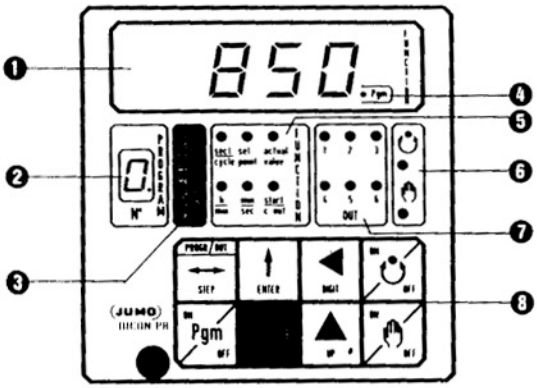
JUMO DICON PR

Microprocessor-controlled Program controller



Displays and controls

1. 5-digit 7-segment display for setpoint, process and elapsed time
2. Display for: program number, manual operation ("H"), changes in the program run ("L"), special functions Cd 01–45 ("F")
3. LEDs for: channel indication 1 or 2 (CHANNEL)
4. Indication for programming mode ("Pgm")
5. section
repeats (cycle)
setpoint
process (actual value)
time (h:min or min:sec)
6. Automatic and manual operation
7. Timing switches (OUT 1–6)*
8. Membrane keyboard

* Switching status indication (C–out – LED alight)

Single-setpoint controller	Y ⎓ (relay energised) Y ⎓ (relay de-energised)
Double-setpoint controller	Y ⎓ (heating relay energised) Y ⎓ (cooling relay energised) Y — (both relays de-energised)
Proportional controller	Y 0–100%

D 95.630.1

11.89/V

Brief Operating Instructions

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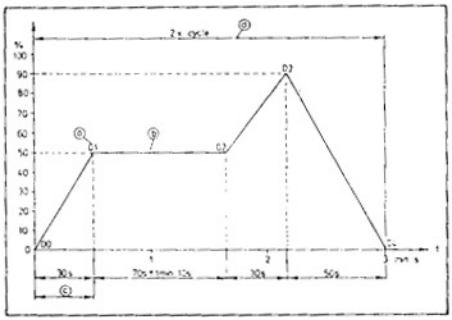
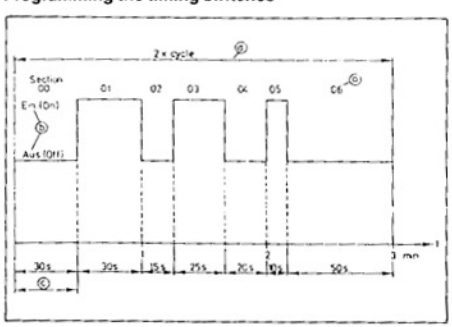
Programming the setpoint curve



Each program section is defined by:

- ⓐ the section number starting with 00
- ⓑ the setpoint
- ⓒ the section time (h:min/min:sec)
- ⓓ possible repeats (cycles)

Programming the timing switches



Each program section is defined by:

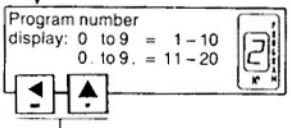
- ⓐ the section number starting with 00
- ⓑ the contact status (OFF/ON)
- ⓒ the section time (h:min/min:sec)
- ⓓ possible repeats (cycles)

PROGRAMMING THE SETPOINT CURVE

Select channel
(only on 2-channel unit)
LED 1 or 2 is alight

Call up programming,
– Pro – flashes on the display

Enter programming,
display – YES – = program present
display – NO – = no program present
program display flashes



Select program number,
◀ select digit
▲ increase digit

Enter program number

Section Sc	Setpoint	Section time 00'00 h'min	Section time 00'00 min's	Repeat cycles 00␣00 from which section	Repeat cycles 00␣00 how often*
00	0	·	'30		
01	50	·	1'10		
02	50	·	'30		
03	90	·	'50	00	2
04	0	·	'00		

Terminate programming

* CC = cyclic repeat

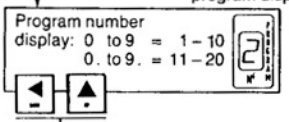
PROGRAMMING TIMING SWITCHES

Select channel
(only on 2-channel unit)
LED 1 or 2 is alight

Call up programming,
– Pro – flashes on the display

Select timing switch
(display – Out –)

