



# HEIDENHAIN



Product Information

## **PWM 21 ATS Software**

# Adjusting and testing package

HEIDENHAIN offers an adjusting and testing package for the diagnosis and adjustment of HEIDENHAIN encoders with absolute and incremental interfaces. This package is made up of the following components:

- **PWM 21:** inspection device for connection to a PC over a USB interface
- **ATS:** adjusting and testing software with integrated local encoder database for automatic encoder identification

To ensure traceable, accurate, and proper operation of the inspection device, we recommend that you send in the PWM 21 to the HEIDENHAIN calibration service in Traunreut every two years.

## Inspection and testing devices from HEIDENHAIN

HEIDENHAIN encoders provide all of the information needed for commissioning, monitoring, and diagnostics. For the analysis of these encoders, HEIDENHAIN offers the appropriate PWM inspection devices and PWT testing units. The PWM inspection devices are universally deployable, feature low measuring tolerances, and can be calibrated. The testing devices, such as the PWT 101, provide fewer functions, have wider measuring tolerances, and cannot be calibrated.

## Available functions

The ATS software supports various functions that vary depending on the encoder and its interface. For example, with the EnDat interface, it is possible to display the position value, read online diagnostics, read or write parameters, shift datums, configure write-protection, and perform other inspection functions.

## Mounting wizard

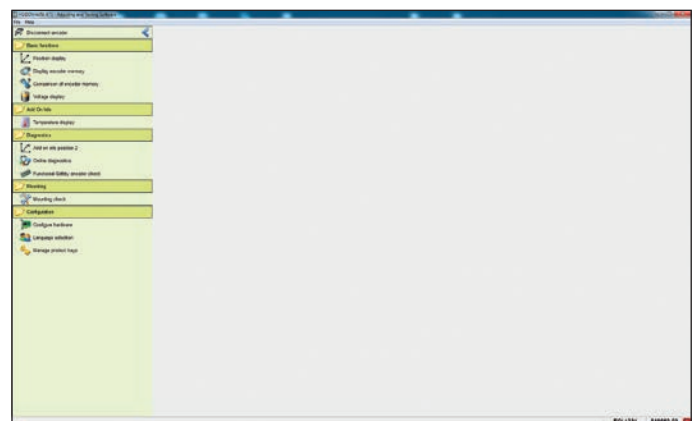
For the adjustment of HEIDENHAIN encoders that require a special mounting wizard (e.g., the LIP 2xx and ERO 2xxx), the PWM 21 is the recommended mounting tool. The PWT 101 testing device can be used for adjustment only to a limited extent.

## Important new functions of ATS software V3.4:

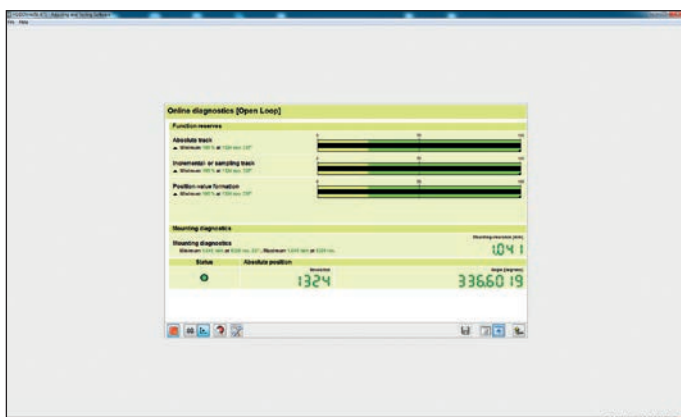
- *Measurement reports:* For the documentation of measurement results, measurement reports can now also be generated for encoders with incremental interfaces.
- *Online diagnostics:* Recording of the function reserves over the traverse path.
- *Display of incremental signals:* Persistence display of the circular representation (persistence mode) and adjustable trigger levels for the reference pulse
- *Inspection wizard for functional safety and mounting wizards:* These wizards have been adapted to the current device generations in terms of their functionality and display of results
- *Conversational languages:* German, English, French, Italian, Spanish, Korean, Chinese (simplified), Chinese (traditional)



