



## **Analog/ Digital Datalogger T-Logg 120**

### **Data Logger for Standard Signals**

T-Logg 120 K and T-Logg 120 W

As of version 1.0

## **User Manual**

December, 2010



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## 1 General

The logger T-Logg 120 ... is designed as a cost-efficient solution for monitoring standard signals. It enables an individual programming of the recording time. The last 16,000 measuring values can be stored in the memory. In addition, the LCD-display indicates both the temperature measured at the moment and the operating status of the logger.

## 2 Required Accessory

The USB interface of your PC is used to program, start and read out the T-Logg.

For this following accessory is required:

- Interface converter **USB 100** or **USB 100 SL** for direct connection to the USB port of the PC, cable length approx. 1m.
- **MINISOFT** software (version 7.18 or later / free of charge) to start the logger and read out the logger data.  
*Notice: It's also possible to use the T-Logg with the comprehensive software **GSOFT 40K** (version 7.18 or later).*

## 3 Safety Instructions

This device has been designed and tested in accordance with the safety regulations for electronic devices. However, its trouble-free operation and reliability cannot be guaranteed unless the standard safety measures and special safety advises given in this manual will be adhered to when using the device.

1. Trouble-free operation and reliability of the device can only be guaranteed if the device is not subjected to any other climatic conditions than those stated under 'Specification'  
**To protect the battery the max. permissible storage and transport temperature of the device is +85°C.**

2. General instructions and safety regulations for electric, light and heavy current plants, including domestic safety regulations (e.g. VDE), have to be observed.

3. If device is to be connected to other devices (e.g. via PC) the circuitry has to be designed most carefully. Internal connection in third party devices (e.g. connection GND and earth) may result in not-permissible voltages impairing or destroying the device or another device connected.

4. If there is a risk whatsoever involved in running it, the device has to be switched off immediately and to be marked accordingly to avoid re-starting.

Operator safety may be a risk if:

- there is visible damage to the device.
- the device is not working as specified.
- the device has been stored under unsuitable conditions for a longer time.

In case of doubt, please return device to manufacturer for repair or maintenance.

### 5. Warning:

Do not use this product as safety or emergency stop devices, or in any other application where failure of the product could result in personal injury or material damage.

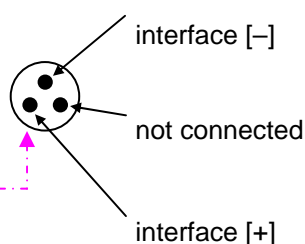
**Failure to comply with these instructions could result in death or serious injury and material damage!**

## 4 Connection

### 4.1 Interface Connection



Assignment of the input jack  
(front view to the pins):



## 4.2 T-Logg 120 W - ...: Assignment of the Angle-type Plug

Table of connections angle-type socket and jack

Pin No.	Wire Colour	Inputs		
		0 ... X Volt	0 ... 20 mA	4 ... 20 mA
1	blue	feeded through, signal +	feeded through	feeded through
2	red	feeded through , signal -	feeded through	T-Logg
3	black	feeded through	T-Logg	feeded through
4	yellow	feeded through	feeded through	feeded through

### Input Signal: 0 ... X Volt

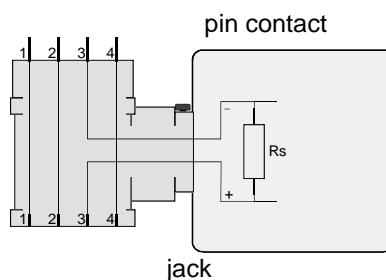
In the angle-type plug the 4 male contacts are directly connected 1:1 with the socket. The logger connection is on contact 1 (signal+) and contact 2 (signal-).

If your transmitter assignments for the 'signal+' and 'signal-' are different, please do not forget to adjust male contacts of your angle-type plug accordingly:

To do so open the angle-type plug and remove the red and the blue wires entering the housing from the coupling of the angle-type plug. Connect wires with the respective contacts, representing signal + (blue wire) and signal - (red wire) at your transmitter.

### Input Signal: 0 ... 20 mA

In the angle-type plug the male contacts 1, 2 and 4 are directly connected 1:1 with the socket. The T-Logg ( $R_s \approx 70 \text{ Ohm}$ ) is located between the male contact 3 (-) and the jack 3 (+).