Enter programming,
display – YES – = program present
display – NO – = no program present
program display flashes



Select program number,
◀ select digit
▲ increase digit

Select timing switch Out 1–6,
the corresponding LED flashes

Enter program number
and timing switch number

Section Sc	Contact status Off or On	Section time 00 00 h'min	Section time 00 00 min's	Repeat cycles 00␣00 from which section	Repeat cycles 00␣00 how often*
00	Off	·	'30		
01	On	·	'30		
02	Off	·	'15		
03	On	·	'25		
04	Off	·	'20		
05	On	·	'10		
06	Off	·	'50	00	2

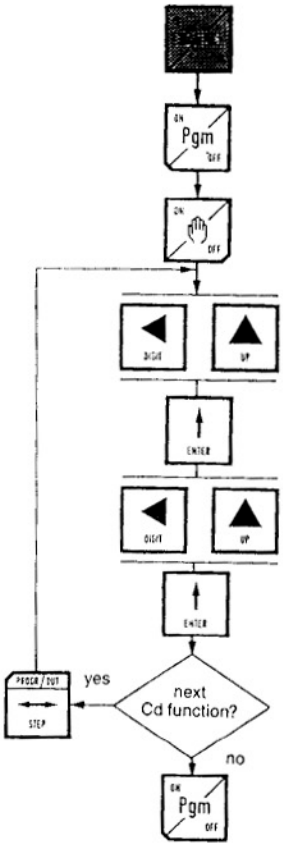
Terminate programming

* CC = cyclic repeat

CONTROLLER CONFIGURATION

Entering the controller parameters

The controller parameters are preset at the factory; see Table of parameters. If required the parameter values can be changed within the adjustment range indicated. The controller parameters are called up with the Cd functions and entered separately for channel 1 and 2.



Select channel 1 or 2
LED 1 or 2 is alight

Call up programming,
– Pro – flashes on the display

Select controller parameter
(Cd functions),
"F" appears on the program display,
Cd-00 is flashing in the display

Select parameter according to the
Table of parameters
(Cd function 21–45)

Enter parameter

Input or change value

Enter value of parameter

Input terminated
The input can be terminated
with "Pgm" at any time!

Controller Configuration

Table of parameters
Single-setpoint controller

Cd function	Parameter	Name	Feedback action: none	PD	PID*	PD/PID	Adjustment range	Factory setting
Cd-21	Xp1	Proportional band	0 digit	x	x	x	0 digit no feedback 1 – 9999 digit	0 digit
Cd-24	Tv	Derivative time	-	x	0 sec	x	0(8) – 999 sec	80 sec
Cd-25	Tn	Reset time	-	0 sec	x	x	0(32) – 9999 sec	350 sec
Cd-26	Xd1	Differential	x	-	-	-	0 – 99.9 digit	30 digit
Cd-27	Cy1	Cycle time	-	x	x	x	1 – 99 sec	20 sec
Cd-30	Y1	Max. valve stroke	-	x	x	x	0 – 100 %	100 %

Double setpoint controller

Cd function	Parameter	Name	Feedback action: none	PD	PID*	PD/PID	Adjustment range	Factory setting
Cd-21	Xp1	Proportional band (heating contact)	0 digit	x	x	x	0 digit no feedback 1 – 9999 digit	0 digit
Cd-22	Xp2	Proportional band (cooling contact)	0 digit	x	x	x	1 – 9999 digit	0 digit
Cd-23	Xsh	Contact spacing (sym.)	x	x	x	x	0 – 999.9 digit	0 digit
Cd-24	Tv	Derivative time	-	x	0 sec	x	8 – 999 sec	80 sec
Cd-25	Tn	Reset time	-	0 sec	x	x	32 – 9999 sec	350 sec
Cd-26	Xd1	Differential (heating contact)	x	-	-	-	0 – 99.9 digit	30 digit
Cd-27	Cy1	Cycle time (heating contact)	-	x	x	x	1 – 99 sec	20 sec
Cd-28	Xd2	Differential (cooling contact)	x	-	-	-	0 – 99.9 digit	30 digit
Cd-29	Cy2	Cycle time (cooling contact)	-	x	x	x	1 – 99 sec	20 sec
Cd-30	Y1	Max. positive valve stroke	-	x	x	x	0 – 100 %	100 %
Cd-31	Y2	Max. negative valve stroke	-	x	x	x	– 100 – 0 %	– 100 %