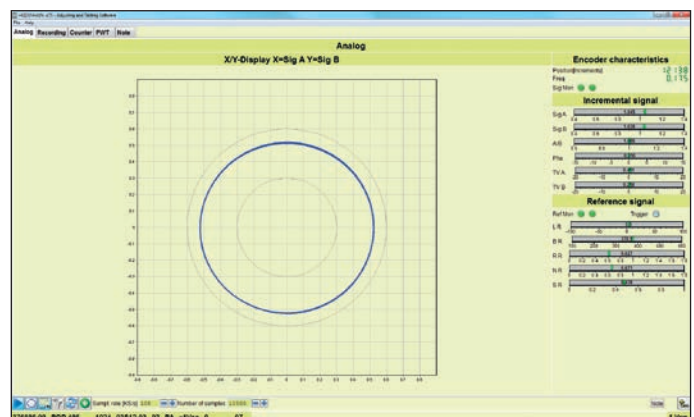
PWM 21



ATS Software



Online diagnostics



Lissajou display of sinusoidal incremental signals

# Range of functions

Range of functions of the PWM 21 and ATS software V3.4	EnDat	Fanuc	Mitsubishi	SSI	DRIVE-CLiQ	Yaskawa	Panasonic	1V <sub>PP</sub> <sup>2)</sup> 11 μApp <sup>2)</sup>	TTL	HTL <sup>3)</sup>
<b>Position display</b>										
Display of the absolute position	✓	✓	✓	✓	✓	✓	✓	-	-	-
Display of the incremental position (if available)	✓	✓	✓	✓	-	-	-	✓	✓	✓
Display and resetting of error messages	✓	✓	✓	✓	✓	✓	✓	-	-	-
Display and resetting of warnings	✓	✓	✓	✓	✓	✓	✓	-	-	-
Display of the transmission status	✓	✓	✓	⊃	✓	✓	✓	-	-	-
PWT display of incremental signals	-	-	-	-	-	-	-	✓	⊃	-
<b>Connection dialog; encoder connection via:</b>										
• Encoder ID number	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• Entry of interface and supply voltage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• HEIDENHAIN motor ID number	✓	-	-	-	-	-	-	✓	-	-
<b>Diagnostics</b>										
Display of online diagnostics	✓	✓	✓	-	✓	✓	✓	-	-	-
Display of online diagnostics in the control loop <sup>1)</sup>	✓	✓	✓	-	-	-	✓	-	-	-
Monitoring mode permitted with the PWM 21	✓	✓	✓	-	-	-	✓	✓	✓	-
Circular representation of the incremental signals (if available)	-	-	-	✓	-	-	-	✓	✓	-
Evaluation of the reference signal	-	-	-	-	-	-	-	✓	✓	✓
Incremental counters	-	-	-	-	-	-	-	✓	✓	✓
Display of supply voltage and supply current	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Homing/limit display	-	-	-	-	-	-	-	✓	✓	-
Signal recording	-	-	-	-	-	-	-	✓	-	-
<b>Mounting wizards/inspection wizards</b>										
For ECI 11xx/13xx/1xx, EQI 11xx/13xx, EBI 11xx/1xx For ERO 2xxx, ECA 4xxx For LIP 2xx, LIC 4xxx, LIC 2xxx Preparation for new encoder generations Inspection wizard for encoders with functional safety Assistant for tensioning the scale tape	✓ ✓ ✓ ✓	- ✓ - -	- ✓ - -	- - - -	✓ - - -	- - - -	- - - -	- ✓ - -	- - - -	- - - -
<b>Additional functions (if supported by the encoder)</b>										
Comparison of absolute position with incremental position	✓	-	-	✓	-	-	-	-	-	-
Datum shift ("electric zeroing"), including information display <sup>4)</sup>	✓	(✓)	(✓)	(✓)	(✓)	(✓)	(✓)	-	-	-
Display of additional data: Temperature	✓ <sup>5)</sup>	-	-	-	✓	-	-	-	-	-
Display of additional data: Position value 2	✓	-	-	-	✓	-	-	-	-	-
Display of additional data: Additional sensors	✓	-	-	-	-	-	-	-	-	-
Display of additional data: Limit position signals	✓	-	-	-	-	-	-	-	-	-
Display of additional data: Operating status error sources	✓	-	-	-	-	-	-	-	-	-
<b>Memory contents</b>										
Display of memory contents	✓	-	-	-	✓	-	-	-	-	-
Modification of memory contents	✓	-	-	-	-	-	-	-	-	-
Storing of memory assignments	✓	-	-	-	✓	-	-	-	-	-
Comparison of current memory contents with saved memory contents	✓	-	-	-	-	-	-	-	-	-
Backing up of the encoder memory	✓	✓	✓	-	✓	✓	✓	-	-	-

