

Series P40

Compact Position Controller for Guillotine Shear Applications



- Positioning of backgauge, gap and angle
- Manual inching, single or program operation
- 16 freely configurable inputs and outputs
- Programm memory with 500 blocks
- LCD display with four menu languages
- Optionally with 12 bit analog output (selectively PID or unregulated)
- Material depending voltage output
- Simple and intuitive handling
- Integrated diagnosis mode
- Easy panel installation

P40-002 - Compact Position Controller for Guillotine Shear Applications

General:

The compact positioning controller P40-002 was designed for simple positioning applications on guillotine shears. The focus is on the easy, convenient and fast input of a target value, optionally a number of pieces as well as a cutting angle (auxiliary axis) or a cutting gap (auxiliary axis). The actual value, target value and quantity are displayed on the control panel via an easy-to-read LCD display. The target value as well as the desired quantity can be entered via the keypad and positioning can be started and stopped via front start button.

The cutting angle or cutting gap can be displayed and positioned via the second encoder input. This encoder input can optionally be designed for analog measuring systems (see "Drive signals for positioning" below).

Program Memory:

In addition to manual inching and single operation, the **P40-002** controller has a program mode that can be activated directly by the program key on the front panel. The program memory is designed for a maximum of 500 blocks.

Standard Functions:

- Adjustable positioning output signals (3 different speeds)
- Visualization of the actual and the programmed position
- Absolute or incremental measurement positioning
- Reference value and gauging
- mm/inch switchover
- Impulse factor and multi edge counter
- Tolerance window
- Software end limit monitoring
- Loop operation
- Program memory with up to 500 blocks
- Tool compensation
- Encoder monitoring
- Batch counter
- Manual inching mode
- Stroke control
- 20 offsets
- Retract function
- Actual position memory

Guillotine Shear Application:



- Positioning off the backgauge axis
- Cutting gap / cutting angle control
- Material table for the auxiliary axes cutting angle and cutting gap
- Metal shear specific parameters e.g. knife length, cutting time, knife lowering time

Signal Inputs:

Depending on the encoder or measuring system used, the inputs for 1 or 2 axes can be configured individually. Conventional square wave inputs with HTL or differential TTL characteristics are available. When using analog measuring systems for the auxiliary axes cutting angle and cutting gap, the controller can also be equipped with 1 or 2 analog inputs. Combinations of digital and analog inputs are also possible. However, the restrictions listed in the type code should be taken into account.

Drive Signals for Positioning:

Three different versions of output signals are available for positioning:

- 1. Switch-off positioning with up to 3 speeds via digital outputs. The assignment and logic (active HIGH/LOW) can be parametrized.
- 2. Optionally via unregulated 12 bit analog output ($\pm 10 \text{ V}$)
- 3. Optionally via regulated 12 bit PID analog output ($\pm 10 \text{ V}$)

(order codes see type designation)

Digital I/Os

For diverse control commands, the **P40-002** controller is equipped with 16 digital PNP inputs and outputs whose pin assignment and switching logic are freely configurable via parameters.

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Technical Data:

Mechanical Data	
Housing	panel housing
Housing material	front plate: aluminium housing: galvanized steel sheet
Front plate dimensions	$W \times H = 144 \times 144 \text{ mm}$
Panel cut out	$W \times H = 138 \times 138 \text{ mm}$
Keyboard	foil, short stroke keys
Installation depth	37 mm (without connectors) 75 mm (with connectors)

