Technical
Information
TI 069C/07/e

Turbidity/temperature measurement mycom CUM 121/141 S

Microprocessor-based turbidity measuring transmitter with limit controller and relay for automatic cleaning

Mycom CUM 121 for panel mounting, IP 54

Areas of application

The Mycom CUM 121/141 S transmitters are microprocessor-based measuring and control units used to determine turbidity and temperature. Due to their state-of-the-art engineering, the units can be easily adapted to different turbidity measuring methods, such as 90° scattered light (to DIN/ISO), 180° backscatter and the multi-beam pulsating light method.

Areas of application:

- waste water treatment, sewage treatment plant effluent
- drinking water treatment, filter effluent monitoring
- monitoring of precipitation processes
- monitoring of public waters
- process applications such as: filter breakage monitoring emulsions, food production beer and drink production
- pharmaceutical and chemical process engineering
- metallurgical applications
- power plants

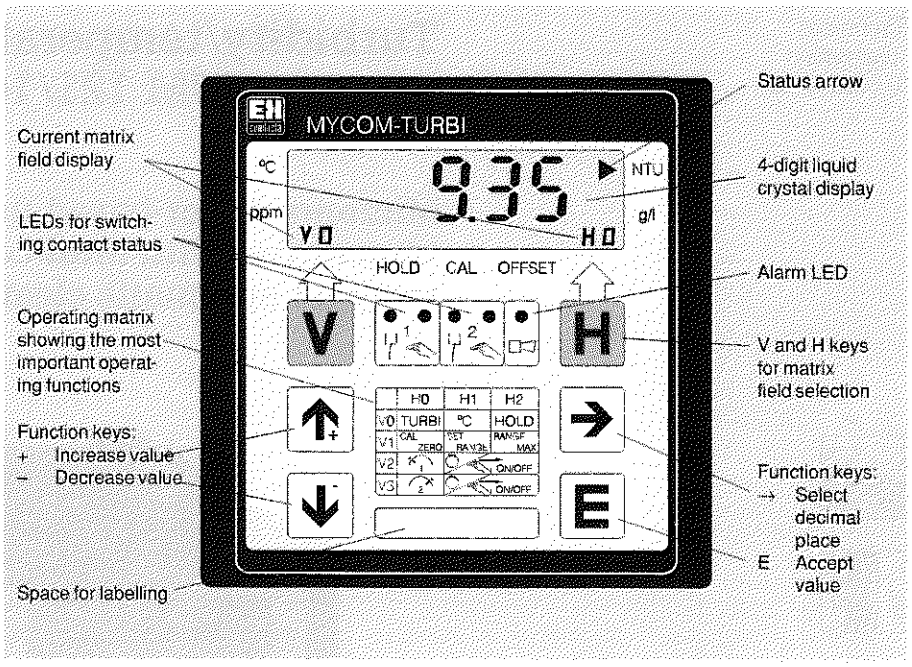
Benefits at a glance

- Matrix keypad for simple and quick access to any operating function
- Second current output for temperature
- Self-monitoring and system diagnosis guarantee accurate measured values
- Air bubble suppression and plausibility check of measuring signal
- Coded access to parameter setting functions prevents inadvertent changes
- High measuring dynamics in conjunction with high sensitivity
- Automatic adaptation of unit to measuring ranges
- Terminal strip with good accessibility and quick-release sensor cable connector are standard features of the field version
- Digital interface available in 2 variants (RS 232-C, RS 485)
- High-frequency and electromagnetic compatibility according to latest IEC requirement profiles

Endress+Hauser

Nothing beats know-how

Measuring system



The measuring and control system comprises:
- a CUS 1 turbidity sensor with an integrated temperature sensor (NTC)
- an immersion or insertion assembly
- the Mycom Turbi unit

The unit has a 4-20 mA signal output as standard. Options include either 2nd current output (0/4 ... 20 mA) for temperature or digital interfaces (RS 232-C, RS 485).
The unit can be supplied with all customary voltages from 24 to 240 V AC as well as 24 V DC.

Hold function
The hold function, which is advantageous for certain operating conditions such as maintenance, "freezes" the signal output to its present value and suspends the limit functions. The hold function can be activated in three ways:
- in conjunction with certain unit functions, e.g. calibration
- by selecting the corresponding matrix field
- by an external control command, e.g. when servicing the sensor

Automatic calibration
Press a key to perform the zero adjustment – or enter an application-specific value as required.
Depending on the requirements of the application in question, an adjustment in g/l or ppm can also be performed with selected media (e.g. suspensions, slurries).
Application-specific calibration values can also be set.