<sup>1)</sup> In feed-through mode; preferably in conjunction with a signal adapter (e.g., an SA 100 or SA 110)

<sup>2)</sup> 25 μApp/3 V<sub>PP</sub> for servicing purposes

<sup>3)</sup> Via signal adapter, for servicing purposes

<sup>4)</sup> License key is required and is available only for certain encoders (with the exception of EnDat)

<sup>5)</sup> Including conversion for PT 1000 sensors when EnDat memory parameters are appropriately set

(✓) See ATS software operating instructions

# PWM 21 inspection device

Inspection device	PWM 21
<b>Area of application</b>	<ul style="list-style-type: none"> <li>• Functional testing of absolute and incremental HEIDENHAIN encoders</li> <li>• Mounting wizard for ExI, LIP 200, LIC 4100, and others</li> </ul>
<b>Encoder input</b> only for HEIDENHAIN encoders	<ul style="list-style-type: none"> <li>• EnDat 2.1 or EnDat 2.2 (absolute value with or without incremental signals)</li> <li>• DRIVE-CLiQ</li> <li>• Fanuc Serial Interface</li> <li>• Mitsubishi high speed interface</li> <li>• Panasonic Serial Interface</li> <li>• Yaskawa Serial Interface</li> <li>• SSI</li> <li>• 1 V<sub>PP</sub> (3 V<sub>PP</sub> for servicing purposes only)</li> <li>• 1 V<sub>PP</sub> with Z1 track</li> <li>• 11 μA<sub>PP</sub> (25 μA<sub>PP</sub> for servicing purposes only)</li> <li>• TTL</li> <li>• HTL (via signal adapter, for servicing purposes only)</li> </ul>
<b>Encoder output</b>	Monitoring mode for certain interfaces (see <i>Range of functions &gt; Diagnostics</i> ); (an SA 100 or SA 110 signal adapter is required for galvanic isolation)
<b>Interface</b>	USB 2.0 (High Speed)
<b>Power supply</b>	AC 100 V to 240 V (±10%), 50 Hz to 60 Hz (±2 Hz) DC 2√ V (±2.4 V) Power consumption: approx. 20 W
<b>Operating temperature</b>	0 °C to 45 °C
<b>Protection class</b> EN 60529	IP20
<b>Dimensions</b>	258 mm × 154 mm × 55 mm

## Adjusting and testing software

Adjusting and testing software	ATS software V3.4
<b>System requirements and recommendations</b>	<ul style="list-style-type: none"> <li>• PC with dual-core processor &gt; 2 GHz</li> <li>• Main memory &gt; 2 GB</li> <li>• ≈ 500 MB of free memory space</li> <li>• Screen resolution ≥ 1024 x 768</li> <li>• Operating system: Windows 7, 8, 10 (32-bit or 64-bit)</li> </ul>
<b>Product key</b>	Management of product keys for optional functions
<b>Languages</b>	German, English, French, Italian, Spanish, Korean, Chinese (simplified), Chinese (traditional)

DRIVE-CLiQ is a registered trademark of Siemens AG

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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 correct operation of the PWM:

- Brochure *Interfaces of HEIDENHAIN Encoders*
- Brochure *Cables and Connectors*

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