Technical
Information
TI 232C/07/en
51504297

CUM 740

Measuring Transmitter for Turbidity and Solids Content

The CUM 740 transmitter is used for optical solid matter content measurement in clear and turbid water and in sludge.
Since the transmitter can connect a large range of sensors, it covers a wide range of solid matter concentration also at high temperature and in hazardous areas.

Applications
- Closed sewage treatment plant areas, such as inflow, preclarifier, sludge removal
- Process monitoring in high-temperature and hazardous areas in the chemical industry, waste incinerators and steam generation plants

Advantages at a glance
- Transmitter with microprocessor control
- Large selection of sensors for four-beam pulsed light systems
- Large two line display for set-up and measured value display
- Large concentration range from 2 FNU to 150g/l
- Measuring units: g/l, mg/l, TEF, ppm, %
- Menu-controlled set-up and calibration in plain text
- Measured value processing in sensor, giving low signal transmission sensitivity
- Measured value storage using data logger
- Four relay outputs (sensor cleaning, error message, two freely-configurable limit contacts)
- One or two channel versions
- Housing with ingress protection IP 65

Quality made by
Endress+Hauser

ISO 9001

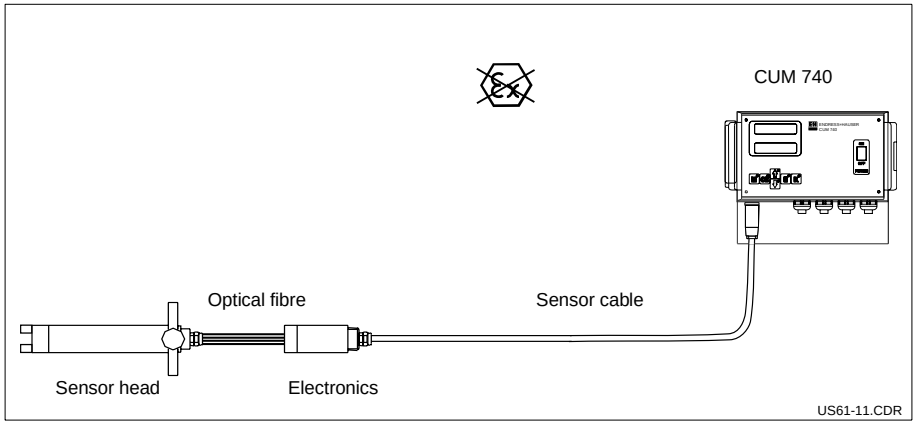
Endress+Hauser
The Power of Know How

Measuring equipment

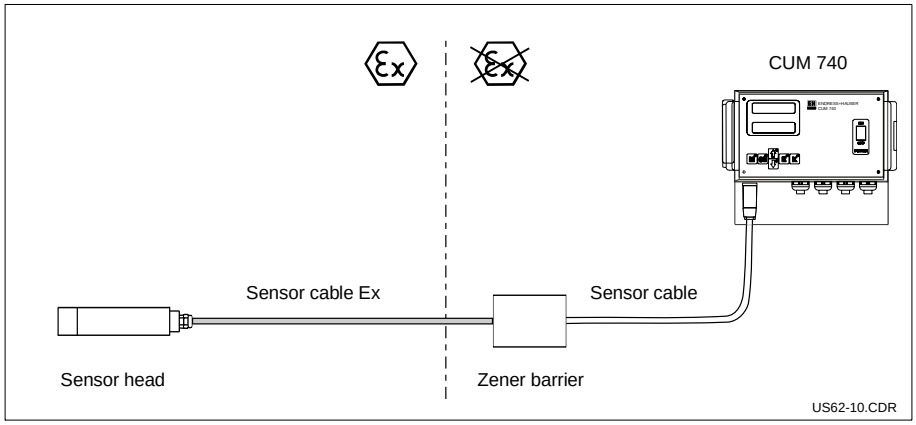
The complete measuring system for the high temperature range consists of:
- Turbidity transmitter CUM 740
- Turbidity sensor, e.g. CUS 61H, with the components:
  - Sensor head
  - Optical fibre
  - Sensor electronics.