Automatic cleaning
For applications which are highly susceptible to soiling, contact 2 provides a trigger for manual or automatic cleaning. User-adjustable cleaning cycles permit the best adaptation to the degree of soiling of the application in question. Optionally the same control function can be used to activate a wiper cleaning mechanism on the CUS 1 sensor.

Technical data

Turbidity measurement	
Turbidity indicating range	0.00 ... 99.99 NTU or 0 ... 4000 NTU, 0 ... 999.9 ppm
Measured value display	<0.5 % of upper range value
Zero	adjustable plus additional offset function
Temperature sensor	1 x NTC
Turbidity signal input	serial multi-channel transfer
Slope adjustment	10 ... 240 % referred to normal condition
Turbidity signal output current range (galvanically separated)	0 / 4 ... 20 mA
Load	max. 600 Ω
Turbidity signal output range	adjustable
	from 1 ... 100 % of measuring range
Temperature measurement	
Temperature measuring range	–10 to +70 °C
Temperature signal output	0 / 4 ... 20 mA
Load	max. 400 Ω
Temperature output range	adjustable from Δ10 to Δ80 K
Limit, timer and alarm functions	
Limit contacter / interval timer control	2 contact outputs
Type of function	MIN or MAX (direct / inverted)
Setpoint adjustment	0 ... 999.9 ppm or 0 ... 4000 NTU
Hysteresis for limit contacts	adjustable 0 ... 100 % of meas. range
Cleaning contact period	0 ... 15 min
Cleaning interval	1 ... 1440 min
Contact delay	pickup / dropout
Delay period	0 ... 6000 s
Alarm threshold	0 ... 500 ppm or 0 ... 2000 NTU
Alarm delay period	0 ... 6000 s
General technical data	
Measured value display	7-segment liquid crystal display, 4 digits, height = 10 mm
Indication error of measurement (to DIN IEC 746)	max. 0.5 %
Status indication	LEDs, red or red / green
Interference suppression (DIN VDE 0871, IEC: CISPR11, EN 55011)	limit class B
Interference resistance	according to IEC 801 or Namur
Ambient temperature, nominal operating range	0 ... +50 °C
Limit operating range	–20 ... +60 °C
Storage and transport	–25 ... +85 °C
Relative humidity	10 ... 90 %
Electrical data and connections (on rear of unit)	
Voltage supply	24, 100, 110, 127, 200, 220, 230, 240 V AC
Direct voltage	24 V DC, 15 / –20% (in preparation)
Frequency	50 ... 60 Hz, ± 6 %
Power consumption	12 VA
Contact outputs	2 changeover contacts, 1 floating NO contact
Switching voltage	max. 250 V AC
Switching current	max. 3 A
Switching power	max. 500 VA
Signal outputs	1 or 2 x 0 / 4 ... 20 mA, galvanically separated
Insulation voltage	650 Vpp
Terminals	terminal blocks, removable
Max. conductor cross section	4 mm^2
Digital interface	optionally RS 232-C or RS 485
Digital interface connection	9-pin submin D connector
Turbidity sensor	
Type	CUS 1-A, CUS 1 W
Energy supply	5 V, ± 8.5 V
Connection	7-pin connector (SXP)
Measuring cable length	7 m or 15 m

How to order

Mycom CUM 121/141 S-I

Types
121-I housing for panel mounting, 96 x 96 mm, ingress protection IP 54 (front)
141S-I field housing with terminal strip and sensor socket contact, 155 x 204 x 206 mm, ingress protection IP 65

Measuring range
1 0 ... 4000 NTU (scattered light turbidity measurement to DIN/IS / C0 ... 999.9 ppm)

Versions
All versions are equipped with 2 limit contacts and 1 alarm contact, 1 limit contact optionally for cleaning control

Power supply
0 230 V, 50 / 60 Hz
1 110 V, 50 / 60 Hz
2 200 V, 50 / 60 Hz
3 24 V, 50 / 60 Hz
5 100 V, 50 / 60 Hz
6 127 V, 50 / 60 Hz
7 240 V, 50 / 60 Hz
8 24 V, direct voltage (in preparation)

Unit output
0 0/4 ... 20 mA output for turbidity
1 two 0/4 ... 20 mA outputs for turbidity and temperature
3 0/4 ... 20 mA output for turbidity with additional RS 232 C interface
4 0/4 ... 20 mA output for turbidity with additional RS 485 interface

CUM [ ] - [ ][ ][ ] ⇐ **complete order code**

Export Division
Endress+Hauser
Instruments International
P.O. Box 22 22
D-79574 Weil am Rhein
Tel. (0 76 21) 9 75 - 02
Fax (0 76 21) 97 53 45

Endress+Hauser
Nothing beats know-how

TI 069C / 07 / e / 10.93
Printed in FR of Germany / DK (125 643 - 1000)