Data Logger

ADL 280 RFID

Original

Operating Manual

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1. Safety instructions

This operating manual describes how to put the Data Logger “ADL 280 RFID” into service and how to operate the appliance.
The appliance contains a lithium polymer rechargeable battery, for which reason it must not be exposed to temperatures exceeding 60°C or directly to fire.

CAUTION! Failure to observe safety instructions may lead to material damage or personal injury occurring.

1.1. Intended use

The Data Logger “ADL 280 RFID” is intended to be used for implementing a quasi-static force measurement process by means of force sensors equipped with an A.S.T. RFID transponder.
Any other use above and beyond this is deemed to be not for the intended purpose. The manufacturer accepts no liability for resulting damage due to improper use. All such risk is borne by the user alone.

1.2. Maintenance instructions

The appliance does not contain any parts requiring maintenance. The lithium polymer rechargeable battery used on the appliance is a durable wearing part designed to give long service. It may only be replaced by the manufacturer. The same applies to all other repairs which may only be carried out by the manufacturer.

2. Method of functioning

The Data Logger “ADL 280 RFID” is a reading device designed for use in conjunction with an A.S.T. RFID transponder. Power is supplied to the transponder by means of an alternating magnetic field with a frequency of 125 kHz. The transmission of commands to the transponder takes place via amplitude modulation of the alternating magnetic field, response being accomplished by load modulation. Each transponder possesses a unique 48-bit identity number. The following are also stored in the transponder: Name of the measuring point (11 characters), measurement parameters, nominal value and measurement unit of the force sensor.

After power has been supplied to the transponder, transmission takes place of all parameters along with the raw measurement value. From this information the Data Logger calculates the current measured value and stores the result in an EEPROM. A dataset comprises the following:

- Sequential number
- Name of measuring point
- Measured value (sign, numerical value and unit of measurement)
- Identification number of the transponder
- Date and time of the measurement

All recorded datasets can be displayed on the appliance but not manipulated (i.e. altered or deleted). Reading out of all datasets on a PC is possible via the USB connector in conjunction with the supplied software “xks280”. In addition, this software package facilitates deletion of the entire list on the appliance as well as the setting of dates and times

3. Specifications

3.1. Technical data

Number of measurements in memory storage	500
Clock rate deviation	< 1 minute/month
Reading range	up to 20 mm
Power supply	- integral lithium polymer rechargeable battery 3.7 V, 2Ah - USB connector
Battery life	- sufficient for 2,500 measurements
Max. current consumption	- at USB port 105 mA - on battery charger 500 mA
Max. charging time	- at USB port only partial charging within 6 hours - on battery charger 6 hours
Ambient conditions	-20° C to + 60° C

3.2. Dimensions/ connections

Housing material: Polyamide
Dimensions:

- Width: 115 mm
- Length: 206 mm (display 85 mm)
- Height: 85 mm

Connection: Micro USB 2.0 Type B (socket)

4. Operation oft the appliance ADL 280 RFID

4.1. Power supply

Power is supplied to the Data Logger by means of an integral rechargeable battery. If connected up to the USB port of a PC or a USB charger, power is supplied via the USB. This ensures immediate operating availability even if the battery is flat while also facilitating charging of the integral battery.
The charging level of the integral battery can be gauged via the symbol appearing on the bottom left-hand side of the display. As soon as the battery is almost flat, an alert message will be displayed.

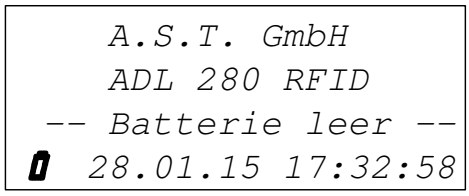


Figure 1 – Alert message on start screen indicating that the battery is flat

Any further discharging of the battery will result in the appliance automatically switching itself off although the integral clock will continue to function for the time being.

4.2. Operating controls

Three pushbutton controls are provided for operating the Data Logger along with a display and an audible signal tone.

