HEIDENHAIN

Product Information

POSITIP PT 8016

Digital Readout for
Manually Operated
Machine Tools

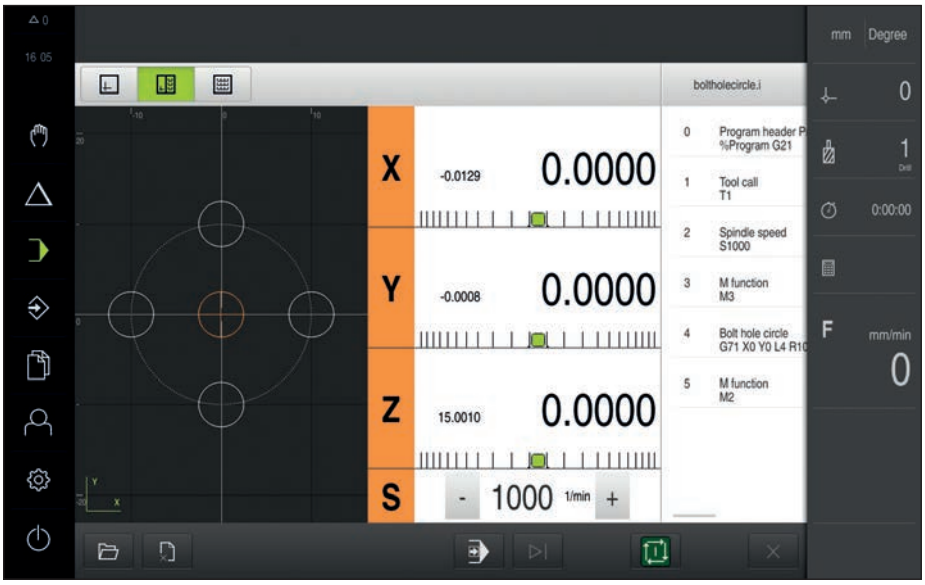
11/2018

POSITIP PT 8016, PT 8016 Active

– The convenient digital readout for milling, drilling, and boring machines, and lathes

The POSITIP PT 8016 digital readouts are well suited for manual milling machines, drilling machines, boring machines, and lathes with up to six axes. Integrated switching inputs and outputs enable interaction with the machine, thereby allowing for the implementation of simple automated tasks.

The PT 8016 Active version makes it possible to configure and control up to three NC axes in addition to a spindle. Simultaneous multi-axis motion and machine safety functions are not supported.



Design
The POSITIP PT 8016 digital readouts are designed to withstand harsh shop conditions. They feature a sturdy aluminum housing equipped with touchscreen operation.

Thanks its intuitive, user-friendly graphical interface, the POSITIP PT 8016 is particularly easy to operate. The 12-inch screen clearly displays all of the information you need for machining your workpiece.

The low-profile aluminum housing with integrated power supply unit and fanless passive cooling is extremely rugged and durable. The well laid-out touchscreen made of specially hardened glass can even be operated by a user wearing gloves.

Functions
The POSITIP PT 8016 offers many useful functions for machining with manually operated machine tools. Self-explanatory operating elements and language-sensitive information in plain language permit context-sensitive operation.

The distance-to-go display comes to your aid during positioning tasks. With it, you can arrive at the next position quickly and reliably by simply moving the axes until the display reads zero. This feature is particularly useful during the execution of programs.

Of course, the POSITIP PT 8016 also provides special functionality for milling and turning operations, including the following functions:
- Hole patterns (linear, circular)
- Radius/diameter switching
- Sum display for the top slide

Presets can be acquired quickly and accurately with an edge finder. The POSITIP PT 8016 also supports you with its special probing functions.

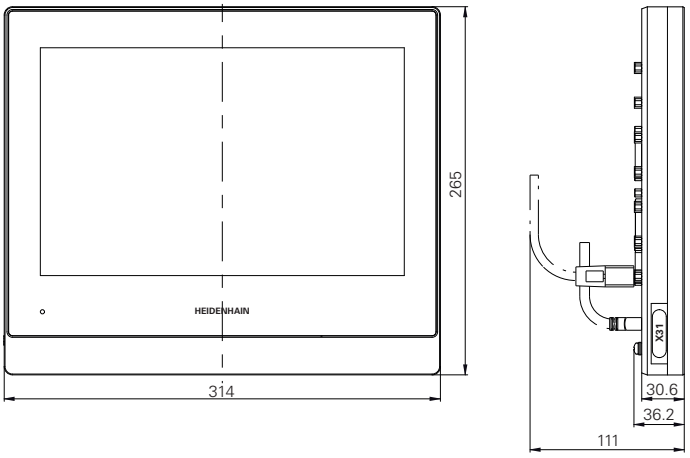
You can customize the display of the POSITIP PT 8016 and save your settings in the user administration area.