The complete measuring system for hazardous areas consists of:
- Turbidity transmitter CUM 740
- Turbidity sensor, e.g. CUS 63 / CUS 63H with the components:
  - Sensor head
  - Optical fibre (for high temperatures)
  - Intrinsically safe sensor electronics
- Zener barrier.

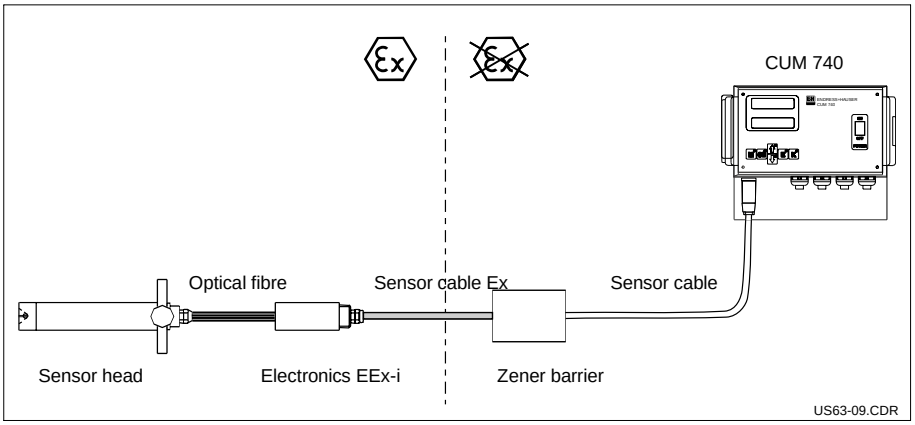
Measuring system
CUM 740
with CUS 61H-A2



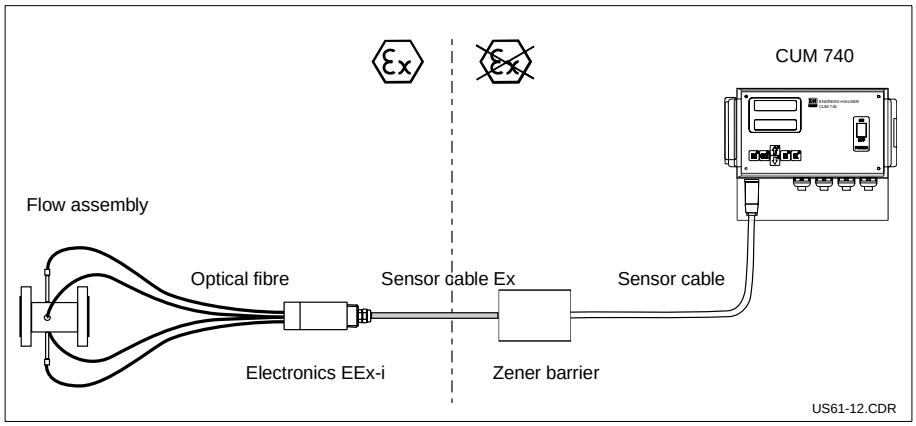
Measuring system
CUM 740
with CUS 62-G1



Measuring system
CUM 740
with CUS 63H-G2



Measuring system
CUM 740
with CUS 61H-G3



Measuring principle

Signal processing
Measured value preprocessing takes place in the sensor. The connectable sensors operate using the four-beam pulsed light method.

Turbidity is determined using different optical measuring methods depending on the sensor connected:

- Absorption light method
- Backscatter light method
- 90° scattered light method.

