AMO GmbH

STU-60

Diagnostic tool (Spindle Encoder)

Manual

March 2023

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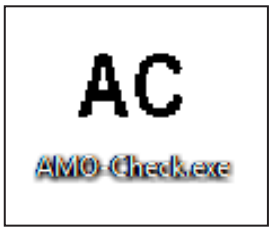
Spindle Encoder (WMK3010) Manual STU-60

NOTICE
For general information of the STU-60, download of AMO-Check Software, we are referring to the STU-60 Manual *(Doc.: 1277103)*

1. Start the AMO-Check software

Double-click to open the "AMO-Check" application:



The AMO-Check start window opens (top left the current revision level is shown). Minimum requirement to be able to use the spindle encoder with the AMO-Check is version 1.4.

2. Function "Diagnose"

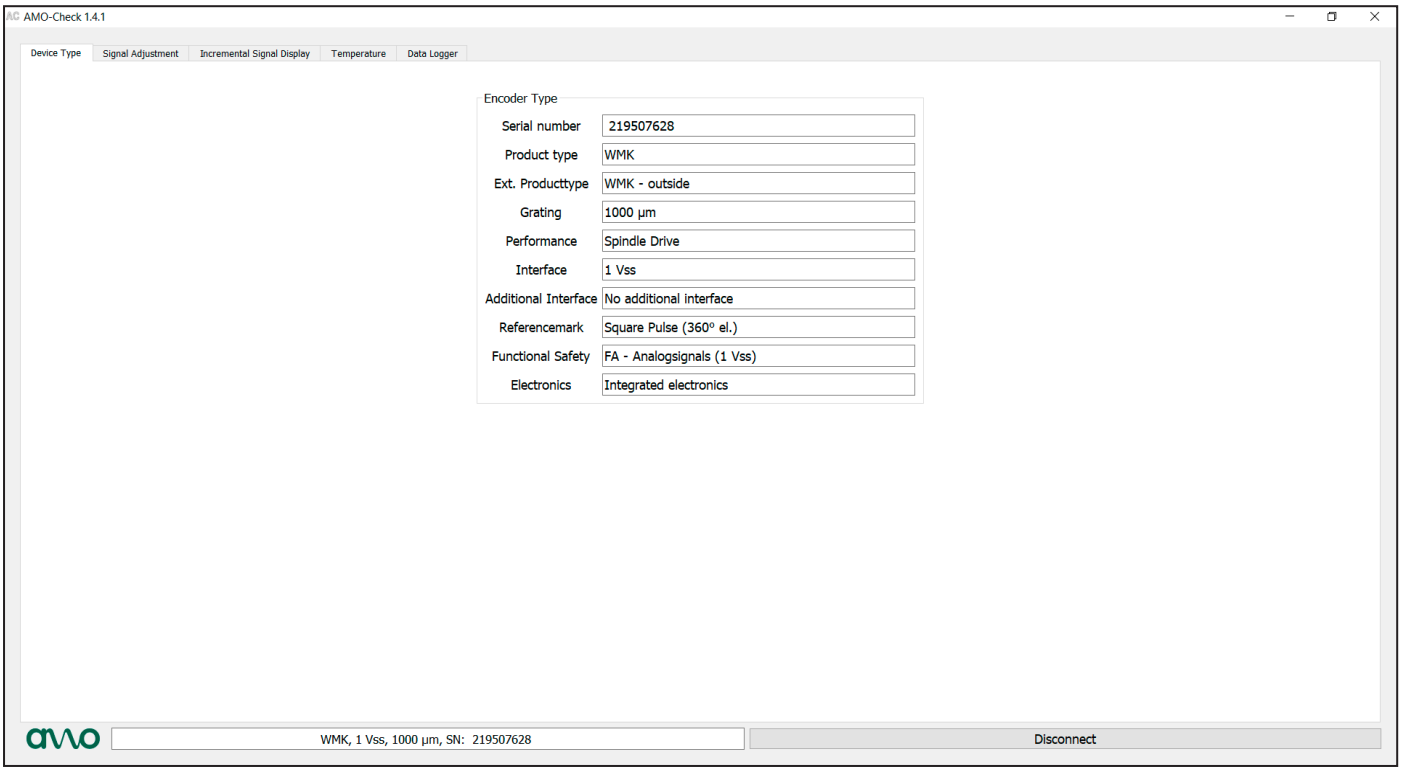
All important system information can be read out in the "Diagnose" window. Mounting conditions and the internal signals can be checked in real time.

NOTICE

Once the spindle encoder is connected with the STU-60, logging will be deactivated.

2.1 Device Type

All known encoder information are listed (type, serial number, interface, etc.).



2.2 Signal Adjustment

In this function, the signals read from the encoder are compared with the ideal values set by AMO. Thus, you can determine the optimal mounting and reposition the encoder if necessary.

Amplitude Sin/Cos

Here you can determine the deviation from ideal air gap.