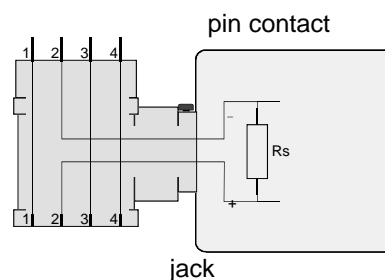


If the 'signal'-line in your transmitter is not assigned to contact 3, please do not forget to adjust the logger-angle-type plug and the external angle-type plug accordingly:

To do so open the logger-angle-type plug and exchange the black wire of contact 3 against the wire of the contact representing the 'signal' in your transmitter. Then exchange and/or rewire the two contacts in the angle-type plug of your connecting cable.

### Input Signal: 4 ... 20 mA

In the angle-type plug the male contacts 1, 3 and 4 are directly connected 1:1 with the socket. The T-Logg ( $R_s \approx 70 \text{ Ohm}$ ) is located between the male contact 2 (-) and the jack 2 (+).



If the 'signal/GND'-line in your transmitter is not assigned to contact 2, please do not forget to adjust the logger-angle-type plug and the external angle-type plug accordingly:

To do so open the logger-angle-type plug and exchange the red wire of contact 2 against the wire of the contact representing the 'signal/GND' in your transmitter. Then exchange and/or rewire the two contacts in the angle-type plug of your connecting cable.

### How to change the assignment of the angle-type plug:

- Dismantle the plug by pulling the adapter inset out of the case, using a screw-driver at the lateral groove.
- Change the assignment according to the notes at the respective input signal.
- Latch coupling insert in cover. You have a choice between 4 different orientations - each of them spaced 90°.
- Please make sure to adjust the connecting cable, if the assignment of the angle-type plug has been changed for the types 4-20mA and 0-20mA.
- Put on angle-type plug and connect plugs using the long screw delivered. (Do not forget seals).



### 4.3 T-Logg 120 K - ...: Assignment of the Connection Cable

The connection cable has following assignment:

Wire colour	Meaning
red	signal +
white	signal -

## 5 Advice Regarding State of Logger upon Delivery

Upon its delivery the logger is in a kind of 'sleeping state':

The display does not show anything, the power consumption is at its minimum.

The **T-Logg** 'wakes up' as soon as a communication link with a software has been established. After that the message "Stop" appears at display. The logger is ready for operation now.

## 6 Configuration of the Display Range

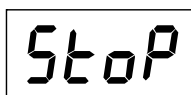
The display range, position of decimal point and the display unit can be set by the software MINISOFT (or GSOF 40K) in the register "Settings".

Furthermore, it can be used to read out sensor information and to program the alarm points of the logger.

## 7 Operating Mode Display

The T-Logg is equipped with a 10 mm LCD display.

The main purpose of the LCD display is to indicate the measured value. Depending on the operating mode of the logger, other messages will be displayed as well.



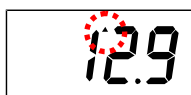
#### STOP:

The **T-Logg** is 'stopped'. No data are recorded. The logger memory is empty. The logger is reset and can be restarted.



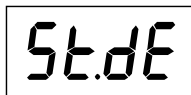
#### HALT:

The **T-Logg** has been 'halted'. The stored data can be read. The logger memory is not empty.



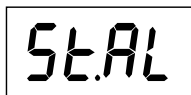
#### DISPLAY OF MEASURED VALUE:

The small arrow is flashing. The logger is active. Measurements are carried out at certain intervals. The measured value will be stored.



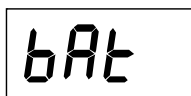
#### START DELAY:

The logger is active, but no data are recorded. As soon as the start delay time has expired, the logger will start recording in accordance with the starting conditions programmed before.



#### START ALARM:

The logger is active, but no data are recorded. Recording will start as soon as the measured value is within the min. and max. alarm limits.



#### BATTERY:

- Changing display **BAT** / Value:  
The battery of the **T-Logg** is getting discharged soon. Replace the battery briefly. Even so data logging is still active.
- Constant display **BAT**:  
The Logger battery is empty now and data logging has been stopped. Replace the battery immediately.