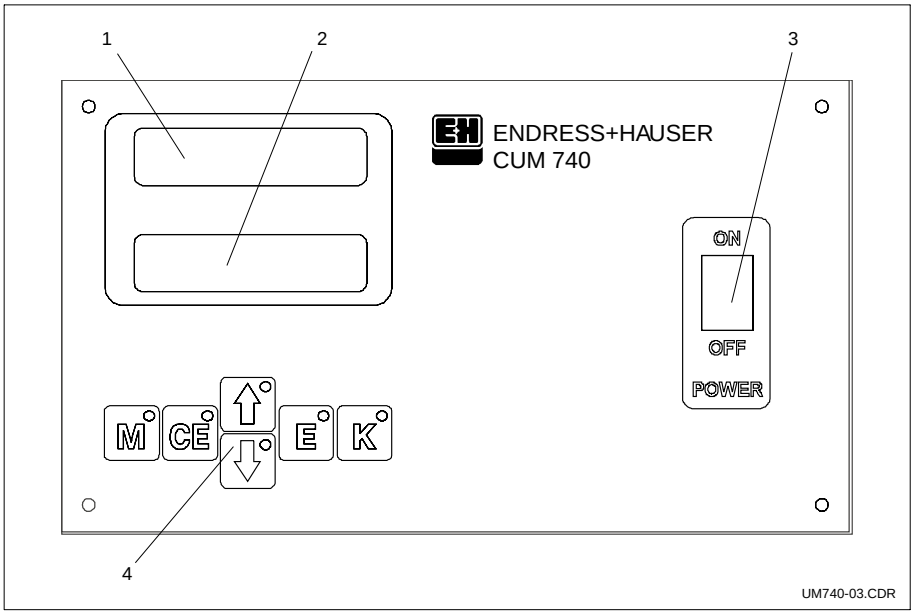
The sensor generates a turbidity or solids-dependent signal which is converted into a frequency signal. The frequency signals are assigned to corresponding turbidity units and solid matter contents, and are shown in the transmitter display.

Operation

The CUM 740 is fully set up and calibrated in a menu-assisted software using a dirt-proof membrane keypad. The operator is guided interactively through the operating menu. The interface is a two-line plaintext display.

Programming levels which go beyond everyday operation processes are only accessible by entering a password.

All the calibration data and parameters are retained if there is a power failure or when the device is shut down (non-volatile RAM).



Operating panel

1 LED display (Measured value display)
2 LC display (Plaintext display)
3 Mains switch
4 Membrane keypad

Functions

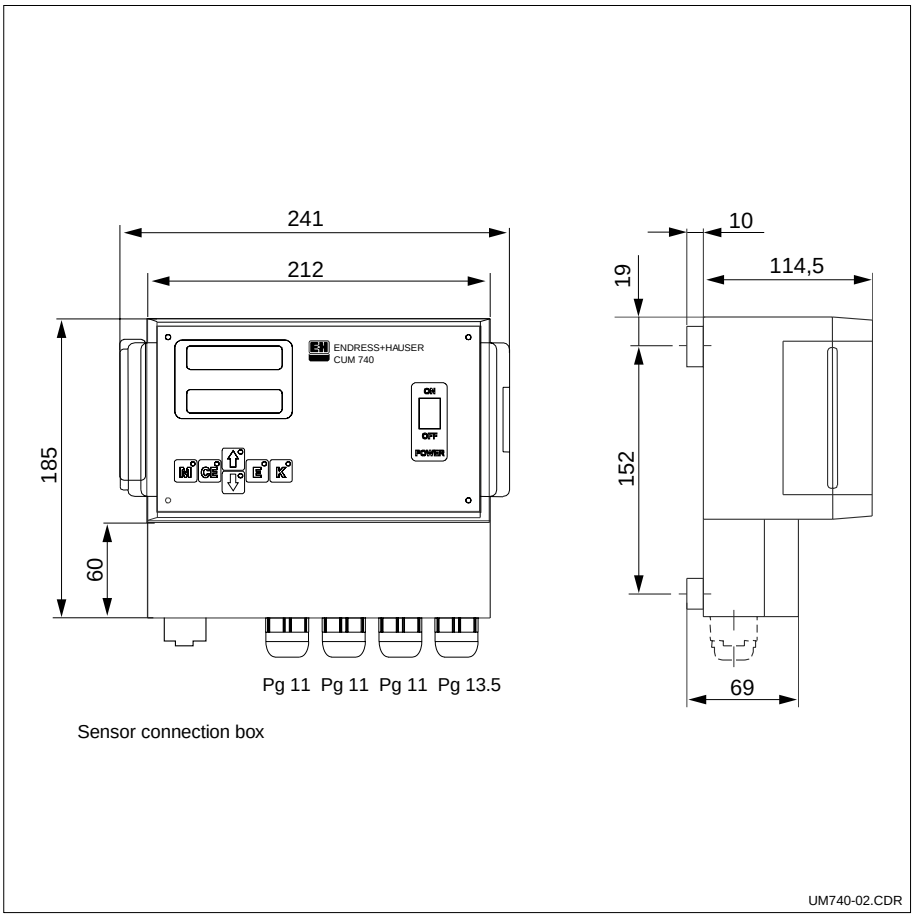
The 16-bit processor offers the following possibilities for signal evaluation:

- Measured value detection, display and evaluation
- Menu control with alpha-numeric LC display
- Measuring system monitoring incl. sensor
- User parameter storage and management

All instrument control functions are arranged in a logical menu structure.

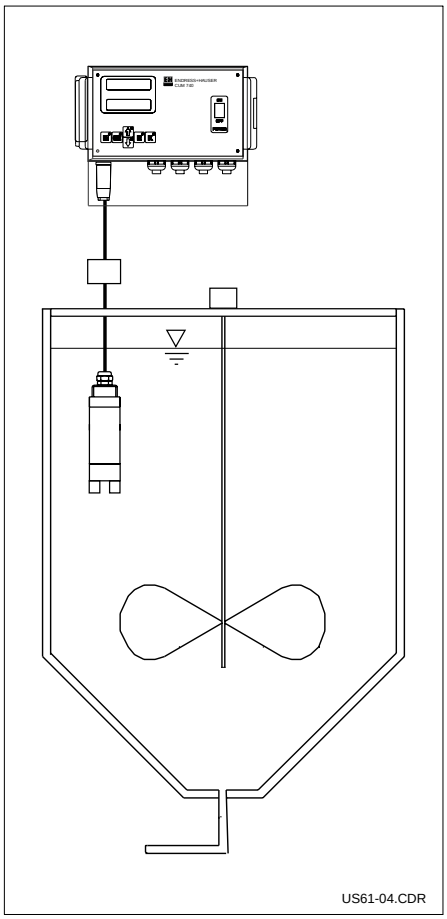
Operating panel	Function
MEASUREMENT	Detection, evaluation and display of sensor signal, analogue current and sensor frequency
PARAMETER ENTRY	Measuring range selection, limit setting, measured value damping setting, cleaning interval setting
CALIBRATION	Sensors calibrated using stored calibration curves or using application-specific customer standards
ASSIGN	Calibration value assignment to appropriate sensor signals
FREQUENCY	Retrieval and option for manually editing measuring frequencies determined during calibration
CONFIGURATION	Sensor type selection, measuring unit selection, calibration factor setting, analogue output configuration, alarm relay configuration
LANGUAGE	User interface in your own language
ERROR DISPLAY	Error message display

