the next or the previous segments.

PROGRAM SELECTION BY LOGIC INPUTS

External devices (ex. PLC) can select the operating program via logic inputs. The logic inputs used for the program **INPUTS** selection are related to a binary code. In the example below, the logic inputs Dig 2, In 1 and In 4 are used for program selection.

Programs	Input	Weight	Input	Weight	Input	Weight
	Dig 2	2 ⁰	In 1	2 ¹	In 4	2 ²
1		On		Off		Off
2		Off		On		Off
3		On		On		Off
4		Off		Off		On
5		On		Off		On
6		Off		On		On
7		On		On		On

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SPECIAL FUNCTIONS

Real Time Clock Calendar (Optional)

With this feature, the operator presence is not required to start the operating program. To set auto start:

- 1) select the day of the week selected:
 - one day only (monday, tuesday, etc..)
 - daily
 - daily without sunday
 - daily without saturday and sunday
- 2) the starting time
- 3) the operating program.

A lithium battery ensures the internal clock keeps correct time (even when the instrument power supply is OFF) for more than 10 years.

Output Power OFF

This mode simplifies process management by disabling the control outputs, the retransmissions, the alarms and the control algorithm at the same time.

In this mode, the instrument operates as an indicator and the process variable can be checked even if the system is OFF or the zone is disabled.

When power up is resumed, the control sets the integral action of the control signal to zero and enables the soft start and alarm masking functions.

This function is particularly advantageous used in combination with the clock calendar function.

For example, by using a relay as output power OFF annunciator, it is possible to turn the system OFF (manually or automatically) and turn it ON automatically when the time programmed by clock calendar function is reached.

When the system is turned ON, the instrument starts execution of the selected program and also activates all functions used at start up (soft start and alarm masking).

Additional outputs (optional)

5 or 10 digital outputs are available.

- Function:** singularly programmable as event output
Type: Relay type SPST.
Contact rating: 0.5 A @ 250 VAC on resistive load.
Note: The C side of all relays is connected in common.
-

Events

All the digital outputs can be programmed as events.

Programmable event settings:

- Break event
 - Timer event
 - End of cycle annunciator
 - End of profile annunciator
 - Program run annunciator
 - Program wait annunciator
 - Output Power OFF mode annunciator
 - Error condition on the main input (overrange, underrange, open or short circuit).
 - Error condition on both measuring inputs.
 - Auto/Manual mode annunciator.
-

Logic inputs

Function: models are supplied with 3 standard logic inputs, programmable as:

- auto/manual selection
- output limiter activation
- manual reset of alarm (acknowledgement)
- reverse/direct control action
- run/hold program selection (level or transition programmable).
- program selection
- program abort

Input type: contact closure (voltage free)

Active contact status: close or open programmable

Additional inputs (optional)

4 or 8 logic inputs are available.

- Function:** Each additional logic input can be programmed as:
- run/hold program selection (level or transition programmable)
 - program selection
 - program abort

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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