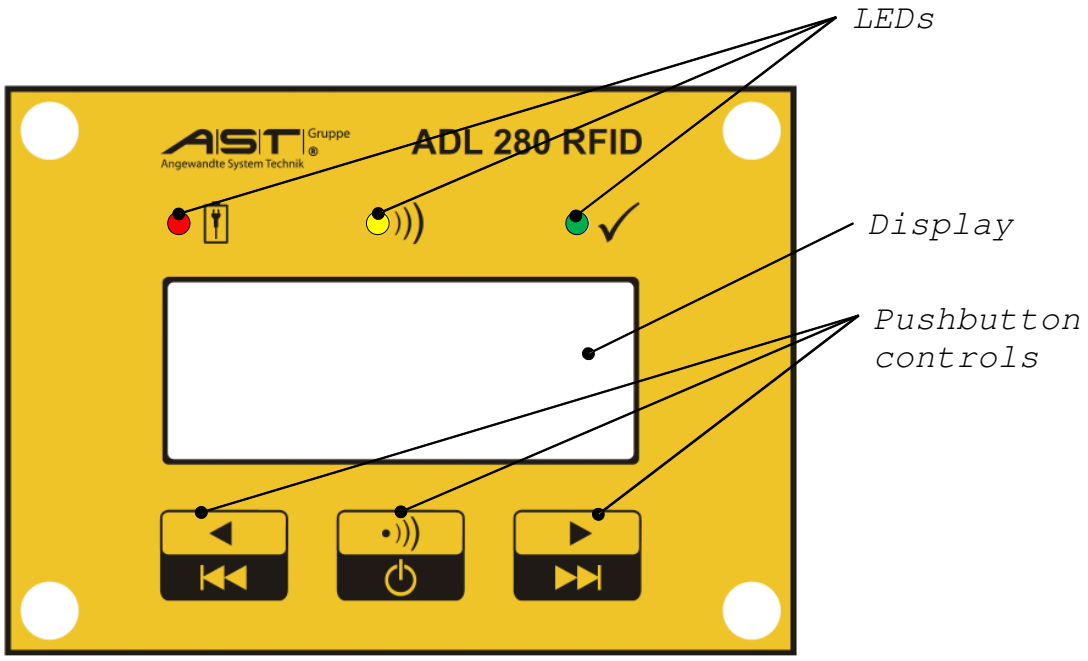
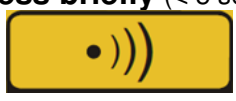


Figure 2: Operating controls and display functions on the Data Logger

The pushbutton controls trigger the following functions:

Pushbutton	Action	Function
	**Press briefly** (< 5 sec.) 	**Previous dataset**
	Press and hold (> 5 sec.) 	**First dataset** (beginning of list)
	**Press briefly** (< 5 sec.) 	• **Switches on** the appliance • **Performs measurement** (pressing a second time)
	Press and hold (> 5 sec.) 	**Switches off** the appliance
	**Press briefly** (< 5 sec.) 	**Next dataset**
	Press and hold (> 5 sec.) 	**Last dataset** (end of list)

These various statuses are signalled by the LEDs as follows:

LED	Meaning
	Integral battery being charged
	Magnetic field switched on
	Measurement successful (simultaneously a brief audible signal tone will sound)

After the Data Logger has been switched on, the following messages will appear in the display:

