Brief Operating Instructions

Stamosens CXM750/CXS70

⚠ **Warning!**
These Brief Operating Instructions do not substitute the Operating Instructions!
In particular pay attention to the safety instructions in chapter 1 and to the special notes in the other chapters of the Operating Instructions!

Installation and Wiring

Installation

- Select a measuring point where representative measurement can be taken.
  Do not mount the sensor where medium flow is turbulent and fast-flowing.
- We recommend to fit the transmitter with a weather protection cover (see "Accessories").
- Never carry the sensor by its cable.
- Attach the sensor to a special extension tube. The best fixture is a pendulum frame which holds the sensor vibration-free.
- Install the system at an easily accessible position to prevent danger for the operating personnel (during commissioning or when carrying out maintenance and cleaning work).
- Route all cable connections to prevent mechanical damage and interference from other lines.
- Install the measuring channels of the sensor in the direction of flow to obtain a self-cleaning effect.
- The activated sludge version of the sensor is equipped with a cleaning unit which prevents soiling or blocking due to particles by blowing compressed air into the measuring slit. For other applications with soiling contents, the cleaning unit is available as an accessory.
  Install the air outflow of the cleaning unit at the narrower slit.

✎ **Note!**
Make sure to observe the maximum length of the air line tubing (15 m (49.2 ft)) because the power of the cleaning unit compressor is not sufficient to guarantee reliable cleaning over longer distances.

Abb. 1:   Transmitter dimensions

Abb. 2:   Sensor dimensions
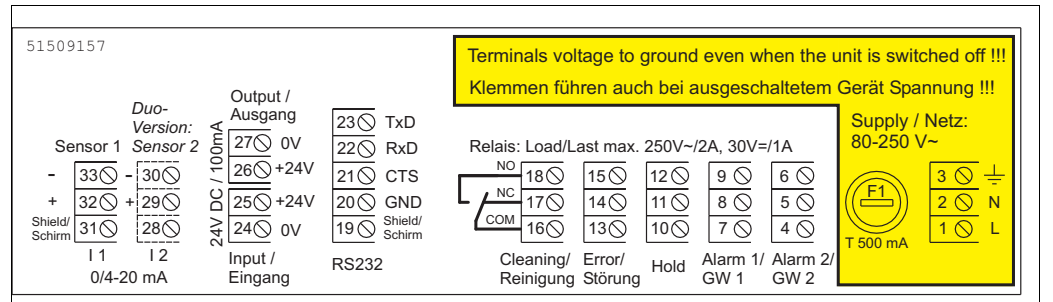
Electrical connection

Terminal assignment

Fig. 3:   Electrical connection transmitter with power supply 80 to 250 V AC
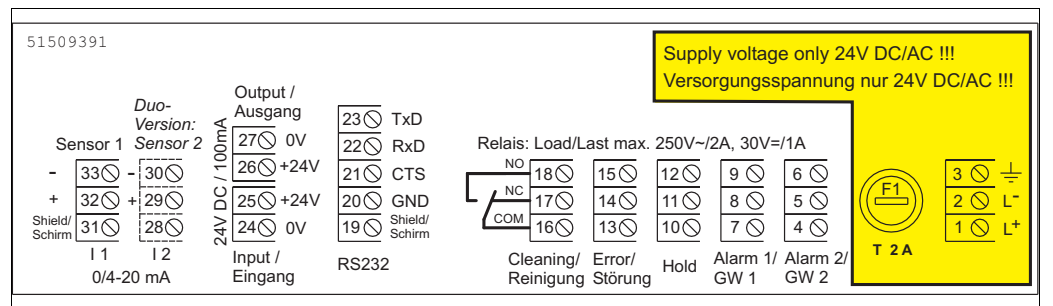