„+“ Air gap too large (Encoder mounted too far away from the scale tape)

„-“ Air gap too small (Encoder mounted too close to the scale tape)

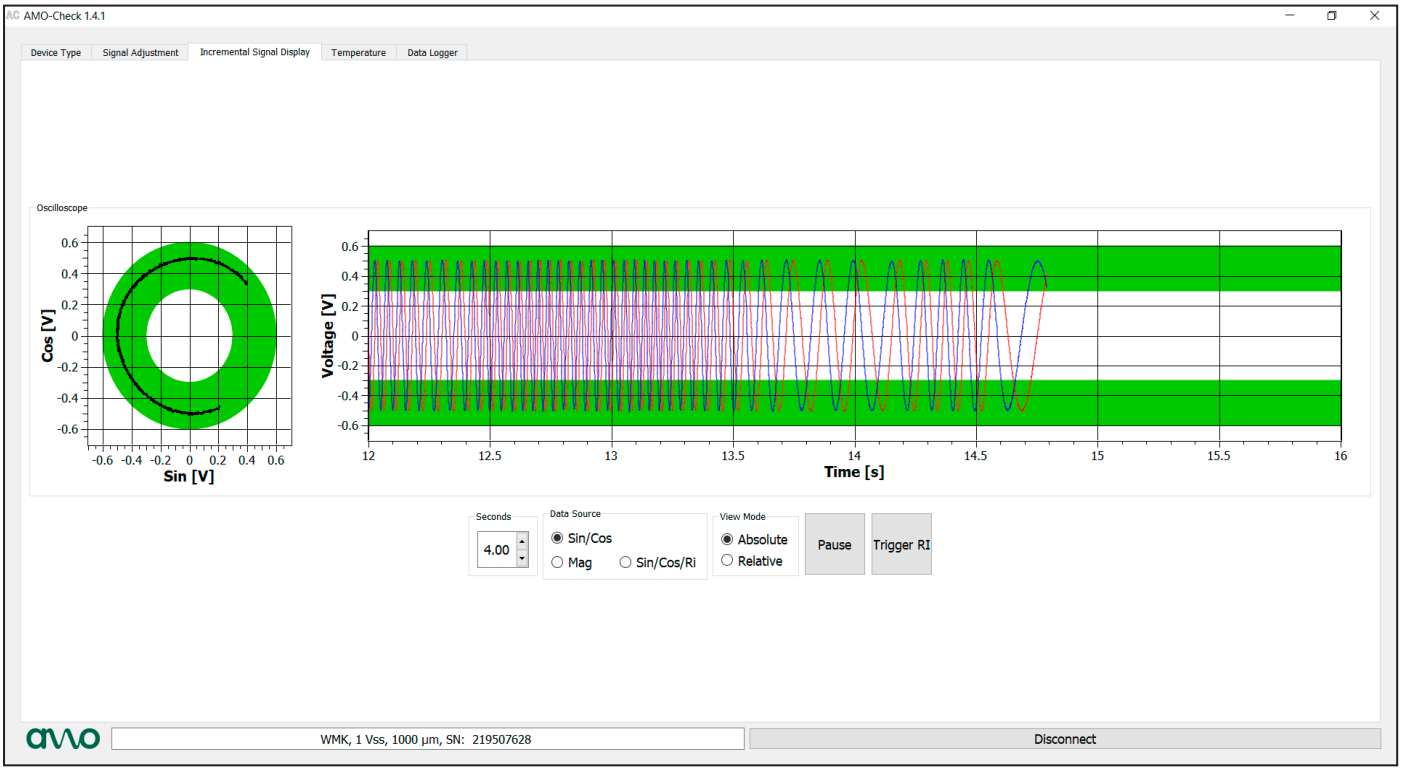
Phase Sin/Cos and Offset Sin/Cos

These measuring values should be always in the green range. Only in the case of a faulty amplitude, these values will show large deviation from the center point.

2.3 Incremental Signal Display

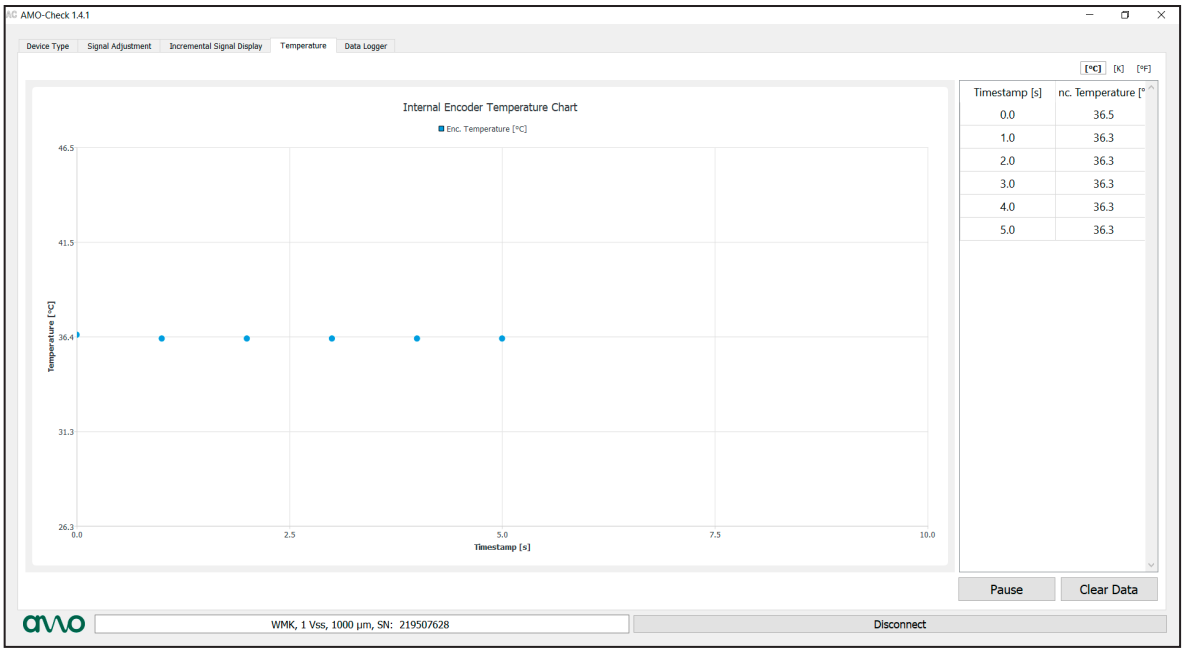
The input signals can be checked by using a virtual oscilloscope. The active compensation, which controls the signal amplitude, is already active here.