**ALARM LOW:**

The measured value is below the min. alarm limit.

**ALARM HIGH:**

The measured value has exceeded the max. alarm limit.

**ERROR 1:**

The input signal has exceeded the measuring range of the logger.

**ERROR 2:**

The input signal has been fallen below the measuring range of the logger.

**ERROR 3:**

The max. display range (9999) of the logger is exceeded.

**ERROR 4:**

The min. display range (-1999) of the logger is under-run.

**ERROR 7:**

The **T-Logg** has detected a system fault.

- **Remedy:**

- Remove battery and wait about 30 minutes. Then insert the battery again.
- If the error message displayed furthermore, please send the logger to the manufacturer to repair.

## 8 Battery service life and recording time

<b>Measuring cycle:</b>	2 sec.	10 sec.	15 min.	5 hours
<b>Recording time:</b>	8.9 hours	44 hours	166 days	Approx. 9 years
<b>Battery service life:</b>	—	Approx. 1 year	Approx. 3 years	—

**Please note!**

Short measuring cycles as well as frequently measuring data transfer result in a reduction of the battery service life!

Even if the T-Logg is connected, power consumption is increased. So it's important to connect the logger with the USB interface of the PC only as long as necessary!

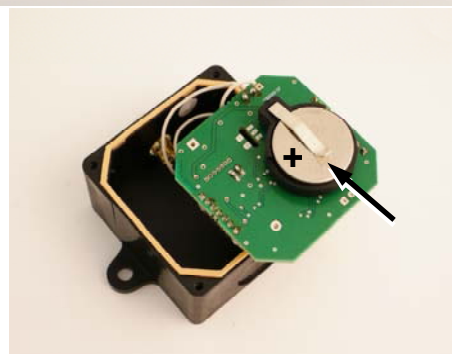
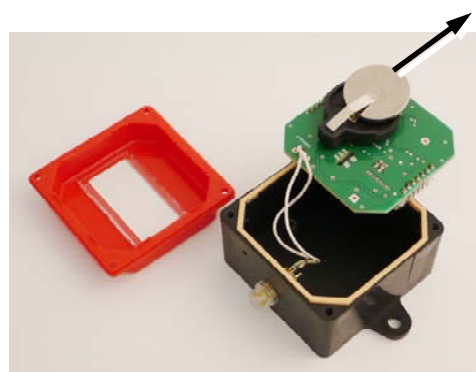
## 9 Battery replacement

### Notice:

As soon as **BAT** appears at display, the battery needs to be replaced. If battery voltage power decreases continuously, data logging will be stopped (compare with operating status 'HALT'). Available stored data remains in the memory and do not get lost. It's possible to read the measuring data after replacement of the battery!

### Replacement:

1. Remove the 4 screws at the front of the logger with a small screwdriver and remove the cover from housing.
2. Take out the PCB and deposit it carefully beside the housing with the LCD display face down. Take care not to damage the gasket.
3. Push out the button cell carefully from socket (see picture at the top on the right).
4. Insert the new button cell (type CR 2032) with correct polarity in the socket (the positive pole is on the retaining bracket – see picture at the bottom on the right).
5. Reinsert the PCB correctly (LCD face up) into the housing (see picture in the middle on the right).
6. Reassemble the housing. Use the 4 screws to fix the cover again.



### Environmental Reference!

Empty and defective batteries must not be disposed in the regular domestic waste. Return the used batteries to an authorised battery collecting point or send the batteries directly to us (sufficiently stamped).