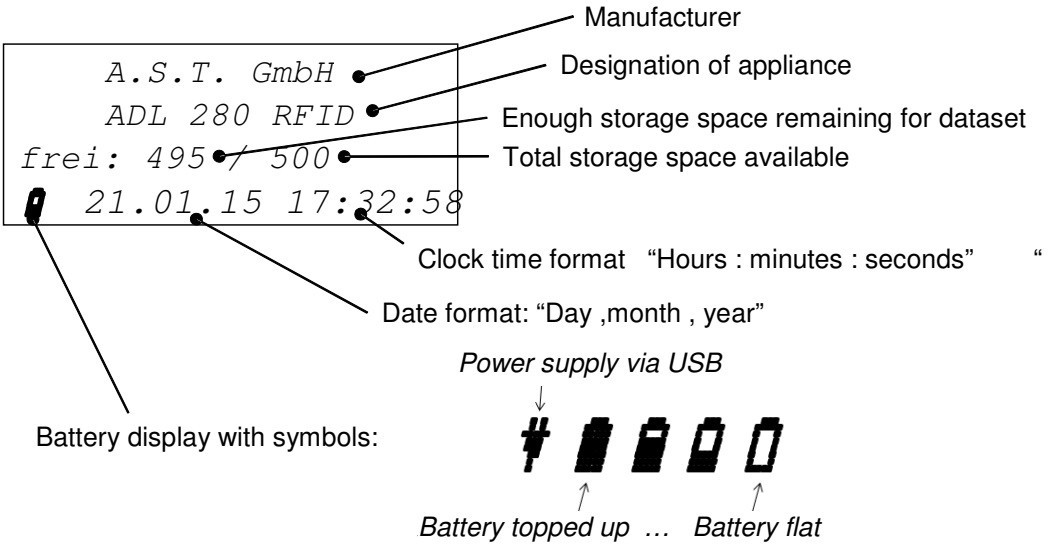


Figure 3: Display after appliance has been switched on

If measurement has proved successful, the display will contain the following information:

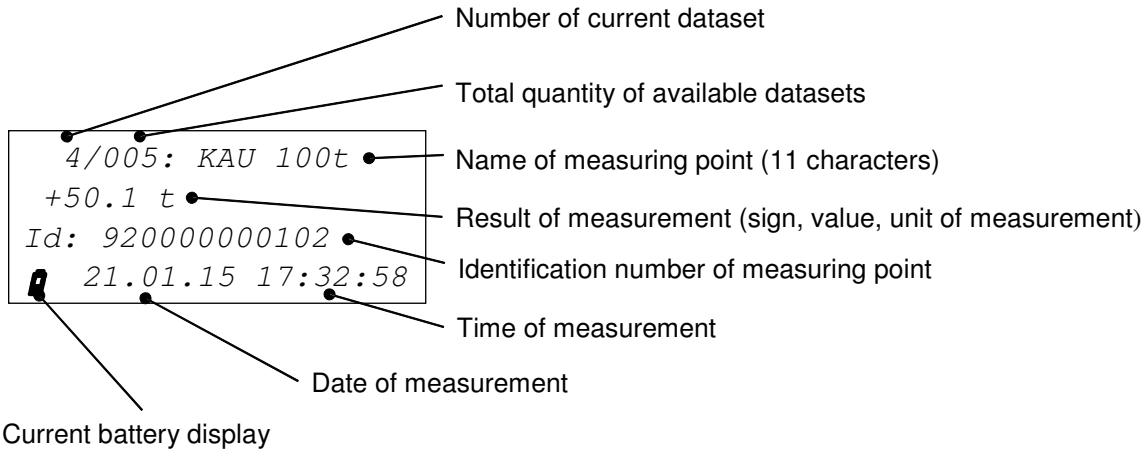


Figure 4: Anzeige eines Messdatensatzes

4.3. Implementation of measurement procedure

Pressing the  button briefly will switch on the Data Logger. Pressing the same button a second time will switch on the magnetic field for 10 seconds. Within this period the Data Logger must be held against the transponder. A successful measurement is indicated by the green LED and a short audible signal tone. In addition, the appliance will switch over to display the measured value. In the event of no measurement proving successful within the 10 second period, the start screen will be displayed and the magnetic field will be switched off. A new measurement is possible by briefly pressing the  button once more.

4.4. Display of measurement results

Following successful measurement, the appliance will automatically switch over to the displayed list of the measurement results. Manual changeover to this display is possible following switch-on by briefly pressing or holding the  or  buttons. (Figure 2) The display will then reveal a single measurement result (Figure 4).

4.5. Switching off the appliance

The appliance is switched off by pressing and holding down the  key for longer than 5 seconds or automatically after approximately 2 minutes inactivity.

5. Operation of software „xks280“

5.1. Installation of software „xks280“

The software package “**xks280”** calls for Microsoft “NET Framework 4” (Client Profile). If this is available on the PC, **the software can be run directly**. For German-user menu texts, a German-language Windows version must be available in addition to the file “xks280.resources.dll” in the subdirectory “DE”. If these facilities are not available, all menus will appear in English by default.

If the “NET Framework” is not installed on the PC, use can be made of the “**Setup_xks280.msi”** installer included in the scope of delivery. As a first step this will initiate installation of the Framework, the actual program installation then taking place in a second run as follows:

- Copying of the software into a user-defined subdirectory.
- Creation of a link on the desktop.
- Entry in “Start“ -> all programs” -> “AST ”

For complete removal of the installed software, the installer needs to be run again.