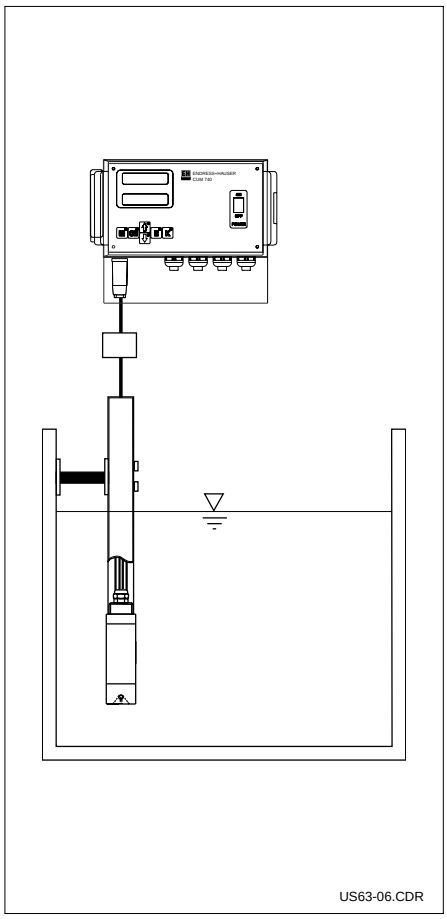
Dimensions



Dimensions
Measuring transmitter
CUM 740

Installation



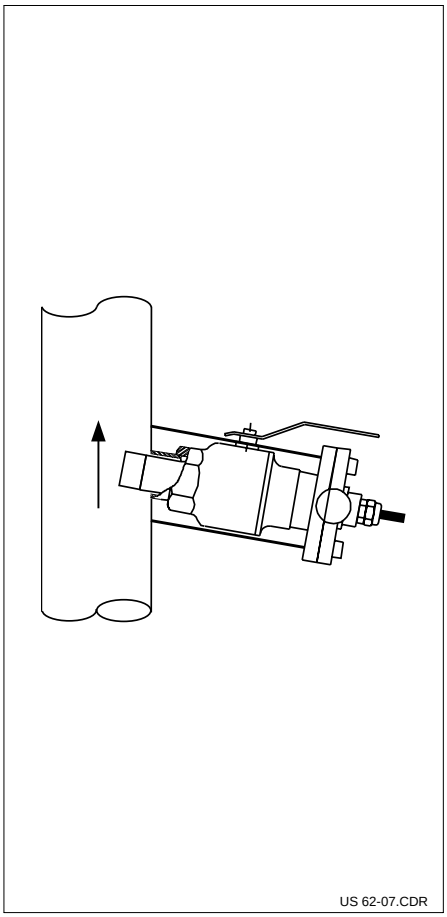


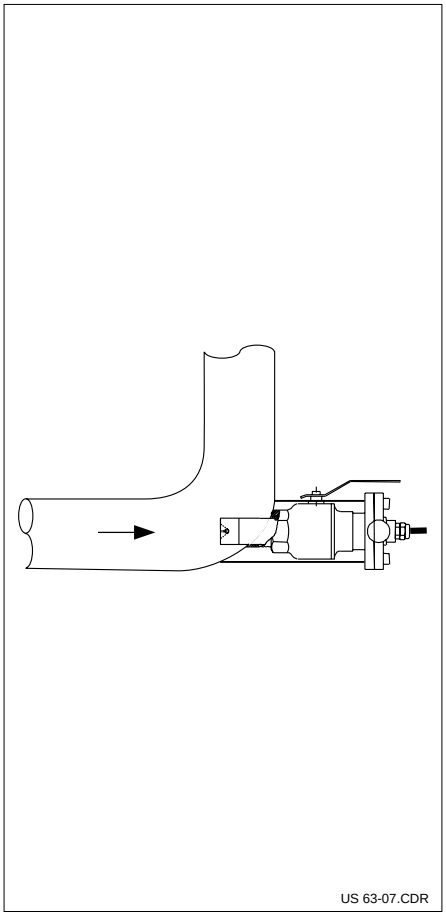
Installation examples

left:
Tank mounting
with CUS 61-G1

right:
Channel installation
with CUS 63H-G1

Installation





Installation examples

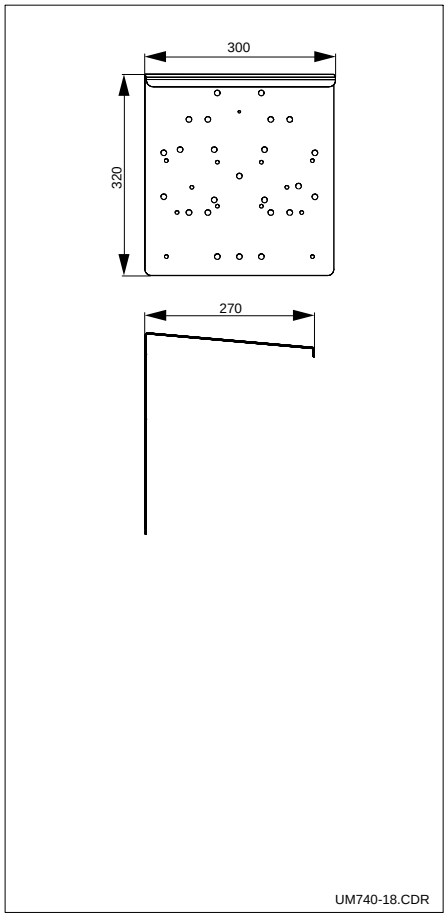
left:
Pipe mounting
with CUS 62

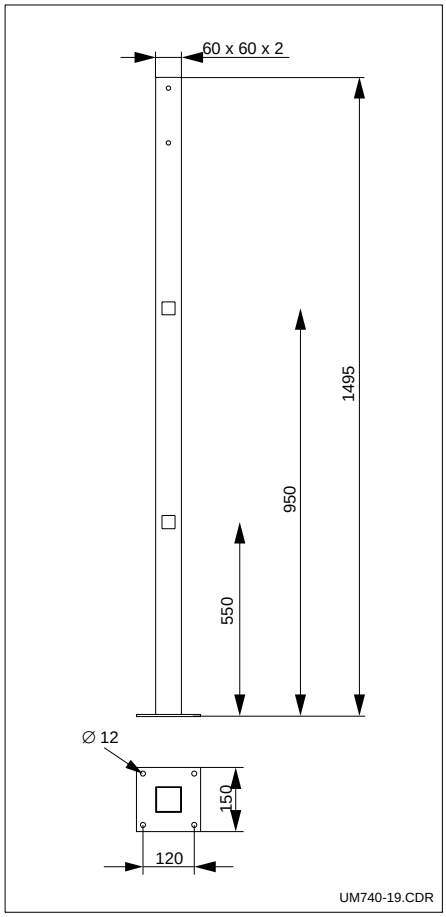
right:
Pipe mounting
with CUS 63

Accessories

❏ Weather protection cover for wall mounting
Order no.: 50061258

❏ Upright post for weather protection cover
Order no.: 50064291





Accessories

left:
Weather protection
cover

right:
Upright post
for weather protection
cover

Technical data

General data

Manufacturer	Endress+Hauser
Instrument designation	Transmitter CUM 740 for turbidity and solids content

Mechanical data

Dimensions (l x w x d)	185 × 241 × 114.5 mm
Weight	1.6 kg
Display	LED display (12mm) for displaying measured values, 2-line LC display (5mm) for set-up

Materials

Housing	Polycarbonate
Sight glass	Plexiglas®

Input

Parameters	Turbidity and solids content measurement
Measuring principle	Four-beam pulsed light method
Measuring light	Infrared light
Wavelength	880nm (absorption maximum)
Measuring range	Dependent on connected sensor
Accuracy	≤ 1% from measuring range end value