> The measured data shown here do not correspond to the output signals. This function uses internal analog signals, no matter whats the interface type of the encoder (for example TTL). Only the internal analog signals are displayed here.



2.4 Temperature

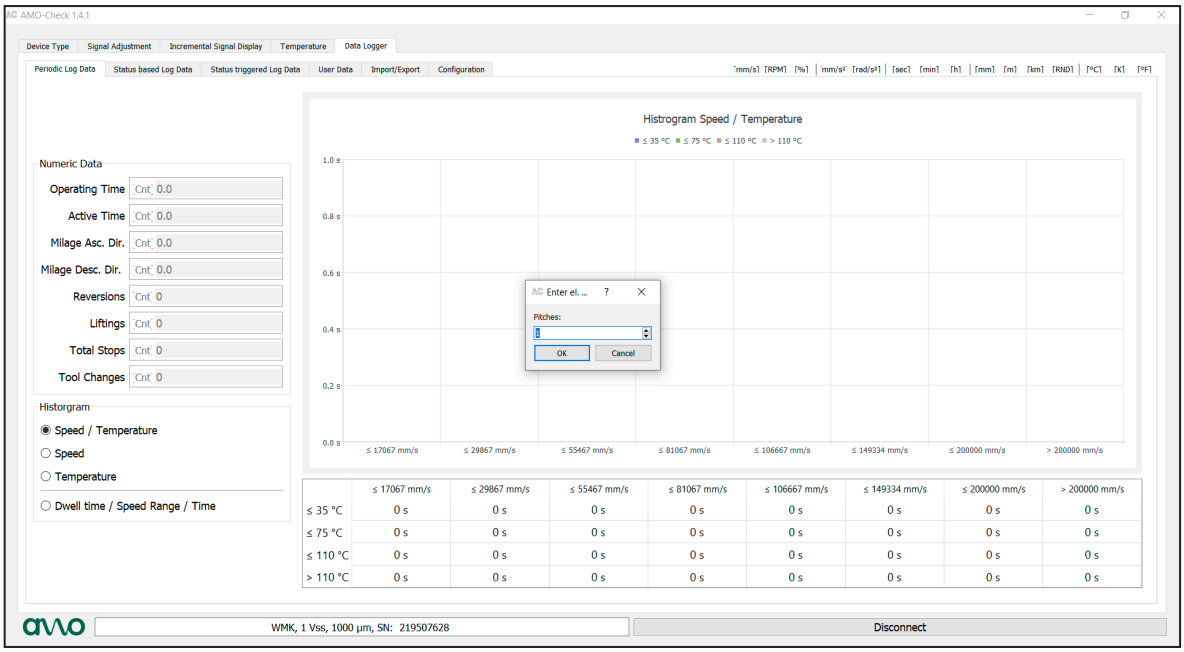
The temperature range in which the spindle encoder is operating for a certain period of time is recorded here.



3. Data Logger

3.1 Periodic Log Data

All operating states can be recorded and viewed here. The correct linecount (scope of the mechanics) must be specified, otherwise the histogram will show incorrect data.



Description of the terms „Numeric-Data“:

Operating Time:
Defines the total operating time of the device, i.e. the time in which the measuring device was operated with a valid supply voltage.

Active Time:
Defines the total time that the device was supplied and moving in one direction of measurement, either in positive or negative direction.

Milage Asc. Dir.:
Defines the milage of the switched-on measuring device in the measuring direction for increasing position values.

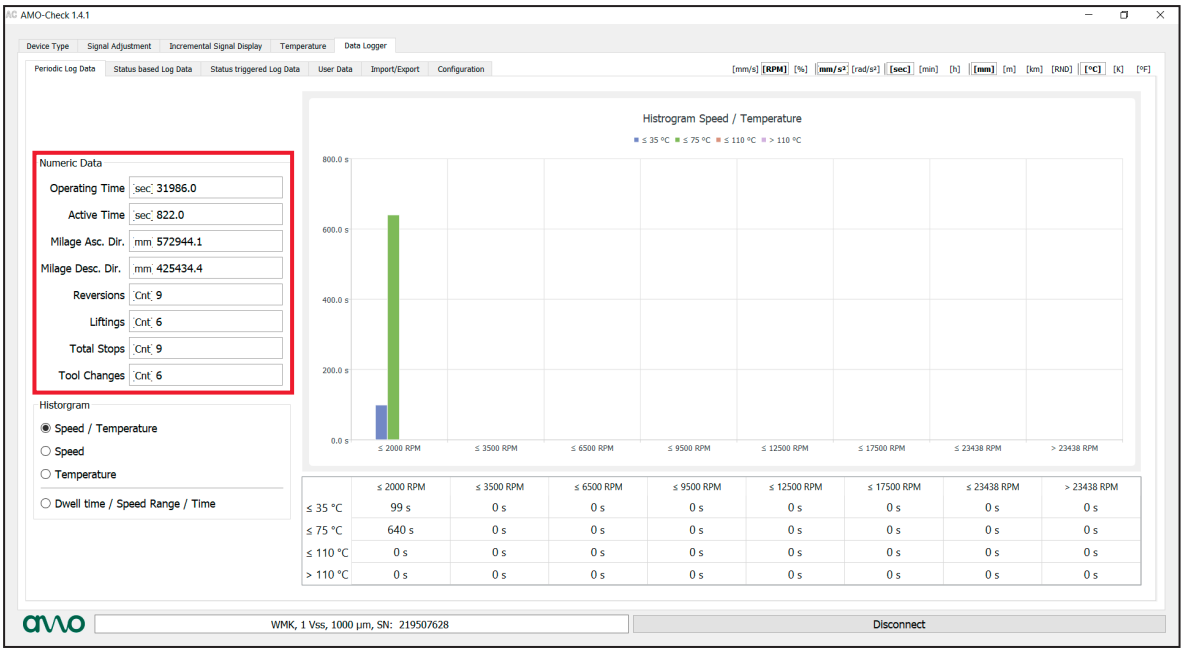
Milage Desc. Dir.:
Defines the milage of the switched-on measuring device in the measuring direction for falling position values.