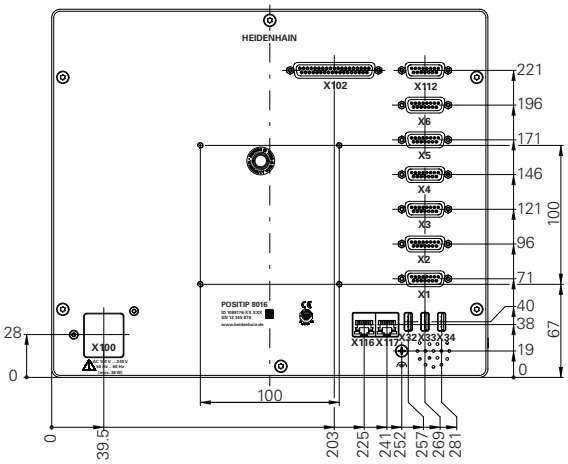
Data interface
A USB port allows you to import and output configuration files and programs. The Ethernet interface allows programs to be saved or imported via a network.

	POSITIP PT 8016	POSITIP PT 8016 Active
Axes	Up to 6 axes (4 axes in the standard version; 2 additional axes available as an option)	
Encoder inputs	⌒ 1 V_{PP}, ⌒ 11 μA_{PP}, EnDat 2.2	
Display step[1]	*Linear axis:* 1 mm to 0.00001 mm	
Display	12-inch screen for touchscreen operation; resolution: 1280 x 800 pixels for position values, dialog messages, data input, and graphic functions	
Functions	• Creation and execution of programs • User administration and data management • 100 presets, 100 tools • Reference mark evaluation for distance-coded and single reference marks • Distance-to-go mode with nominal position input in absolute or incremental values • Graphic positioning aid • Scaling factor, mirror image, magnifying function	
For milling/drilling/boring	• Calculation of positions for hole patterns (bolt circles, linear hole patterns) • Tool radius compensation • Cutting data calculator • Probing functions for preset acquisition (edge, centerline, and circle)	
	–	Control of up to 3 NC axes and a spindle; switching functions
For turning	• Measurement of tool dimensions • Sum display of axes in the top slide • Taper calculator	
	–	Control of up to 3 NC axes and a spindle; constant surface speed; switching functions
Error compensation	Linear and segmented linear	
Data interface	2x Ethernet 100 Mbit / 1 Gbit (RJ45); 4x USB 2.0 (Type A)	
Accessories	Single-Pos/Duo-Pos/Multi-Pos stands, Multi-Pos holder, power cable, adapter connector	
Power connection	AC 100 V (–10 %) to 240 V (+5 %), 50 Hz to 60 Hz (±5 %) *PT 8016 Active:* ≤ 79 W; *PT 8016:* ≤ 38 W	
Operating temperature	0 °C to +45 °C (storage temperature: –20 °C to +70 °C)	
Protection EN 60529	IP65, back panel IP40	
Mounting	Single-Pos/Duo-Pos/Multi-Pos stands, Multi-Pos holder, and other mounting systems with a 100 mm x 100 mm hole pattern	
Mass Device alone Device with Single-Pos stand Device with Duo-Pos stand Device with Multi-Pos stand Device with Multi-Pos holder	 ≈ 3.50 kg ≈ 3.60 kg ≈ 3.80 kg ≈ 4.50 kg ≈ 3.85 kg	

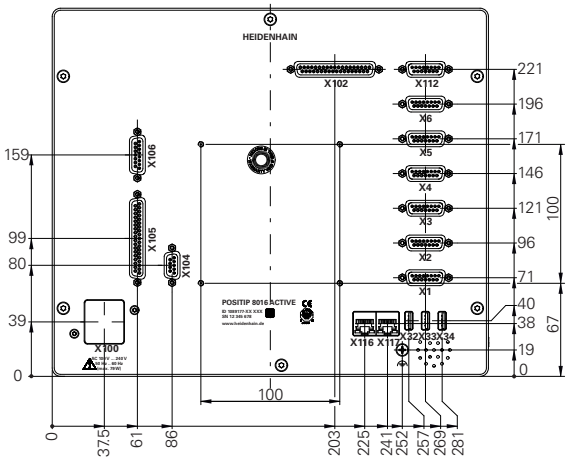
[1] Depends on the signal period or line count of the connected encoder

Mounting and accessories





POSITIP PT 8016



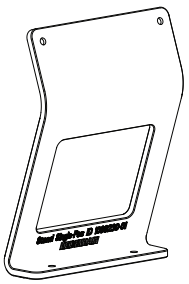
POSITIP PT 8016 Active

Types of mounting

The POSITIP PT 8016 and PT 8016 Active can be set up with versatility on the Single-Pos stand (included in delivery). With the Multi-Pos or Duo-Pos stands, the digital readouts can be flexibly set up at various angles of inclination. For mounting on the machine, the Multi-Pos holder or other mounting systems with a 100 mm x 100 mm hole pattern are suitable.