Modulating controller

Cd function	Parameter	Name	Feedback action: none	PI	PID*	Adjustment range	Factory setting
Cd-21	Xp1	Proportional band	0 digit	x	x	0 digit no feedback 1 – 9999 digit	0 digit
Cd-23	Xsh	Contact spacing (sym.)	x	x	x	0 – 999.9 digit	0 digit
Cd-24	Tv	Derivative time	-	8 sec	0 sec	8 – 999 sec	80 sec
Cd-25	Tn	Reset time	-	x	x	32 – 9999 sec	350 sec
Cd-26	Xd1	Differential	x	-	-	0 – 99.9 digit	30 digit

Proportional controller

Cd function	Parameter	Name	Feedback action: P	PI	PD	PID	Adjustment range	Factory setting
Cd-21	Xp1	Proportional band	x	x	x	x	1 – 9999 digit	100 digit
Cd-24	Tv	Derivative time	0 sec	0 sec	x	x	8 – 999 sec	0 sec
Cd-25	Tn	Reset time	0 sec	x	0 sec	x	32 – 9999 sec	0 sec
Cd-30	Y1	Max. valve stroke	x	x	x	x	0 – 100 %	100 %
Cd-31	Y2	Operating point	x	-	x	-	0 – 100 %	50 %

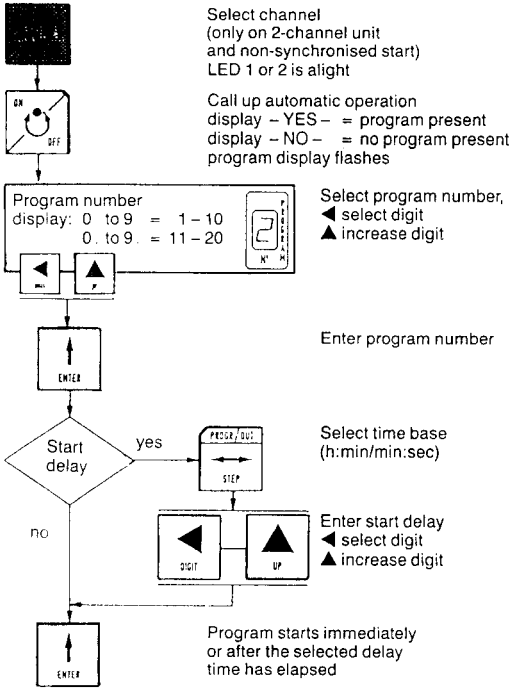
x: adjustable

* with PID action Tv = Tn/4.5 (except proportional controller)

▭ = factory setting without feedback

AUTOMATIC OPERATION

Program start



Select channel
(only on 2-channel unit
and non-synchronised start)
LED 1 or 2 is alight

Call up automatic operation
display – YES – = program present
display – NO – = no program present
program display flashes

Select program number,
◀ select digit
▲ increase digit

Enter program number

Select time base
(h:min/min:sec)

Enter start delay
◀ select digit
▲ increase digit

Program starts immediately
or after the selected delay
time has elapsed

Program abort

The instrument returns to
the base setting

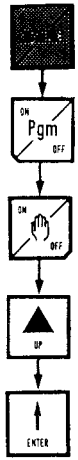
Program stop

The time base is stopped,
input of fixed values possible

SPECIAL FUNCTIONS

Selecting the special functions

A total of 6 special functions (Cd functions)
can be selected and performed.
Programming can be stopped at any time
with the "Pgm" key.



Select channel
(only on 2-channel unit)
LED 1 or 2 is alight

Call up programming,
– Pro – flashes on the display

Select special function,
the display shows "Cd-00",
"F" appears in the program number display

Select Cd-01 to 06 according
to the Table

Enter special function

Cd-01	Erasing all programs	the display shows CLEAR, confirm deletion with "ENTER"
Cd-02	Erasing one program	the display shows C . Pr – 0, input the desired program number, confirm with "ENTER"
Cd-03	Displaying bottom end of range	confirm with "ENTER"
Cd-04	Top end of range	confirm with "ENTER"
Cd-05	Displaying type of probe	confirm with "ENTER"
Cd-06	Displaying decimal places	confirm with "ENTER". The display shows the number of digits after the decimal point.