Reversions:
Defines the number of reversals (reversals of direction) of the switched-on measuring device in the measuring direction. The reversal of direction is evaluated independently of the standstill of the device. The value is thus increased by one when the direction of movement changes.

Liftings:
Defines the number of strokes of the switched-on measuring device in the measuring direction. The value in liftings is increased by one if the direction of movement after a standstill is the same as the direction of movement before the standstill.

Total Stops:
Defines the number of stops of the encoder. A stop is a standstill of the measuring device over a definable time interval.

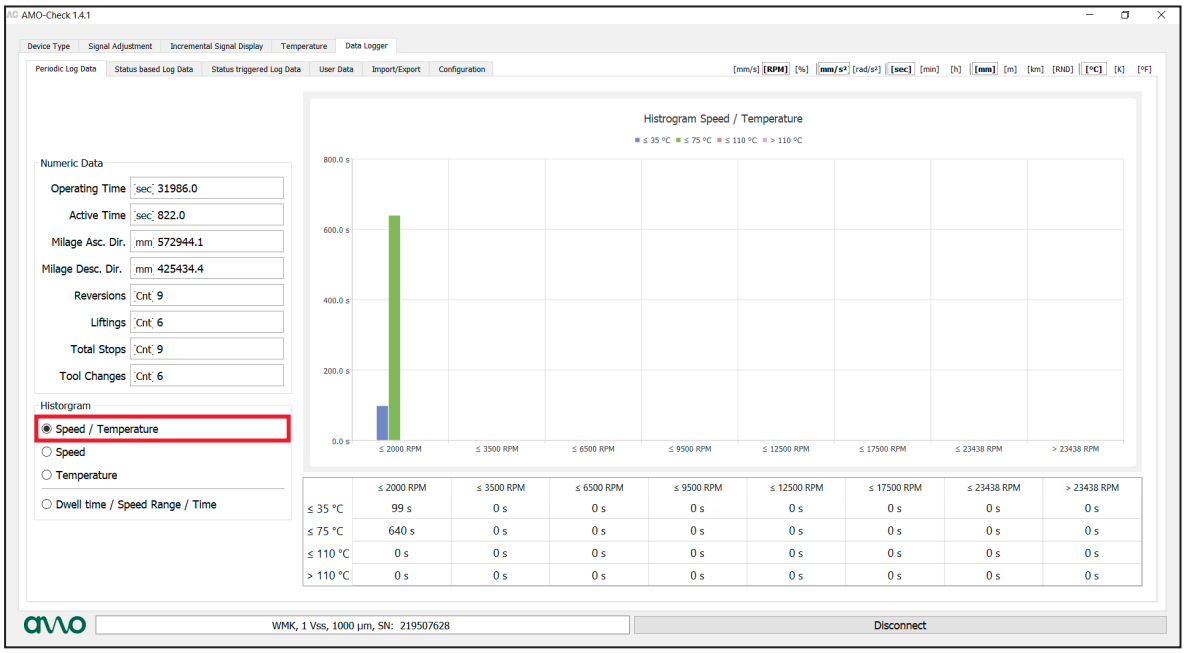
Tool Changes:
Defines the number of tool changes.



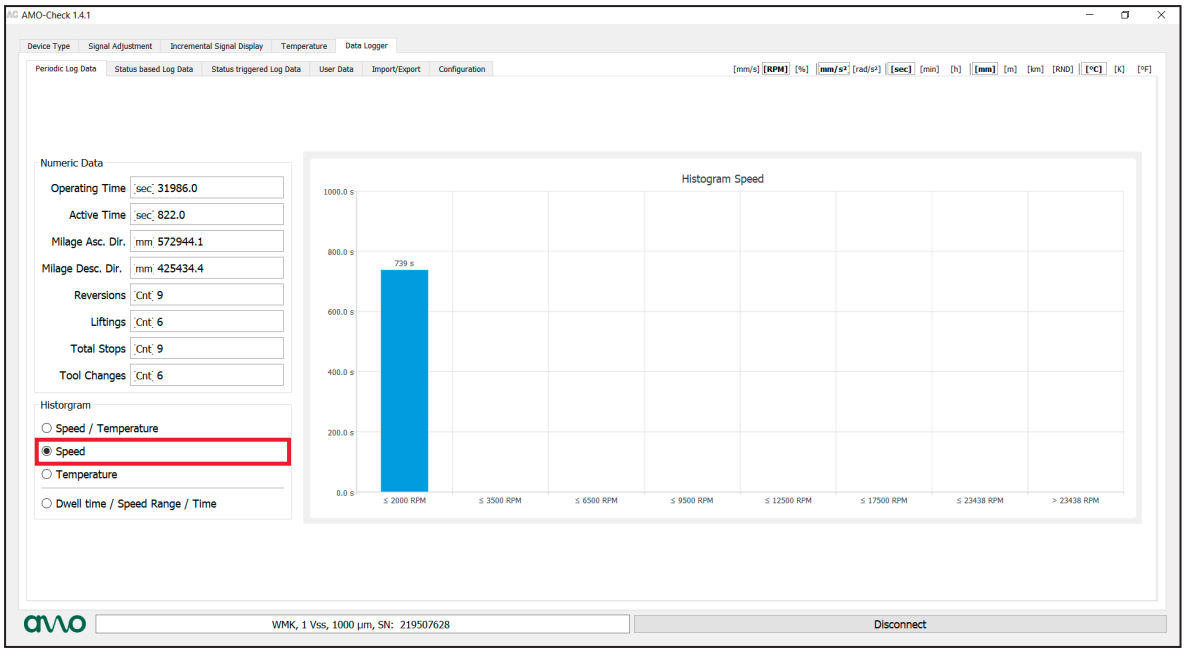
The operating states can be displayed separately in the histogram:

- Speed / Temperature
- Speed
- Temperature
- Dwell time / Speed range / time

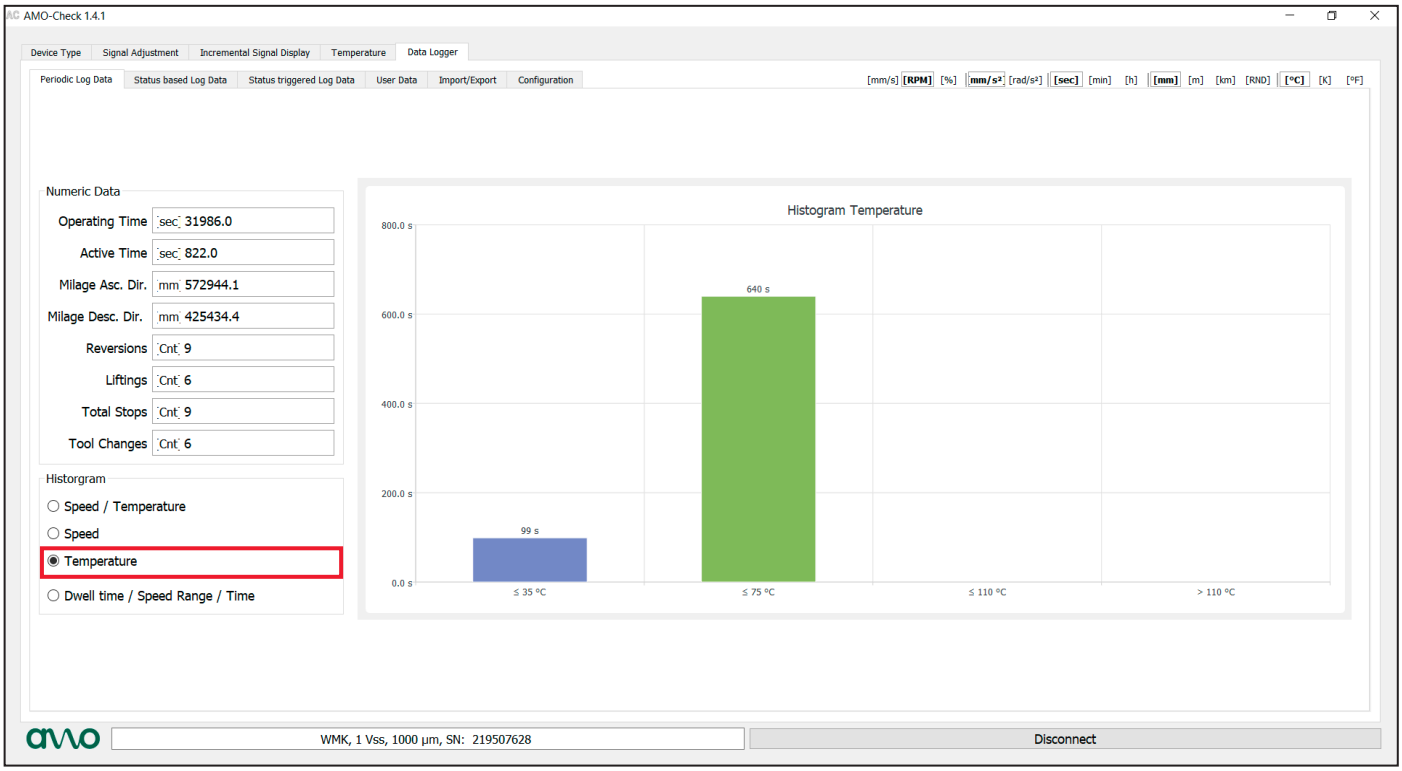
Speed / Temperature



Speed

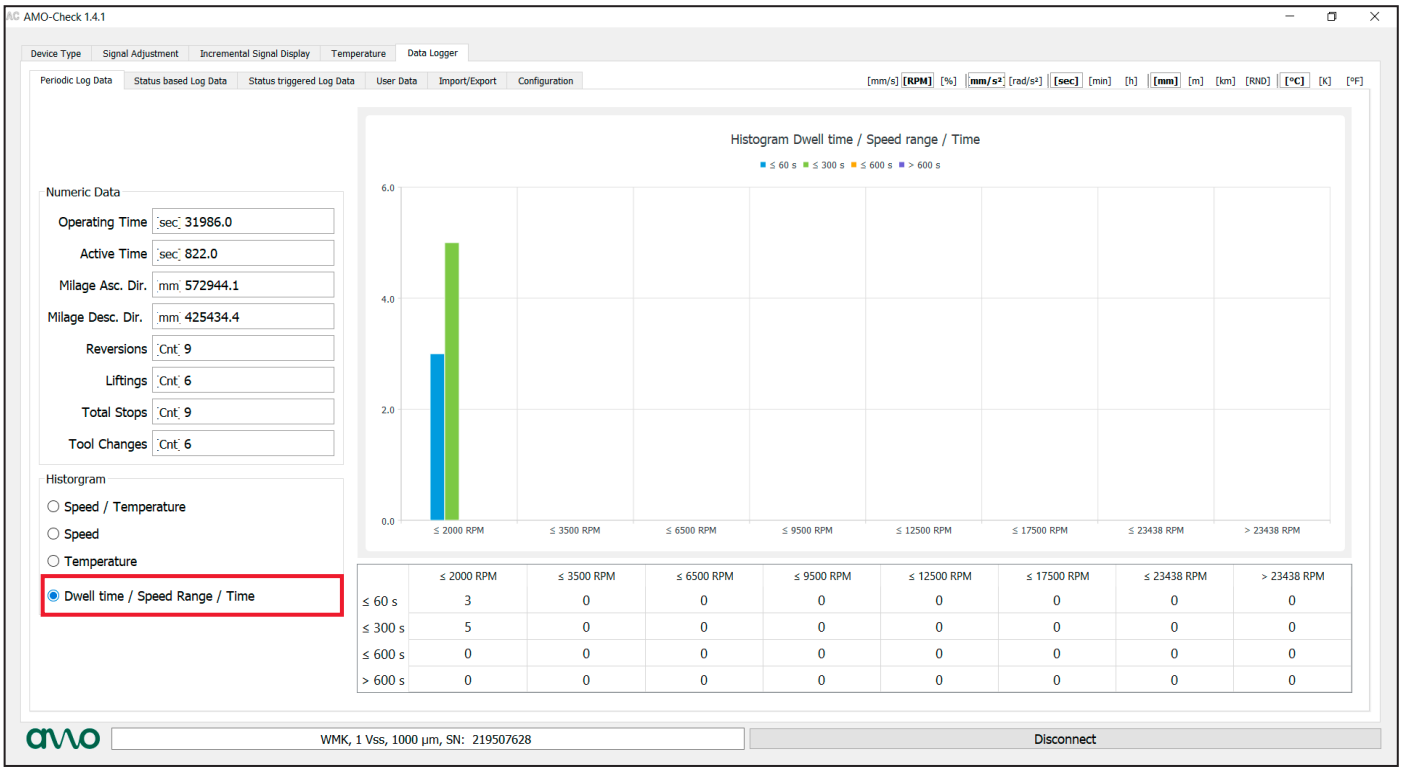


Temperature



Dwell time / Speed Range / Time