Single-Pos stand
Included in delivery.
For setup on and fastening to a surface (20° tilt)

ID 1089230-01



Multi-Pos stand
For setup on and fastening to a surface; freely adjustable (90° tilting range)

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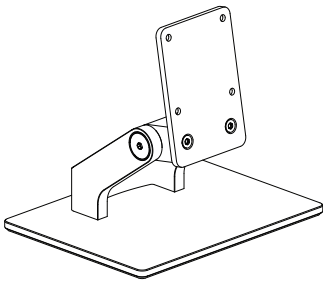

Duo-Pos stand
For setup on and fastening to a surface, at two possible angles (20° or 45° tilt)

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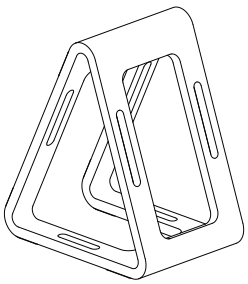
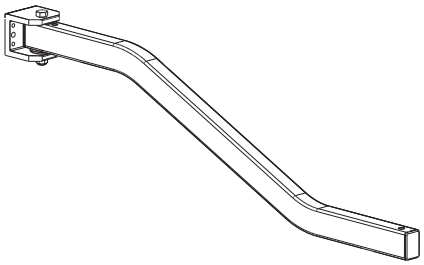


Mounting arm
For attachment to a machine

Mounting arm, offset
ID 382929-01

Mounting arm, straight
ID 382893-01



Multi-Pos holder
For attachment to an arm; freely adjustable (90° tilting range)

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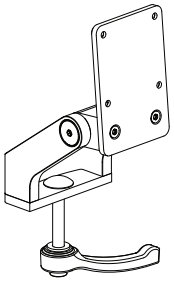


Accessories

Adapter connector
For pin layout conversion for replacement of the PT 880 with the POSITIP PT 8016

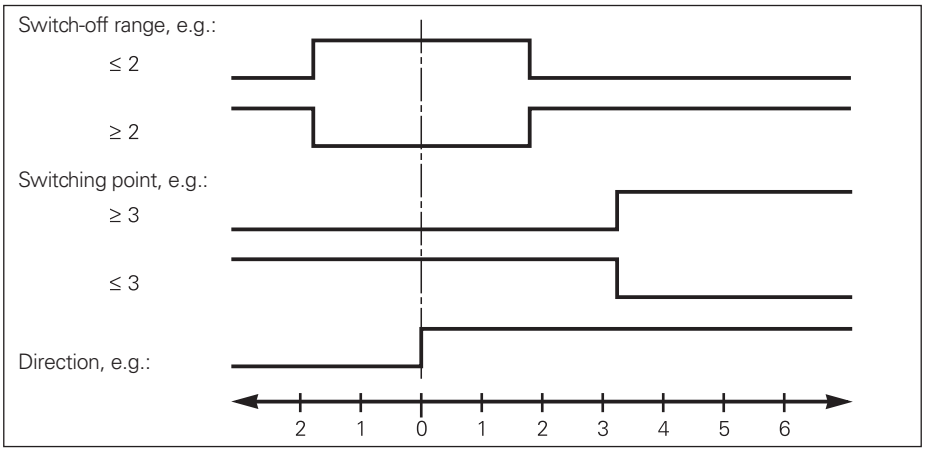
ID 1089214-01

PC trial software
Visit *www.heidenhain.de/de_EN/software* (Digital Readouts/POSITIP 8016/ Software DEMO).