2120 — 66 1 5 0 3 0 Typical Model Number

ACCESSORIES

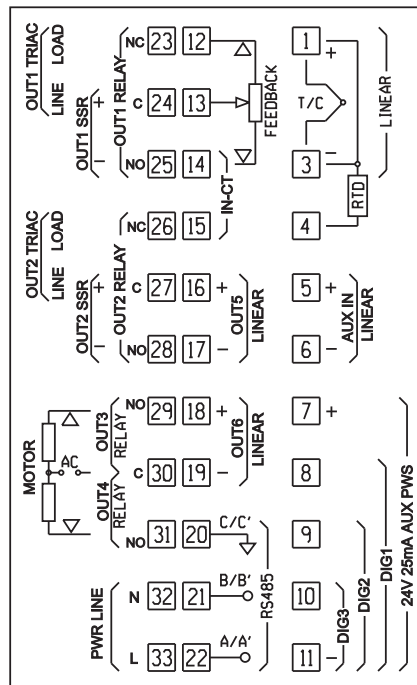
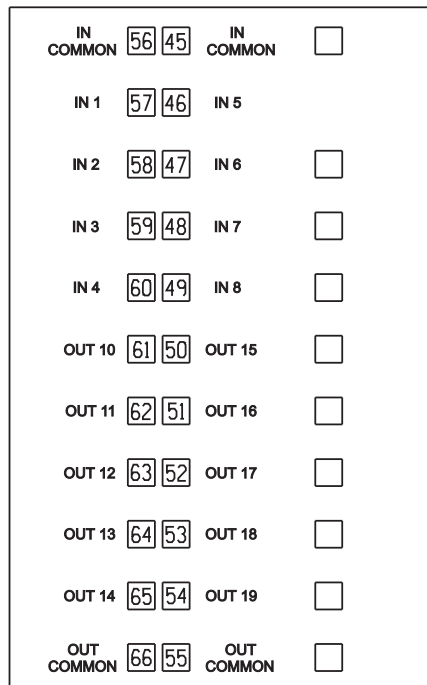
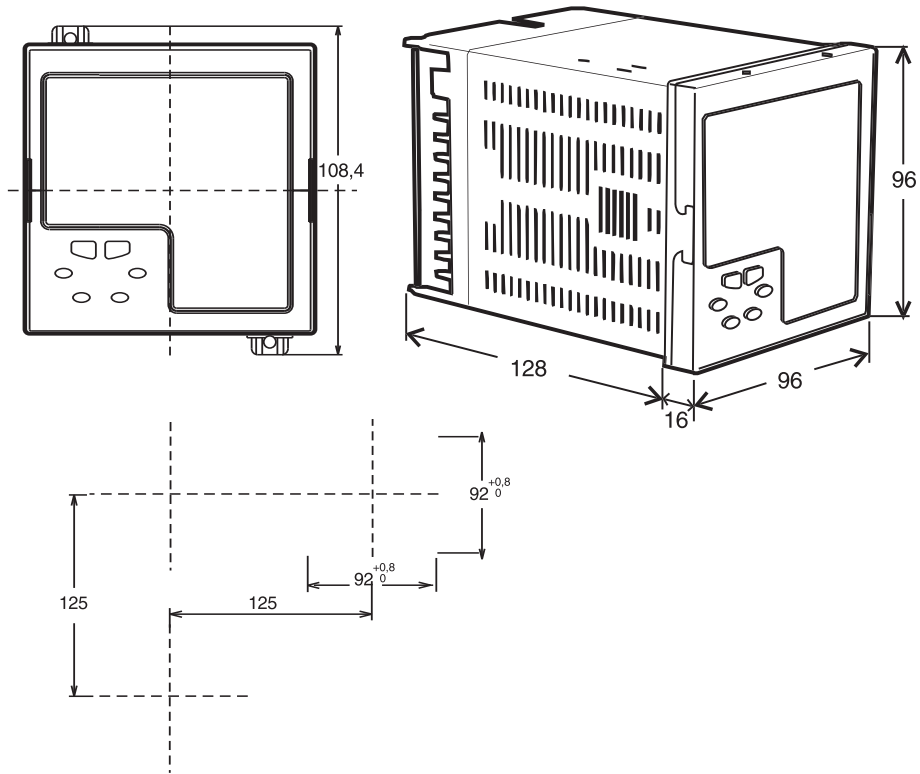
CNFG-21200 Configuration SW, Windows compatible (requires RS485 digital communications hardware option)

Current transformers for use with 2121's output failure detection

Part No.	PCN	Description
0149-01340	306480	Current Transformer, for 0.0-10.0 Amp Load Current
0149-01341	306350	Current Transformer, for 0-25 Amp Load Current
0149-01342	306368	Current Transformer, for 0-50 Amp Load Current
0149-01343	306376	Current Transformer, for 0-100 Amp Load Current

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DIMENSION, PANEL CUT OUT AND CONNECTION DIAGRAM



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PDS 2120
JANUARY, 2009