Danger of injury, damage to or destruction of the sensor

Laser on/off
Setup mode

19.3 °
35 (1.38)

Selected parameter value does not
To open the selection list and

5.0 °
Analog output
Sets the analog output to the value for the midrange, i.e. 5 VDC or
select

RS422 - output (symmetrical)
Protection class:   IP 65 (only with sensor cable connected)
For running through the levels and parameters.
Power supply (11 ... 30 VDC)
Selected parameter value
Current 4 ... 20 mA or
RS422 - input (symmetrical)
Sensor cable
Ambient pressure: Atmospheric pressure
Switching output 1
Humidity:   5 - 95 % (no condensation)
Switching output 2
Limit output
7.0 °
red-blue
Object is in the measurement
Reference potential for analog output
red
Operating temperature: 0 ... 50 °C (+32 up to +122 °F)
Storage temperature:  -20 ... 70 °C (-4 up to +158 °F)
GND
green
Status "off"
Designation
black
Switches the sensor to setup mode.
Pressing the
200
gray
function
Danger of injury, damage to or destruction of the system, failure of the measuring device

Measuring Ranges 500/750 mm
Measurements in the μm area.
Sensors are compatible with cal sensors with which is
optoNCDT 1700 are opti
Membrane Keys, LED's

Measurement mode (normal operation):
- Sets the analog output to the value for the midrange, i.e. 5 VDC or
- Pressing the  key again resets the function.
- Switches the sensor to setup mode.

Setup mode (I key held actuated):
- Key: For running through the levels and parameters.
- Key: To open the selection list and
- Key: Select the value of the parameter in sequence.
- Key: For saving the selected parameter value and

If approximately 15 seconds have elapsed since the last press of the  key or 30 seconds since the last press of the  key, the sensor returns to measurement mode without changing the parameters.

Power Supply
Power supply, nominal voltage: 12 VDC (11 ... 30 VDC, 120 mA maximum). Only use power supply devices. MICRO-EPSILON recommends the use of the optionally available power supply PS2020 for the sensor.

The switching inputs for laser on/off and setting/moving/midpoint are safety-related inputs. Connect power with pin 8 in order to activate the laser. If the connection is released, the laser is deactivated.

Inputs and Outputs

Des. Designation
Comment
Sensor cable
PCT1700-g
red
black
1 5
Power supply (11 ... 30 VDC)
red
yellow
6
GND
System ground for power supply and switching signals (Laser on/off, 24V, limits)
yellow
4
ANTh Output reference potential for analog output
5 MΩ --- 20 V or output 0 ... 10 V
red-blue
14
AGND
Switching input Laser on/off
GND
white-red
12
Switching input Laser off
Switching input Laser on/off
blue
10
Switching reset input
Output 1 (point or limit output
gray
8
2
1
11 ...
3 x ø  0.5 mm (.18 dia)
288 x 145 to 394 x 231
80 (3.15)
SMR
MR
EMR = End of measuring range
MMR = Midrange
MR = Measuring range
Measurement Ranges 40/500/750 mm
Heating power: 1 W
Mount the sensors
properly
Mount the sensors
with a membrane sensor
Mount the sensors
without membrane sensor
Mount the sensors
on the sensor
Mount the sensors
-with membrane sensor
Mount the sensors
sub-electrical connection
Mount the sensors
industrial areas.
It is used for measuring displacement, distance, position and elongation process control and dimensional testing.
The sensor may only be operated within the limits specified in the technical data, see instruction manual, Chap. 3.4. The sensor should only be used in such a way that in case of malfunctions or failure personnel or machinery are not endangered. Additional precautions for safety and damage prevention must be taken for safety-related applications.

Laser Class
The optoNCDT1700 operates with a semiconductor laser with a wavelength of 670 nm (red laser, ILD 1700) respectively 405 nm (blue laser, ILD 1700). The following warning labels are attached to the cover (front and/or rear side) of the sensor housing.