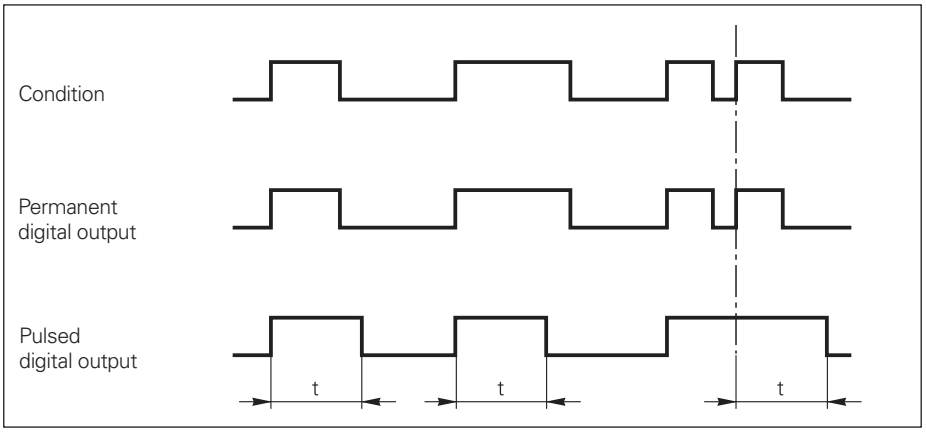
Switching outputs

Switching functions
One or more switching ranges or switching points can be defined for each axis.
Switch-off ranges are located asymmetrically relative to any given switching point. For **switching points**, a **digital output** switches **at the programmed position**.

Switching points can be referenced to the following:
- Machine coordinate system
- Preset
- Target position
- Tool tip



Four types of switching are available
- Edge from LOW to HIGH
- Edge from HIGH to LOW
- Interval from LOW to HIGH
- Interval from HIGH to LOW



Switching inputs

Zero reset
In milling mode, each axis can be set to the display value "0" via an external signal.

Detection of gear stages
In turning mode, four switching inputs are available for the detection of gear stages.

Connectivity comparison between POSITIP PT 8016 and POSITIP PT 8016 Active

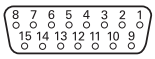
	PT 8016	PT 8016 Active
Encoder interfaces (11µA, 1V_{PP}, EnDat 2.2-22)	4 2 additional ones as option	4 2 additional ones as option
Digital inputs		
TTL 0 V to 5 V	8	8
High DC 11 V to 30 V; 2.1 mA to 6.0 mA Low DC 3 V to 2.2 V; 0.43 mA		24
Digital outputs		
TTL 0 V to +5 V; maximum load = 1 kΩ	16	16
DC 24 V (20.4 V to 28.8 V; max. 150 mA per channel		8
Relay outputs Max. switching voltage AC/DC 30 V; max. 0.5 A; max. 15 W, max. continuous current 0.5 A		2
Analog inputs Voltage range DC 0 V to 5 V Resistance range 100 Ω ≤ R ≤ 50 kΩ		4
Analog outputs Voltage range DC –10 to +10 V Maximum load 1 kΩ		4 (option)
5 V voltage outputs Voltage tolerance ±5 %; maximum current 100 mA	1	2

Further information:
POSITIP 8016
Installation Instructions ID 1251619-90

Type	Function	PT 8016	PT 8016 Active
Logo	Pulling up of operating instructions or OEM service information	✔	✔
Programming	–	✔	✔
Spindle speed	Preassignment of spindle speeds (radio buttons)	Can be configured, but without functionality	✔
M function	Freely definable functions	✔	✔
	Direction of spindle rotation	–	✔
	Coolant during spindle operation	–	✔
	Axis clamping	–	Only with NC option
	Coolant	–	✔
	Tool-axis zeroing	✔	✔
Document	Display of tables (e.g., thread tables, cutting speeds)	✔	✔

Pin layout

15-pin D-sub flange socket (female)



	Power supply					Incremental signals						Serial data transfer			
	**4**	**12**	**2**	**10**	**6**	**1**	**9**	**3**	**11**	**14**	**7**	**5**	**13**	**8**	**15**
1 V_{PP}	**U_P**	**Sensor** U_P	**0 V**	**Sensor** 0 V	**/**	**A+**	**A–**	**B+**	**B–**	**R+**	**R–**	**/**	**/**	**/**	**/**
11 μA_{PP}					**Internal shield**	**I_{1+}**	**I_{1-}**	**I_{2+}**	**I_{2-}**	**I_{0+}**	**I_{0-}**	**/**	**/**	**/**	**/**
EnDat						**/**	**/**	**/**	**/**	**/**	**/**	**DATA**	**$\overline{\text{DATA}}$**	**CLOCK**	**$\overline{\text{CLOCK}}$**

Shield on housing; **U_P** = Power supply voltage
Sensor: the sense line is connected in the encoder with the corresponding power line
Vacant pins or wires must not be used!

HEIDENHAIN

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This Product Information document supersedes all previous editions, which thereby become invalid. The basis for ordering from HEIDENHAIN is always the Product Information document edition valid when the order is made.

Further information:

Comply with the requirements described in the following documents to ensure the correct operation:

- Operating Instructions ID 1244208-xx
- Installation Instructions ID 1244207-xx