Fig. 4:   Electrical connection transmitter with power supply 24 V AC/DC

✎ **Note!**
The duo version with a second sensor is not available for the CNM750 and CSM750 transmitters.
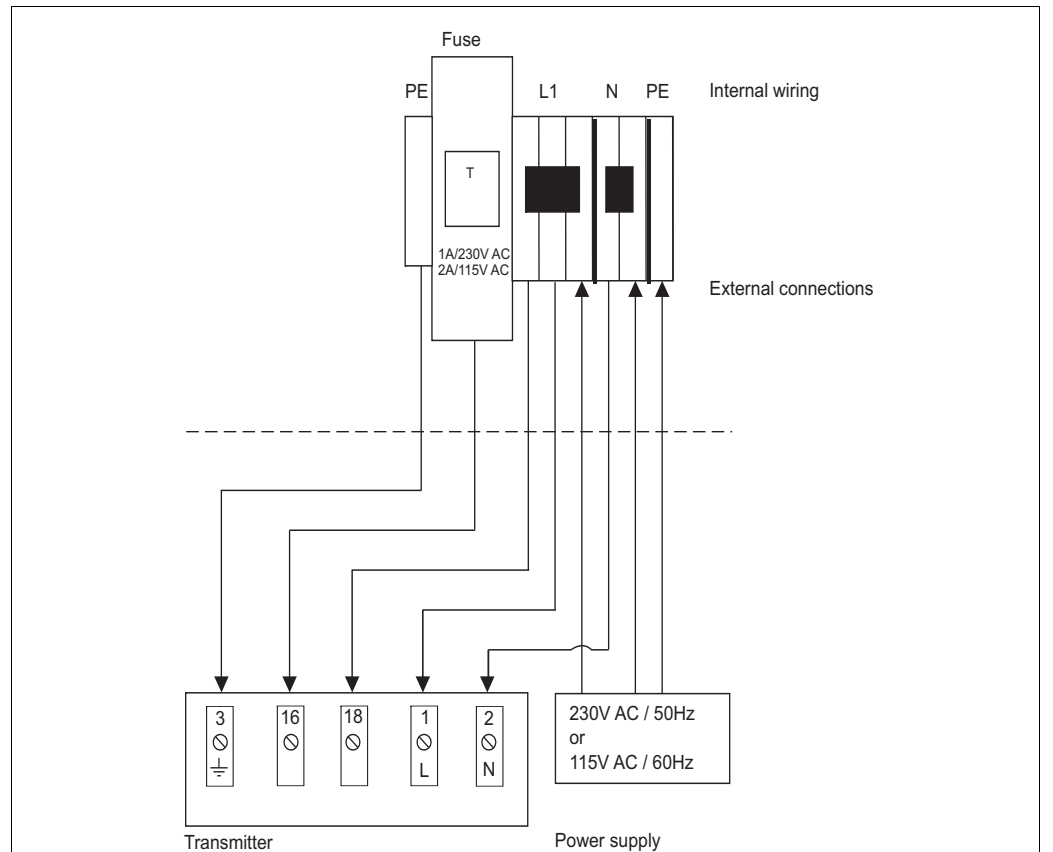
Cleaning unit
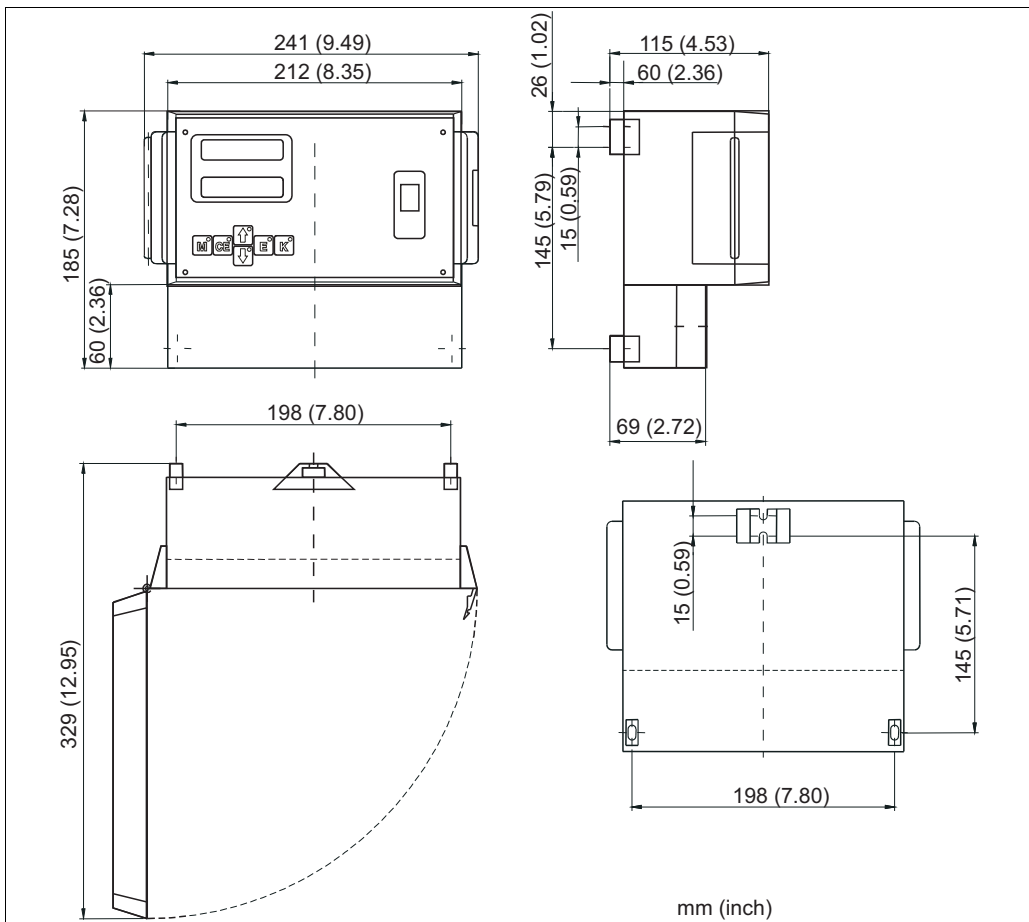

