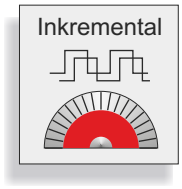
CPS20

Compact Positioning System
Rotary tables / Indexing attachmenty

- Easy adaptation to different rotary tables/indexing attachments
- Sinusoidal acceleration ramps
- Automatic clamping
- Optional as complete unit with integrated servo amplifiers



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Abstract CPS20 rotary table / indexing attachments

The CPS20 is a free programmable CNC - positioning controller for 1 axis providing special functions adapted to rotary tables or indexing attachments with position controlled drives. Adaptation of the CPS20 controller to different rotary tables/indexing attachments is done via parameter settings, shown as decoded text on the illuminated LC-display.

Sinusoidal acceleration curves reduce considerably the load of all mechanical components. Clamping is automatically processed and monitored.

Programming and operation is easy and comfortable due to menu assisted sequences.

The following operating modes are available:

- Reference run: Automatic search for the machine reference position.
- Automatic: Execution of the selected program or the programmed pitch increments using the appropriate speeds.
- Program input:
  1. For constant pitch distances, the input of the pitch is sufficient.
  2. For irregular pitch distances, the programming is realized in degrees. Absolute and incremental as well as nearest direction and segment programming is possible.
- Jog mode: Run to any position by means of arrow keys or definite motion to a previously entered angular position. Zero point setting is also possible.
- Parameter input: Password protected parameter input of machine-specific parameters in different parameter levels.
- Startup assistance: Test function used for testing the inputs and outputs during startup or in case of faults.

Options:

- Handwheel: For precise and sensitive manual positioning
- PC-Software WIN-CPS Comfortable programming of all data

Technical Data CPS 20 Rotary table / indexing attachments

Programming system	Absolute, incremental, segment	Limit switch	adjustable via software
		Automatic clamping	Adjustable via parameters
Minimum input angle	0.0001 degree	Drift compensation	Yes
Maximum input angle	+/- 999.9999 degree	Acceleration and deceleration ramp	10 - 10000 ms
Number of axes	1		
Input	Membrane keyboard with tactile acknowlegdement	Programmable speed	0.01-649 Revs/min.
		Max. Encoder frequency	250kHz (internal quadruplication 1MHz)
Display	LC - Display (decoded text 2x24 illuminated characters)	Position aquisition	Incremental
			Absolute (SSI- or EnDat-Interface),
Programms to be stored	90		
Programmable records	760 (power fail safe)		
Resolution	Up to 7.200.000 Incr./rev.	Signal-inputs	8 Inputs; 24V; 10mA optional 15 inputs
Reference zero run	Yes		
Impulse start	Yes	Signal-outputs	6 Outputs; 24V; 0,8A
Start ramp monitoring	Yes	Analog output	+ / - 10V (12 bit resolution)
Stop with residual movement	Yes	Connections	Clamping connector 9-pin D-Sub for interfaces
		Supply voltage	24 VDC, ca. 0,3A
Error diagnosis	Decoded Text	Option:	Power pack 230VAC
Linear ramp	Yes	Ambient temperature	0 ... + 45° C
Sin² Ramp	Yes	Dimensions (WxHxD)	213 x 133 x 68 mm

Subject to changes

Inputs and Outputs

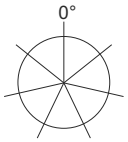
Standard signal inputs:
Reference switch Clamping clamped Clamping released Negative limit switch Positive limit switch Automatic / jog mode Release Start

Signal outputs:
Ready for operation Program end In position / positioning Clamping M-function 2 / quantity end M-function 1

Other outputs:
Drive enable contact 1 Drive enable contact 2 Analog output +/- 10 volt Analog ground

Examples for pitch programming

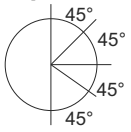
Pitch with divisor 7



Program input
Divisor : 7

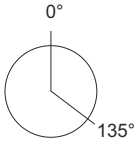
The CPS 20 calculates automatically the angular pitch:
360 deggrees / 7 = 51.4285 degrees

Examples for programming in degrees



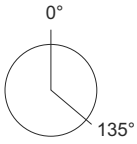
1.1 I:+45.0000 F:1.12
R: 3

Incremental angle of 45 degrees with 3 repetitions (R: 3)



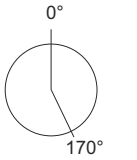
1.2 A:+135.0000 F:12.0

Absolute positioning to 135 degrees with positive travel direction



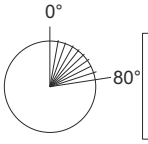
1.3 A:-135.0000 F:12.0

Absolute positioning to 135 degrees with negative travel direction



1.4 A: 170.0000 F:3.23

Absolute positioning using the nearest direction (Programming without sign).



1.5 S:+80.0000 F:1.00
T: 9

Programming a segment of 80 degrees with a divisor of 9 (80/9 = 8.8888 degrees).

General Information:

The change-over between the positioning modes is accomplished by striking a key (menu key).

In addition, it is possible to program the machine functions (M:) and the travel speed (F:) in each record. “FS:” is used to define whether a subsequent record / repetition without start signal is to be executed.

The clamping is always processed automatically.

Complete units

The CPS20 is available as complete unit with integrated servo-amplifiers for brushless AC-Servomotors. Various amplifiers for the required motor current are available. There are small units (63HP) and wide units (84HP) depending on the built-in options with a maximum motor current of 12A available.
The supply voltage is 230VAC for the small and 400VAC for the wide units.

Optional interpolation-electronics (Series IBV100) can be implemented.

The complete unit is a compact table-top with all connections designed as rugged industrial connectors on the backside. The required power supply is also integrated in the rack.

The CPS20 is also available in a control console with higher power capabilities.

Available amplifiers

$I_{N\ Continious}$ A_{RMS}	I_{max} [2] A_{RMS}	Motor inductance min. [mH]	Motor inductance max. [mH]	Supply-voltage [V]	Brakepower cont. [kW]
3,0	9,0	2,5	250	230	0,77
6,0	18	1,3	125	230	1,5
12	30	1	100	230	3,0
3,0	9,0	5,3	600	400	1,5
6,0	18	2,6	300	400	3,0
12	30	2,1	250	400	6,0
24[1]	48	1,0	120	400	12
48[1]	96	0,5	60	400	12

[1] Not in table top unit available

[2] Maximum-currents can be drawn for minimal 5 seconds.

Technical Data complete unit (table-top)

Rack width	63HP	84HP
Power supply:	230V; 50Hz	400V, 50Hz,
Dimensions (WxHxD):	366 x 288 x 330 mm (without connectors)	473 x 288 x 390mm (without connectors)
Weight:	ca. 12 kg	ca. 16 ... 20kg (depending on used amplifier)

CPS20 table top (63HP) with optional Emergency-Stop.

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