Reproducibility	0.5%

Output

Signal output	0/4 ... 20mA
Number of signal outputs	max. 2
Load	max. 500Ω
Switching outputs	1 relay contact for sensor cleaning, 1 relay contact for Hold function, 1 relay contact for error messages, 2 limit contact freely configurable
Switching power	3A at 115V/230VAC, 1A at 24VAC/VDC
Interfaces	RS 232, port for bus extension

Electrical connection

Power supply	230/115VAC, 50/60Hz +6 ... –10%, 24VAC/VDC
Power consumption	max. 15VA

Ambient conditions

Ambient temperature	–20 ... +60°C
Ingress protection	IP 65

Supplementary documentation

Technical Information CUS 61 /CUS 61 H	Order No.: 51504289
Technical Information CUS 62	Order No.: 51504291
Technical Information CUS 63 /CUS 63 H	Order No.: 51504293
Technical Information CUS 64	Order No.: 51504295

Subject to modifications.

Product structure

Transmitter CUM 740 for turbidity and solids content

Power supply

0 Power supply 230 V AC
1 Power supply 115 V AC
8 Power supply 24 V AC / DC
9 Special version

Communications

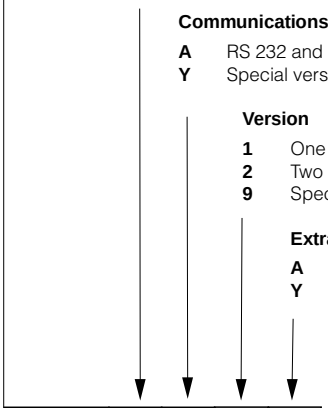
A RS 232 and 0/4 ... 20 mA
Y Special version

Version

1 One channel version
2 Two channel version
9 Special version

Extra equipment

A Standard version
Y Special version



CUM 740- [ ] [ ] [ ] [ ] **Complete order code**

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