5.2. Reading out data from Data Logger „ADL 280 RFID“

Data from the Data Logger can be transferred to a PC by performing the following steps:

1. Starting up of software package “xks280“.

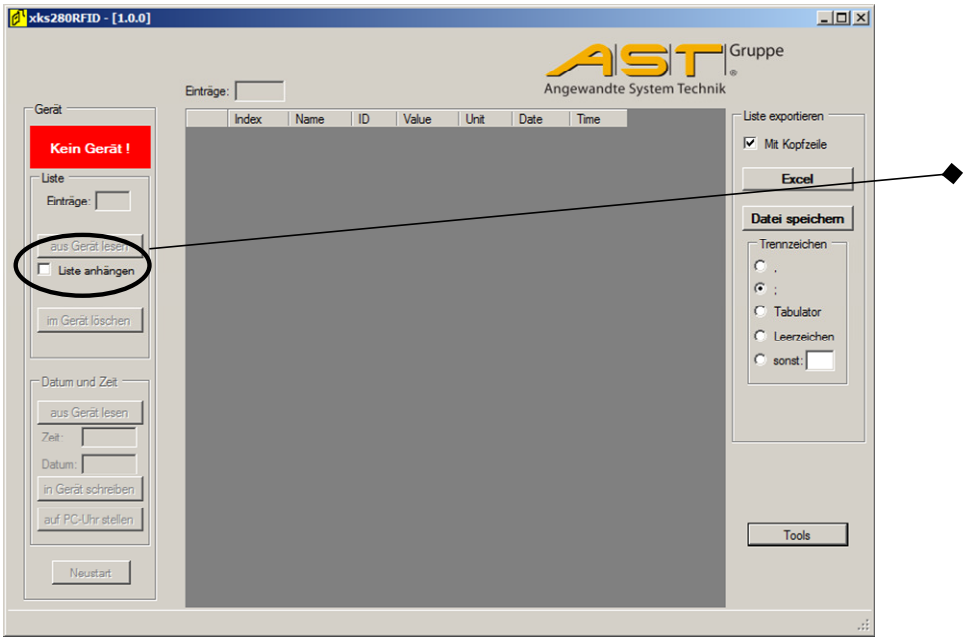


Figure 5: Software "xks280": Continuation of an existing list

2. Connection of the Data Logger "ADL 280 RFID" to a USB port on the PC. Data readout takes place automatically.

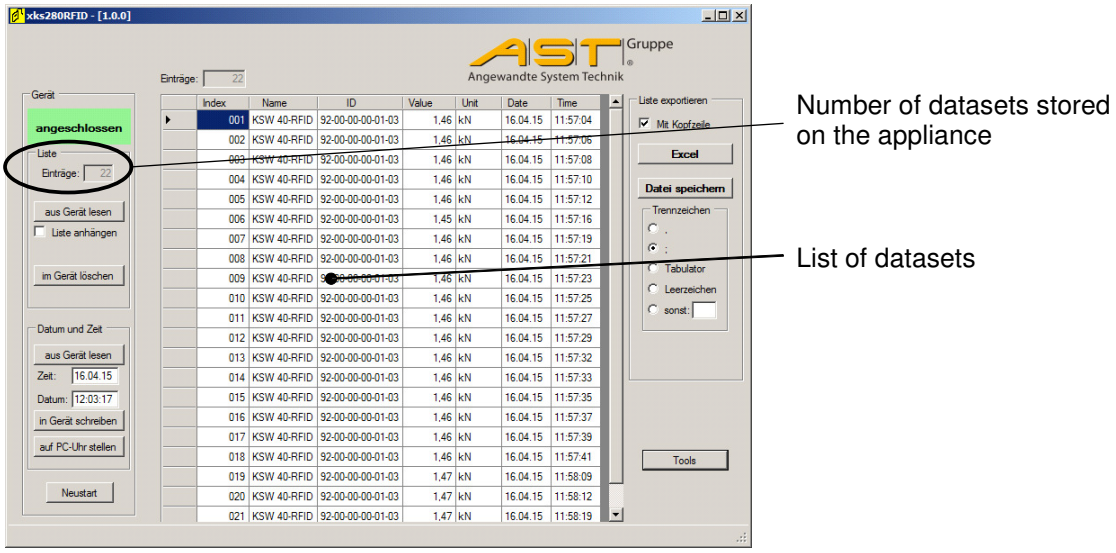


Figure 6: Software "xks280": Display of list showing all datasets

The internal list can be sorted according to the content of the column by clicking onto the column header. The columns are modifiable according to their order by clicking onto them with the mouse and dragging them as required.