Fig. 5:   Connection of the cleaning unit

Endress+Hauser

People for Process Automation
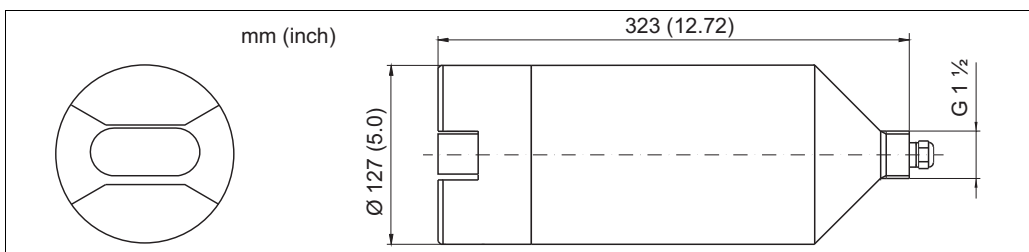
Commissioning

Operating keys and their function

The operating keys and the integrated indicator LEDs have the following functions:

Key	Key function	Indicator LED function
M	– "Auto measuring" option – back to the main menu from all sub-menus	Alarm value 1 exceeded
CE	– backwards in the sub-menu (horizontal, see Appendix,)	Alarm value 2 exceeded
↑	– backwards in the main menu (vertical) – increase value	Measuring range exceeded
↓	– forwards in the main menu (vertical) – reduce value	Measuring range undershot
E	– select option – adopt value, forwards in the sub-menu (horizontal)	Retrieve error message
K	– selection in the sub-menu	Unassigned

First commissioning

✎ Note!
- Before switching the system on for the first time, familiarize yourself with the operation of the transmitter. For this, see the "Safety instructions" and "Operation" chapters.
- The sensor should be left in the medium for approx. 1 hour, so that it can adapt to the medium temperature.
- The transmitter has already been pre-configured at the factory and starts measuring automatically when switched on. Due to the different waste water composition, the media can vary greatly. Therefore, we recommend using an application-specific calibration for commissioning.