This function records how long the spindle encoder was operated in defined speed range.

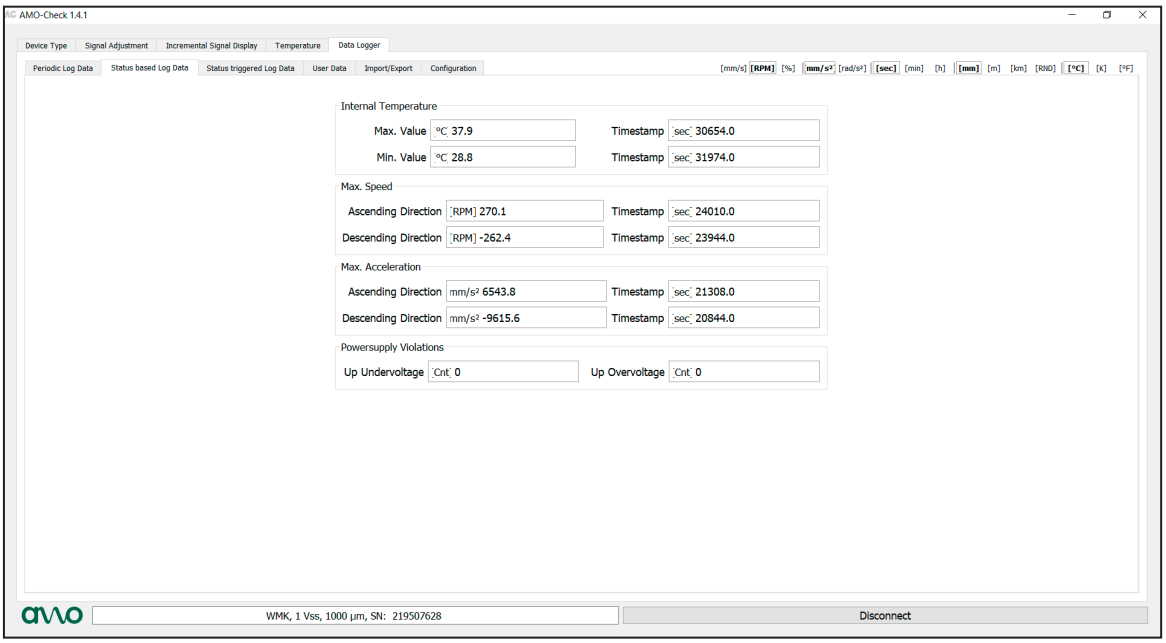


	≤ 2000 RPM	≤ 3500 RPM	≤ 6500 RPM	≤ 9500 RPM	≤ 12500 RPM	≤ 17500 RPM	≤ 23438 RPM	> 23438 RPM
≤ 60 s	3	0	0	0	0	0	0	0
≤ 300 s	5	0	0	0	0	0	0	0
≤ 600 s	0	0	0	0	0	0	0	0
> 600 s	0	0	0	0	0	0	0	0