## 10 Specifications

<b>Input signal</b>	refer to device type, or in according to type plate
	<b>T-Logg 120 .. - 001:</b> 0 – 1 Volt    input resistance = ~ 100 kOhm <b>T-Logg 120 .. - 002:</b> 0 – 2 Volt    input resistance = ~ 200 kOhm <b>T-Logg 120 .. - 010:</b> 0 – 10 Volt    input resistance = ~ 500 kOhm <b>T-Logg 120 .. - 020:</b> 0 – 20 mA    shunt resistance = ~ 70 Ohm <b>T-Logg 120 .. - 420:</b> 4 – 20 mA    shunt resistance = ~ 70 Ohm
<b>Display range</b>	-1999 ... 9999 digit
<b>Scaling</b>	freely programmable via software
<b>Decimal point</b>	setable to any position
<b>Accuracy</b>	± 0.5% FS (at nominal temperature)
<b>Display</b>	LCD display, 10 mm high, 4-digit
<b>Recording Interval</b>	2s to 5h
<b>Measuring value memory</b>	16,000 values
<b>Memory type</b>	<b>FILLING MEMORY:</b> >> Once the memory is filled with data, the recording will automatically be halted. <b>RING MEMORY:</b> >> The old data will be overwritten in case of memory overflow.
<b>Recording time</b>	approx. 9 hours up to 9 years, depending on measuring cycle
<b>Alarm function</b>	the measured values are monitored at alarm limits. Alarm limit and alarm delay (0 ... 500 min.) adjustable via interface
<b>Nominal temperature</b>	+25 °C
<b>Working temperature</b>	-25 ... +60 °C
<b>Storage temperature</b>	-30 ... +85 °C
<b>Battery</b>	CR 2032, exchangeable
<b>Battery service life</b>	approx. 3 years (if interval is 15 min.), depending on measuring cycle and operating temperature
<b>Interface</b>	serial interface, 3-pin miniature plug <i><b>Please note:</b> the input is not isolated from the interface!</i>
<b>Data communication</b>	via interface converter
<b>Electric connection</b>	
T-Logg 120 K - ...	approx. 0.5 m silicone connection cable
T-Logg 120 W - ..	angle-type plug in accordance to DIN43650
<b>Dimensions / housing</b>	48.5 x 48.5 x 35.5 mm (H x W x D), plug an fixation flap not included. Housing made of shock resistant plastic, transparent front made of polycarbonate, splash water-proof IP65
<b>EMC</b>	The <b>T-Logg 120 ...</b> have been manufactured in accordance with the regulations concerning EMC (2004/108/EG). The device meets EN 61326-1:2008 Additional error: <1%

## 11 Disposal instructions

The device must not be disposed in the regular domestic waste. Send the device directly to us (sufficiently stamped), if it should be disposed. We will dispose the device appropriate and environmentally sound.





## 12 Notes and General Information

It is important to read this user manual thoroughly and clearly in order to understand the information and instructions. The MSR-Electronic devices must be used within product specification capabilities. The appropriate operating and maintenance instructions and recommendations must be followed.

Due to on-going product development, MSR reserves the right to change specifications without notice. The information contained herein is based upon data considered to be accurate. However, no guarantee is expressed or implied regarding the accuracy of this data.

### 12.1 Intended Product Application

The MSR-Electronic devices are designed and manufactured for control applications and air quality compliance in commercial buildings and manufacturing plants (i.e. detection and automatic exhaust fan control for automotive maintenance facilities, enclosed parking garages, engine repair shops, warehouses with forklifts, fire stations, tunnels, etc.).

### 12.2 Installers' Responsibilities

It is the installer's responsibility to ensure that all MSR-Electronic devices are installed in compliance with all national and local codes and OSHA requirements. Installation should be implemented only by technicians familiar with proper installation techniques and with codes, standards and proper safety procedures for control installations and the latest edition of the National Electrical Code (ANSI/NFPA70). It is also essential to follow strictly all instructions as provided in the user manual.

### 12.3 Maintenance

It is recommended to check the MSR-Electronic device regularly. Due to regular maintenance any performance deviations may easily be corrected. Re-calibration and part replacement in the field may be implemented by a qualified technician and with the appropriate tools. Alternatively, the device may be returned for service to MSR-Electronic-GmbH.

### 12.4 Limited Warranty

MSR-Electronic-GmbH warrants the MSR-Electronic devices for a period of one (1) year from the date of shipment against defects in material or workmanship. Should any evidence of defects in material or workmanship occur during the warranty period, MSR-Electronic-GmbH will repair or replace the product at their own discretion, without charge.

This warranty does not apply to units that have been altered, had attempted repair, or been subject to abuse, accidental or otherwise. The warranty also does not apply to units in which the sensor element has been overexposed or gas poisoned. The above warranty is in lieu of all other express warranties, obligations or liabilities.

This warranty applies only to the MSR-Electronic devices. MSR-Electronic-GmbH shall not be liable for any incidental or consequential damages arising out of or related to the use of the MSR-Electronic® transmitters.