Further options

Electrical Data	
Display	LCD dot matrix 120 x 80 pixels with white background lighting
Hardware	32 bit microcontroller with 1 MByte Flash and 56 KByte RAM
Program memory	up to 500 blocks (more on request)
System accuracy	± 1 increment
Power supply voltage	24 VDC +10 / -20 %
Current consumption	max. 150 mA (unloaded); permitted tot. current incl. self-consumption: 1 A
Encoder supply voltage	24 VDC or 5 VDC
Load by measuring system	max. 130 mA
Input signals (encoder)	HTL, TTL, analog (order dependent)
Signal channels	A, B, Z resp. A, A', B, B', Z, Z' or analog 0 3.3 V (order designation)
External inputs	16 x digital PNP inputs with freely programmable assignment and logic
Input current / pin	max. 10 mA
Pulse time for inputs	min. 300 ms
Max. input frequency	100 kHz (higher on request)
Analog inputs	optional 1 or 2 analog inputs (12 bit) at 3.3 VDC sensor supply
Output signals	16 digital PNP outputs with freely programmable assignment and logic (active high/low)
Output current	max. 150 mA per output / 500 mA total current across all outputs; the outputs are durable short circuit proof (no multiple short circuits)
Freewheel clutch / outputs	for inductive loads integrated (clamping voltage at the output max45 V)
Analog outputs	optional: ± 10 V PID or ± 10 V unregulated (each 12 bit)
Connections	industry standard connectors (3.81 mm grid, lockable) and additional RJ45 sockets (depending on version)
Power down memory	E ² Prom (service life: 1.000.000 switching on/off cycles or 40 years)

8 = only 8 instead of 16 I/Os

Environmental Conditions	
Operating temperature	0 +45 °C
Storage temperature	-20 +50 °C
Humidity	max. 80 %, non-condensing
Protection class (front)	IP43 (installed state)
Protection class (rear)	IPOO

Type Designation:

A Version

002 = special version for guillotine shears

B Power Supply

024 = 24 VDC (+10 / -20 %)

C Encoder Inputs

X = input is not available

= A, B, Z (PNP) 24 V supply / HTL, 100 kHz 2 = A, A', B, B', Z, Z' 24 V supply / TTL 100 kHz = A, A', B, B', Z, Z' 5 V supply / TTL 100 kHz = 1 analog input 3.3 V supply / 0 ... 3.3 V (12 Bit)¹

= 2 analog inputs $3.3 \text{ V supply } / 0 \dots 3.3 \text{ V } (12 \text{ Bit})^1$

D Outputs (drive signal per axis)

= no output available

= digital transistor outputs, PNP

= 12 bit analog output $\pm 10 \text{ V (PID regulated)}^2$

= 12 bit analog output $\pm 10 \text{ V}$ (unregulated)

E Options (multiple indications possible)

= no further options

= screw terminals

= 8 digital inputs / 8 digital outputs³

Restrictions:

¹ not for axis 1 (only for auxiliary axes)

 2 not available, when analog measuring systems are used (D = 4 or 5)

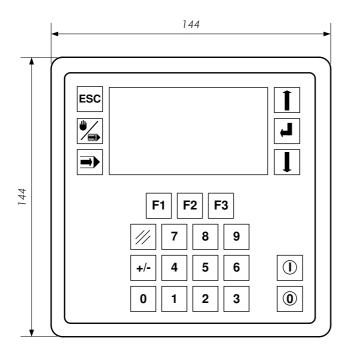
³ not available in combination with an analog output

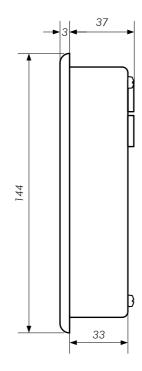
Order example:

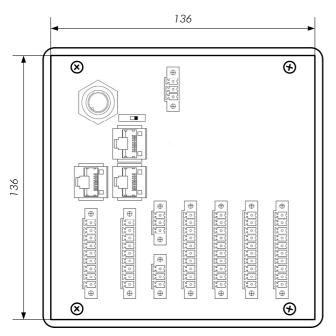
P40-002 (special version for guillotine shears) with 24 VDC power supply, 1 HTL input for encoder channels (A, B, Z,) 2 analog inputs for auxiliary axes (angle and gap), 1 regulated PID output for positioning the first axis, digital PNP transistor outputs for positioning the second axis and connections by optional screw terminals.

Your order:

P40-002 Dimensions:







P40-002 Accessories:

Order Designation	Description
NG13	Power pack for AC-supply (primary: 115/230 VAC, secondary: 24 VDC/600 mA)
RP8	Relay card with 8 changeover relays (28 VDC/250 VAC / 12 A)
P40 Interface Cable	Interface cable for PC connection (with RJ45 plug and female 9-pin SUB-D)

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Measuring | Positioning | Control

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