3.2 Status based Log Data

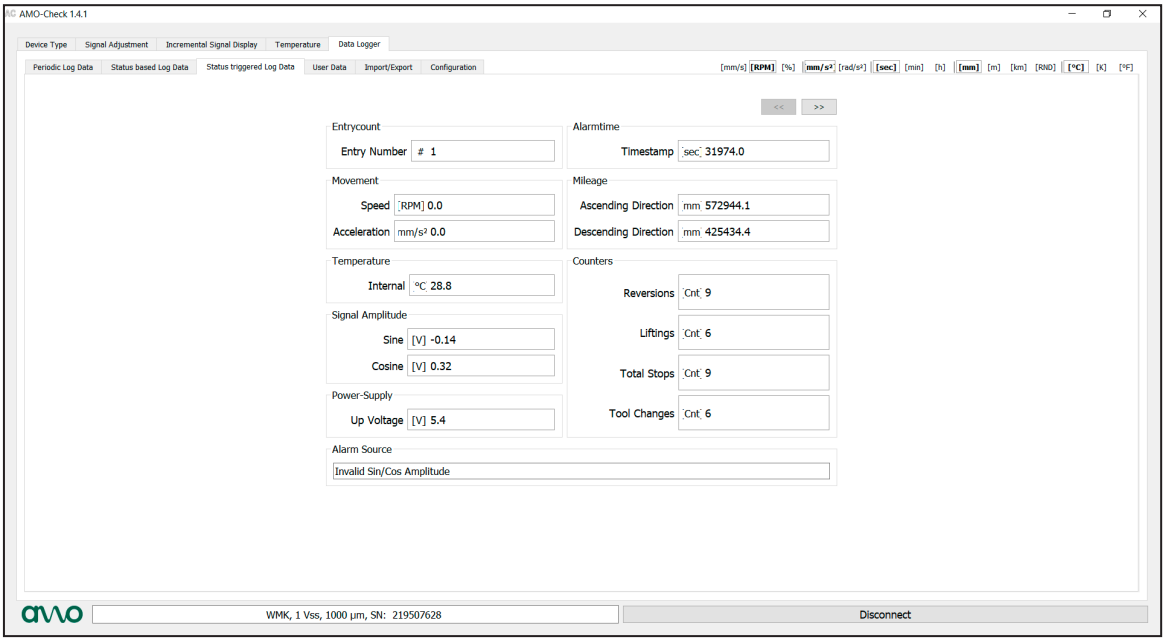
In this view, the recorded extreme values can be viewed with a time stamp.

- Min/Max Temperature
- Maximum speed in positive and negative directions
- Maximum acceleration in positive and negative directions
- Number of over- and undervoltage



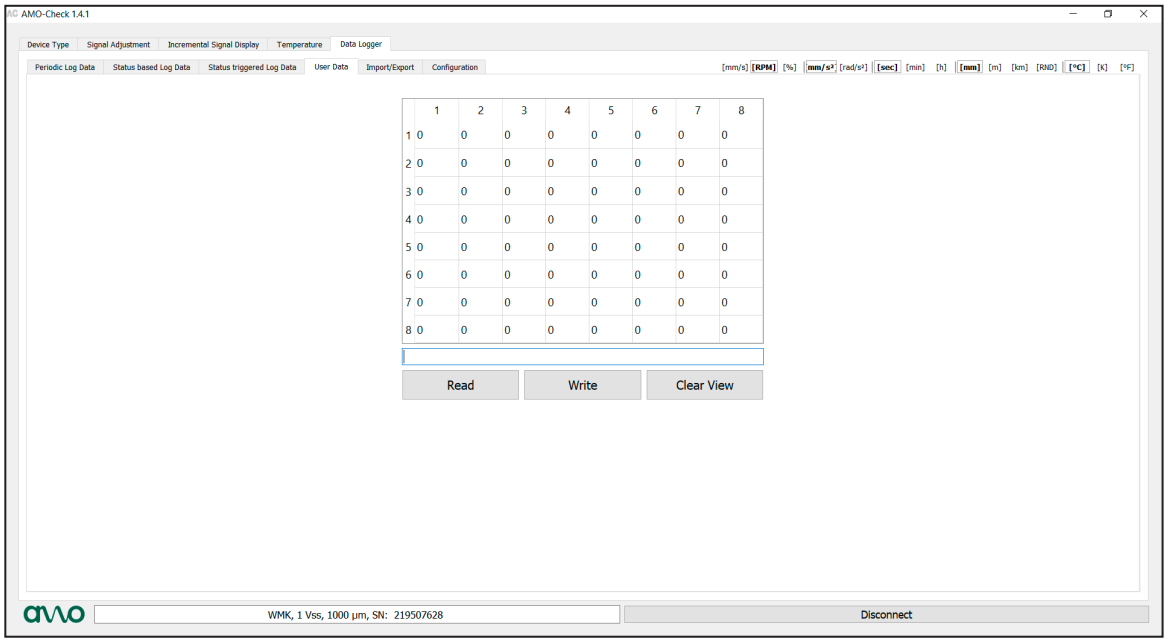
3.3 Status triggered Log Data

In this view, the recorded alarm-triggered data with time stamps sets can readout.