Action	Display
Switch the transmitter on.	
Press M.	MEASUREMENT
Press five times ↓ and once E.	CONFIGURATION
Press the ↓ key to set the "99" code and confirm with E.	Code No. 99
Use the ↓ or ↑ keys to select your sensor and confirm with E.	Type of sensor NOx BS 0-30
Use the ↓ or ↑ keys to select the desired unit of measure and confirm with E.	Unit of measure mg/l-N
Hold down the ↓ and ↑ keys simultaneously to activate the default setup for the selected sensor type. ✎ Note! The default setup is compulsory for initial start-up, in order to use the correct default calibration.	Default setup y:↑+↓ n:E
Confirm the "Correction factor 0%" function with E.	Correct. factor 0%
Use the ↓ or ↑ keys to select the number of measured values for forming the mean value and confirm with E.	n mean value 10
Use the ↓ or ↑ keys to select the current output and confirm with E.	Analog output 4-20 mA
Use the ↓ or ↑ keys to select the configuration for alarm value A and confirm with E.	Alarm A normally open
Repeat the previous step for alarm value B.	Alarm B normally open
Select the configuration for the diagnostic alarm similar to the alarm value setting.	Diagnostic alarm normally open
Use the ↑, ↓ and E keys to set the current date and time (DD.MM.YY hh:mm). Confirm with E.	act. Date/Time 10.02.02. 11:38
Press M.	MEASUREMENT
Press once ↓ and six times E. Use the ↑, ↓ and E keys to set the time of the 1st measurement (DD.MM.YY hh:mm). If the measurement is to start immediately, set the time in the past. Confirm with E.	1. Measurement 01.01.99 00:00
Press M. The system is ready for measurement now.	MEASUREMENT

One-point calibration

✎ Note!
One-point calibration is only useful for the clear water sensor. If you are using an activated sludge sensor, perform a three-point calibration. See chapter "Three-point calibration".

Action	Display
Leave the sensor to rest in the medium for approx. 1 hour.	
Take a sample in the direct vicinity of the sensor. Write down the sensor frequency displayed at the time of sampling. To do so, press M. Then press E three times within 4 sec. to display the sensor frequency.	Frequency 4836 Hz
Determine the nitrate content of your sample in the laboratory.	
Press M.	MEASUREMENT
Press twice ↓ and confirm with E.	CALIBRATION PTS
Press the ↓ key to set the "99" code and confirm with E.	Code No. 99
Use the ↓ key to set the number of measuring points to "1". Confirm with E.	No. of points 1
Press M.	MEASUREMENT
Press three times ↓ and confirm with E.	CONCENTR. INPUT
Press the ↓ key to set the "99" code and confirm with E.	Code No. 99
Use the ↓ or ↑ to set the 1st measured value to the laboratory value. To set the last digit, use ↓ or ↑ and simultaneously keep the E key pressed. After the complete value is input, confirm with E.	1. Value 5.00 mg/l-N
Press M.	MEASUREMENT
Press four times ↓ and confirm with E.	FREQUENCY
Press the ↓ key to set the "99" code and confirm with E.	Code No. 99
Use the ↓ or ↑ to set the previously noted sensor frequency value.	Frequency 4836 Hz
Press M. The one-point calibration is now completed.	MEASUREMENT

Three-point calibration

A one-point calibration is not useful for the activated sludge sensor. Therefore, carry out a three-point calibration:

1. Take three samples at three times of different nitrate concentration and note down the displayed frequency at the time of sampling.

   ✎ Note!
   The concentrations must differ by 1 mg/l at minimum.

2. Determine the nitrate content of the samples in the laboratory.

3. Enter the value pairs of determined concentrations and noted frequencies (in order of increasing or decreasing concentrations):
   a. Proceed as with the one-point calibration (see above).
   However, enter "3" instead of "1" for the number of measuring points in the CALIBRATION POINTS menu .
   b. Enter three concentrations in the CONCENTR. INPUT menu.
   c. Enter the three frequency values accordingly.
   d. After entering the last frequency, return to the measuring mode.
   The calibration is then finished.

   ✎ Note!
   It is recommended to create a data table for the values.