3. Saving the data:

   a. Export to "Excel". Save in "Excel" program
   b. as "comma-separated values (CSV)" file:

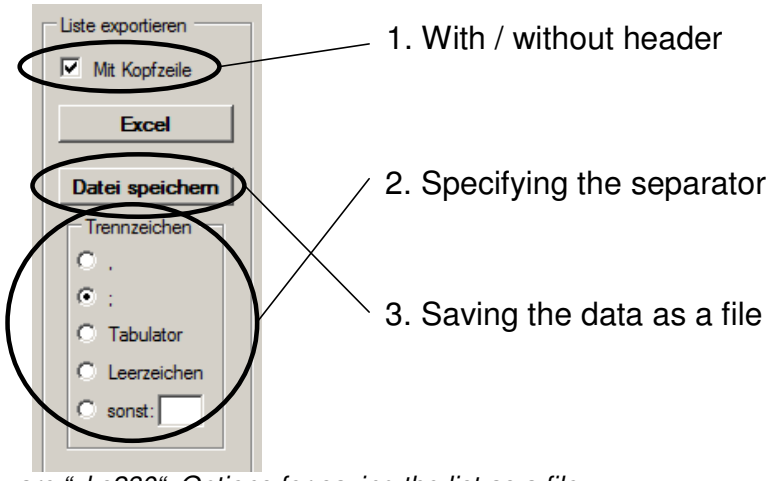


Figure 7: Software "xks280": Options for saving the list as a file

A dialog box appears, in which the drive, path and file name can be defined. The preset default is a file name in the format
"Report_Date(year)(month)(day)_Time(hour)(minute)(second).csv"

Afterwards the list of datasets can be completely emptied from the Data Logger ADL 280 RFID by actuating the command button "Delete from appliance".

CAUTION! The data should first be saved before pressing the command button "**Delete from appliance**". Data deleted from the ADL 280 RFID are irretrievably lost!

5.3. Configuration of appliance

The appliance is configured by performing the following steps:

1. Starting up of software "xks280".
2. Connection of Data Logger "ADL 280 RFID" up to USB port of PC.
3. Setting of date and time:

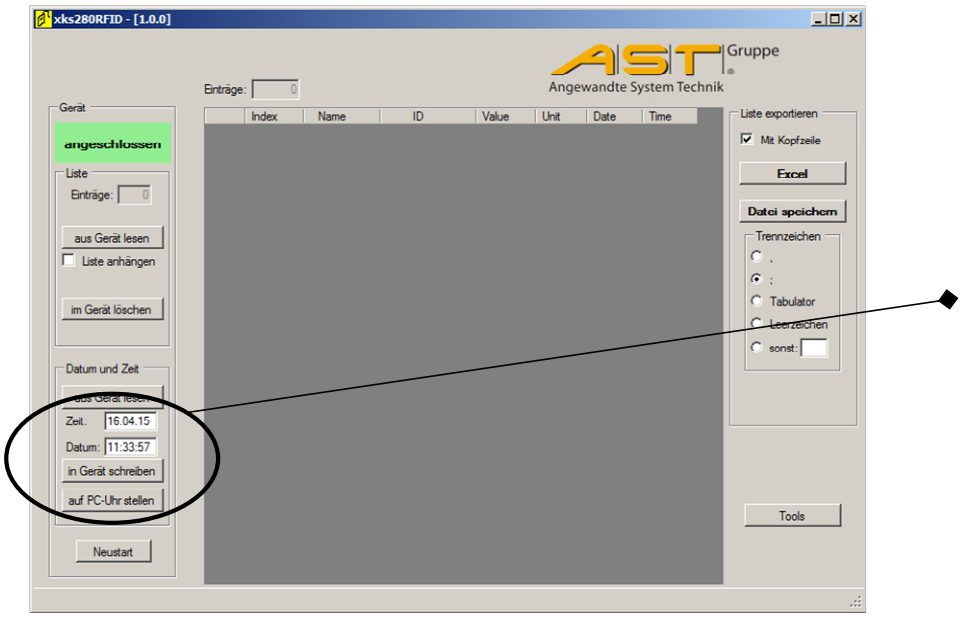


Figure 8: Software "xks280": Setting the clock on the Data Logger

a. automatically by activating the command “Set clock on PC” or
b. by performing manual entry of the date and time and activating the command “Write data in device”.