Warnings
Connect the power supply in accordance to the safety regulations for electrical equipment. The power supply may not exceed the specified limits.
- Danger of injury, damage to or destruction of the sensor.
- Damage to or destruction of the sensor.
- Avoid shock and vibration to the sensor. Protect sensor cable against damage.
- Damage to or destruction of the system, failure of the measuring device.

Proper Use
The optoNCDT1700 is designed for use in industrial areas. It is used for measuring displacement, distance, position and elongation process control and dimensional testing.
The sensor may only be operated within the limits specified in the technical data, see instruction manual, Chap. 3.4. The sensor should only be used in such a way that in case of malfunctions or failure personnel or machinery are not endangered. Additional precautions for safety and damage prevention must be taken for safety-related applications.

Laser Class
The optoNCDT1700 sensors operate with a semiconductor laser with a wavelength of 670 nm (red laser, ILD 1700) respectively 405 nm (blue laser, ILD 1700). The following warning labels are attached to the cover (front and/or rear side) of the sensor housing.

Danger: Do not stare into the beam!
Avoid continuous exposure to the sensor. Avoid exposure to aggressive materials (washing chemicals and etchants) or liquids on the sensor. Blot the sensor only with the existing hole on a flat surface. Clamp all of any kind are not permitted.
- Damage to or destruction of the sensor.
- Connect the power supply in accordance to the safety regulations for electrical equipment. The power supply may not exceed the specified limits.
- Danger of injury, damage to or destruction of the sensor.
Components, Typical Application with Analog Output

PC1700-x
PS2020
SPS
230 VAC
PE
N L
4 ... 20 mA
0 ... 10 V

Target Laser On/Off

Components, Typical Application with RS422 and IF2008

PC1700-x/IF2008

Switch on the Power Supply Respectively PC
Switch on power supply respectively PC after completion of wiring.
The initialization including the info string transmission takes up to 10 seconds. Within this period, the sensor neither executes nor replies commands.
To be able to produce reproducible measurements the sensor typically requires a start-up time of 20 minutes.

Change Measurement Value Output
Change the output type with the function/enter and select/zero keys.

Measurement mode
Current output 4 ... 20 mA
Voltage output 0 ... 10 V

Measurement value
Current 20 mA
Voltage 4 mA
Analog output 161016372
16207 16367 16374

SMR
SMR MBE

Displacement
10.2 V
10 V
0 V
-0.1 V

The State LED on sensor indicates the position of target to the sensor.

LED Color Meaning
State
off Laser beam is switched off.
Laser beam is switched on.
Sensor in operation, target in measuring range.
Target is in midrange.
Target out of range, too low reflection

The following 4 values are used:
Upper limit (UL), Lower limit (LL), Upper hysteresis value (UH), Lower hysteresis value (LH).

Function
- Setting mid-point
- No limit control

Switch-Mode (limit control)
Please refer to the instruction manual for factory settings to the limit and hysteresis values.

Switchover
UL
UH
LL
LH

The two limit outputs may also be actuated in parallel as window comparator (OK/Not OK separation).

You will find informations on display and signal processing units online at: www.micro-epsilon.com/accessories/index.html.
You can read more information about the sensor in the instruction manual. You will find these online at www.micro-epsilon.de/download/manuals/man-optoNCDT-1700-en.pdf or on the delivered CD.

Power supply sensor
Synchronization sensors
Laser on/off

is done by the interface card

The initialization including the info string transmission takes up to 10 seconds. Within this period, the sensor neither executes nor replies commands. To produce reproducible measurements the sensor typically requires a start-up time of 20 minutes.

Switching Outputs

Switching output 1/2
Pin 7 / 8
GND Pin 6
max. 100 mA

The transistor T is conductive in the active state. The switching outputs are short-circuit-proof.

To reset the short-circuit protection:
- Clear the external short circuit,
- switch off the sensor and switch on again,
- send the software command "Reset" to the sensor.

The two limit outputs may also be actuated in parallel as window comparator (OK/Not OK separation).