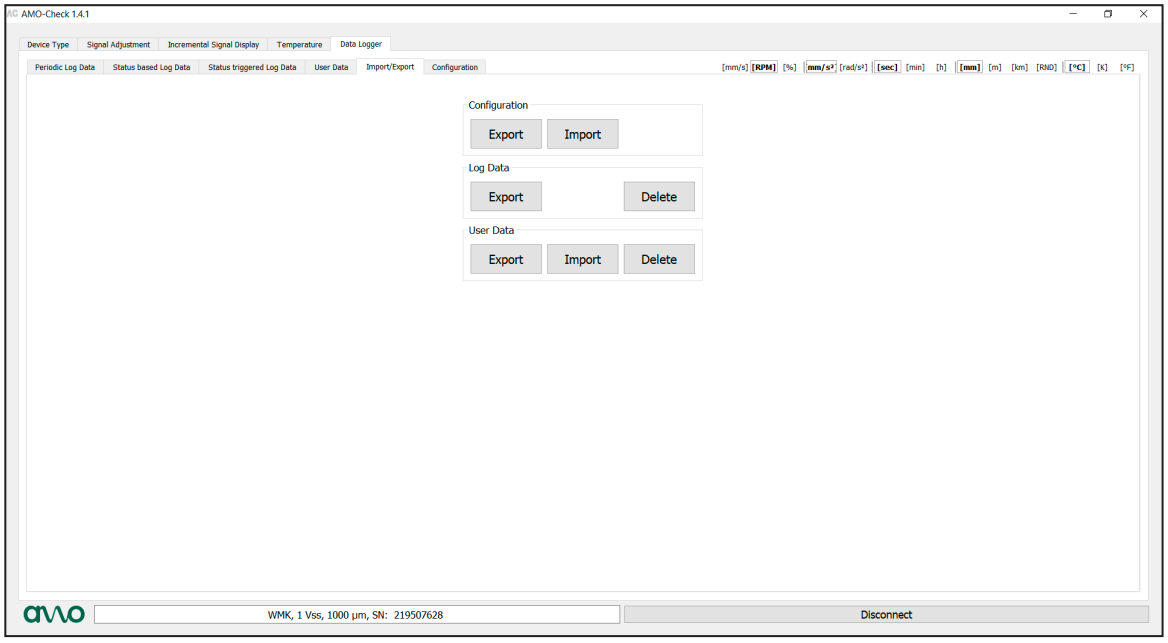
3.4 User Data

User-specific data/texts can be entered, which are converted to binary.



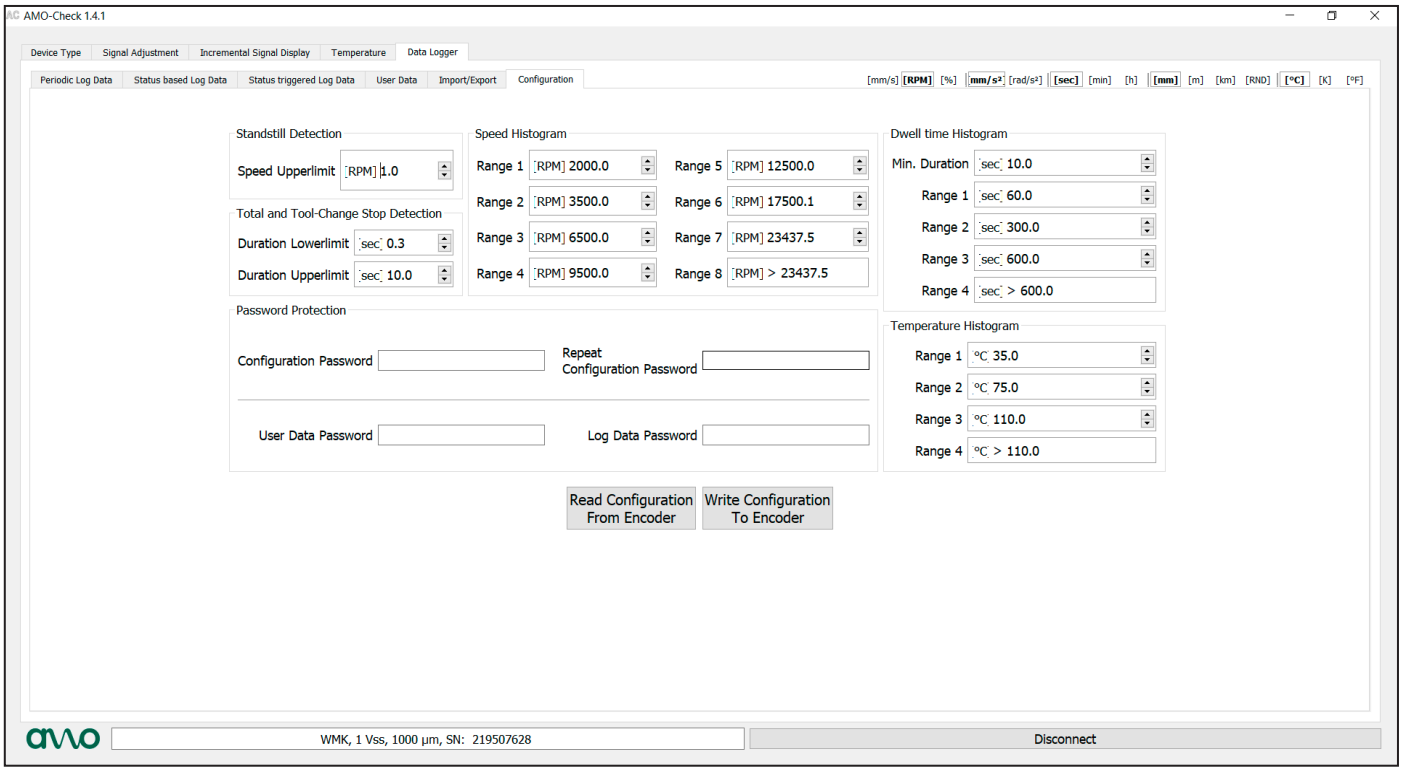
3.5 Import/Export

- Configuration: Can be exported and imported
- Log Data: Can be exported or deleted
- User Data: Can be exported, imported or deleted



3.6 Configuration

The desired limit ranges can be defined and saved with a password.



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