Note: After the date and time has been successfully altered on the appliance, a corresponding message will appear briefly within the status bar of the program window..

4. Switchover to “Tools” window“.

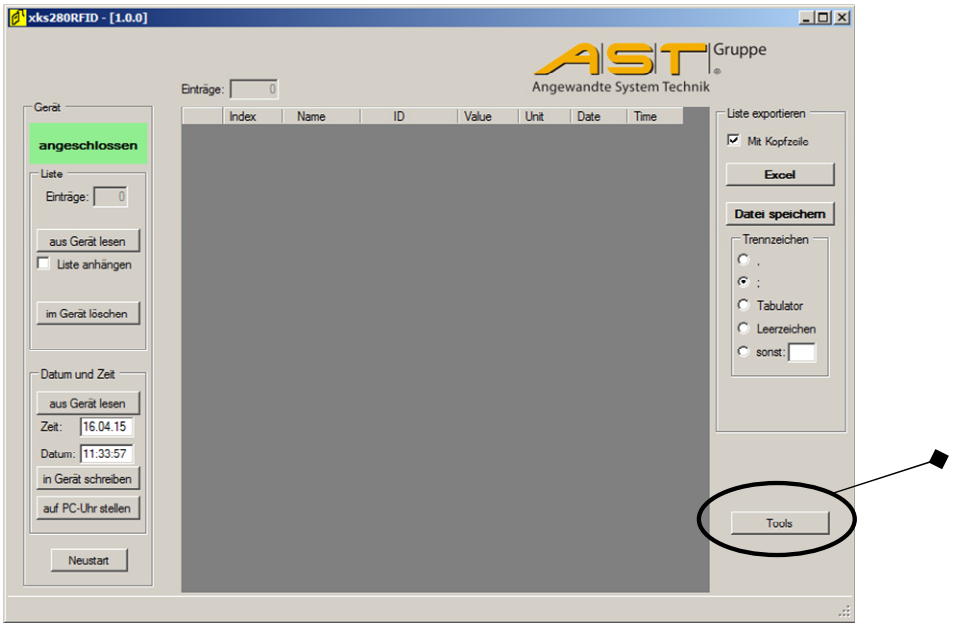


Figure 9: Software “xks280“: Calling up the tools

5. Selection of language on the Data Logger:

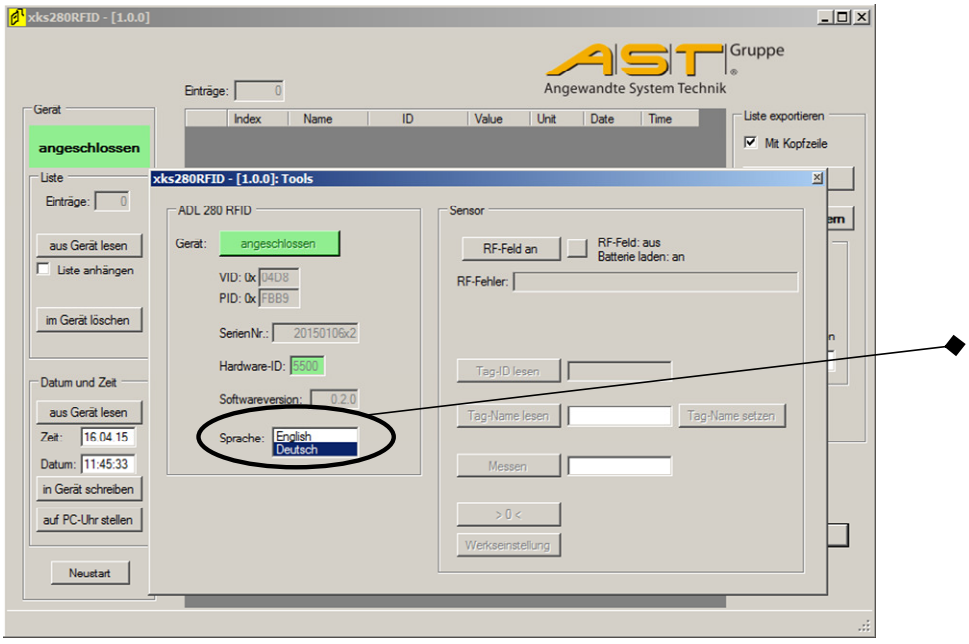


Figure 10: Software “xks280“: Selection of language for Data Logger

5.4. Additional functions of Data Logger

The following are additional functions of the Data Logger provided by the software:

- Restarting of appliance (refer to Figure 8) on bottom right-hand side of the displayed image.
- Display of the following in the “Tools” window (refer to Figure 9):
  - USB vendor ID
  - USB product ID
  - Serial number Serien-Nummer
  - A.S.T.-internal hardware ID
  - Version of firmware
  - Menu language of Data Logger

5.5. Functions of transponder

By means of the software with the Data Logger connected up to the PC, use can be also be made of functions on the A.S.T. RFID transponders. Applicable preconditions for this are as follows:

- The Data Logger must be connected up to the PC.
- The transponder must be located within the reading range of the Data Logger.
- The field on the Data Logger must be switched on (“RF Field” button).

Due to limited power consumption at the USB port, charging of the integral battery is interrupted whenever the magnetic field is switched on.

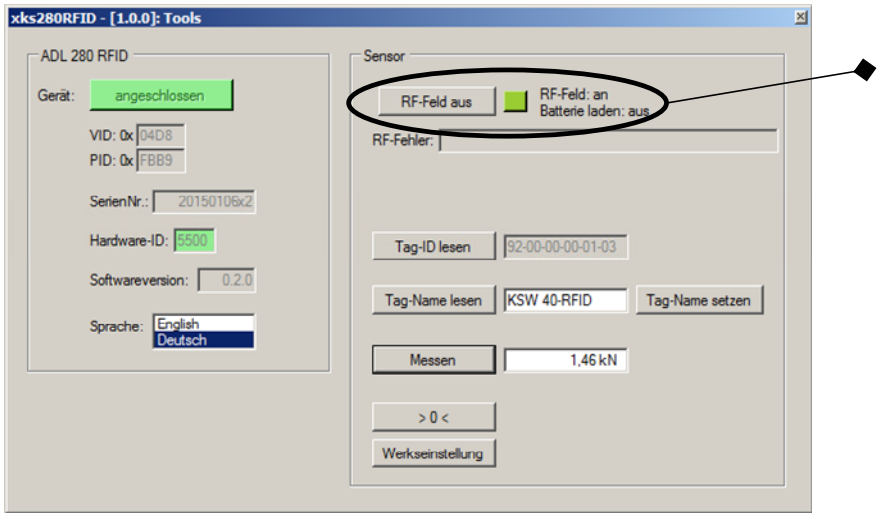


Figure 11: Software “xks280“ Tools:

The following functions will then be available via the various pushbutton controls:

- Reading of transponder ID (tag ID).
- Reading and writing of measuring-point name (max. 11 characters).
- Performance of a measurement which is not saved as a dataset on the Data Logger.
- Setting of zero value to the current measured value.
- Restoring of factory settings on transponder.
-

A brief message will appear within the status bar of the program window denoting the success of the last two functions.

Note: Zeroing is possible up to a maximum of 20% of the final value by actuating the **> 0 <** pushbutton control.

6. Troubleshooting assistance

This section deals with possible causes of problems and provides information on suggested corrective measures:

Phenomenon	Cause	Remedy
Appliance cannot be switched on	Battery flat	Connect up to a USB port/battery charger. This will ensure instant power supply while also charging the integral battery.
Sensor not detected or cannot be readout	Shielding of magnetic field	Remove metallic objects away from the magnetic field.
	Interference affecting magnetic field	Eliminate source of interference (e.g. additional RFID reader) or move away from surrounding area.
	Insufficient magnetic coupling	Vary the distance between the sensor and Data Logger or alter the position of the Data Logger.
Appliance not detected by the software	Contact problems	Check all connectors of USB cable for correct fit. If necessary disconnect and afterwards reconnect the cable.
	Problems with the USB port	Disconnect and afterwards reconnect the cable.
		Use a different USB on the PC.
“Microsoft Excel” fails to start up	Excel not installed	Install “Microsoft Excel” or “Office” package.