



Assembly Instructions

scanCONTROL 2700/2750 (500)

1. Warnings

Connect the power supply and the display/output device in accordance with the safety regulations for electrical equipment. The power supply must not exceed the specified limits.

> Danger of injury, damage or destruction of the sensor

Avoid shock and vibration to the sensor. Avoid continuous exposure to dust and spray on the sensor. Avoid exposure to aggressive materials (e. g. washing agent, penetrating liquids or similar) on the sensor.

> Damage to or destruction of the sensor

Read the detailed instruction manual before operating the sensor. You will find this manual on the provided CD or online at www.micro-epsilon.com.

2. Notes on CE Marking

The following applies to the scanCONTROL 27xx:

- EU directive 2014/30/EU
- EU directive 2011/65/EU, „RoHS“ category 9

The sensor fulfills the specifications of the EMC requirements, if the instructions in the manual are followed.

3. Proper Environment

- Protection class: IP 65 (Only applies to connected output plugs or protective caps)
- Operating temperature: 0 to +50 °C (+32 to +122 °F), by free circulation of air
- Storage temperature: -20 to +70 °C (-4 to +158 °F)
- Humidity: 5 - 95 % (non condensing)
- Vibration: DIN EN 600068-2-6 (sine shaped)
- Mechanical shock: DIN EN 60068-2-29

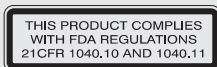
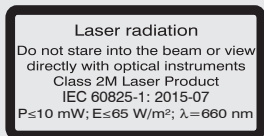
4. Scope of Delivery of scanCONTROL 27xx

- 1 Sensor scanCONTROL 27xx with integrated controller
- 1 power supply cable PC2700-4,5, length 4,5 m; ODU round connector and free cable ends
- 1 scanCONTROL Software CD with programs and documentation
- 1 Sensor inspection log / assembly instructions
- 1 Bag of accessories with one ODU male connector 6-pin (RS 422) and two protective caps for ODU female connector (6- or 8-pin)

5. Laser Safety

The scanCONTROL 27xx sensors operate with a semiconductor laser having a wavelength of 660 nm (visible/red). The laser operation is indicated visually by the LED on the sensor.

scanCONTROL 27xx sensors with a maximum laser power up to 10 mW are classified in Laser Class 2M (IIM). The following information labels are fitted to the sensor housing (front and rear side). If both information labels are hidden in the installed state, the user must ensure that additional labels are fitted at the point of installation.



Hazard to the eye via laser radiation! Consciously close your eyes or turn away if the laser radiation impinges on the eye.

Lasers of Class 2M are not subject to notification and a laser protection officer is not required. Mark the laser area recognizable and everlasting.

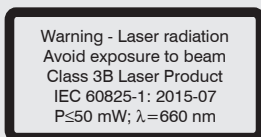
Laser Class 3B

scanCONTROL 27xx sensors with a maximum laser power up to 20 mW are classified in Laser Class 3B (IIIB).



When using lasers of 3B class appropriate protective glasses are necessarily! Injury of the eyes and the skin by laser radiation!

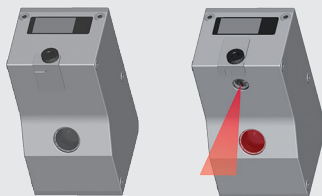
Class 3B (IIIB) laser sensors are notifiable and a laser protection officer is required either. During operation the laser area has to be restricted and marked. The following information label should be fitted to the sensor housing (front and rear side):



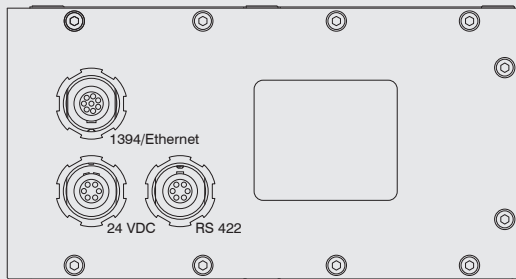
i Sensors of Laser Class 3B (IIIB) need an external key switch to switch off the laser, see Chap. "Laser switching".

Beam attenuator

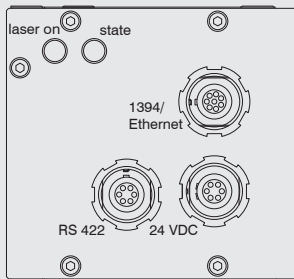
The beam attenuator prevents access to all laser and collateral radiation. The figures show the sensor with closed and open beam attenuator. The beam attenuator must be open during measurement.



6. Connections, LED Displays



LLT27xx, top side



LLT27xx (501), rear side

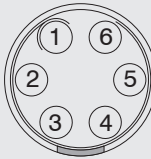
The sensors are available in two versions: Sockets on the top side or on the rear side.

LED displays

LED „laser on“	Green: Laser on	Note: The “status” LED flashes green; long during active data transmission and short for controller accesses.
LED „state“: Two-color LED (red / green)	Green: Measurement Green flashing: Data transmission Red flashing: Error code	

The state LED indicates different error conditions by flashing. If no flashing occurs for several seconds, no error has occurred.

Power supply (Power)

Pin no.	Belegung Steckverbinder „24 VDC“					Range: 11 V – 30 V (Rated value 24 V) DC; maximum current 500 mA  View on solder pin side, male cable connector, counting direction anti-clockwise
	Standard Adernfarbe PC2700; alte Ausführung in ()			Options 502, 503, 504, 505 Color PC2700(002)		
1	24V+	white	(rot)	24V+	pink	
2	n.c.	n.c.	n.c.	LH+	gray	
3	n.c.		n.c.	Laser off+	yellow	
4	n.c.	n.c.	n.c.	Laser off-	green	
5	n.c.		n.c.	LH-	brown	
6	24V GND	brown	(black or blue)	24V GND	white	

External laser switching

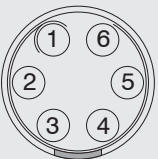
Series LLT27xx (502), LLT27xx (503), LLT27xx (504) and LLT27xx (505) sensors offer this function.

i Sensors of Laser Class 3B (IIIB) need an external key switch to switch off the laser.

➔ Use a serial key switch inside the control circuit to switch off the laser. You will find details for the wiring in the instruction manual, Chap. 5.2.4.

RS422, Synchronization

Pin no.	Assignment connector „RS422“		
	RS422	General	9-pin Sub-D ¹
1	RX1	CH1	2
2	/RX1	/CH1	3
5	GND1		5
3	TX2	CH2	9
4	/TX2	/CH2	1
6	GND2		5



View on solder pin side, male cable connector

The pin numbers refer to the scanCONTROL 27xx sensor. Micro-Epsilon recommends the use of the interface cable SC2700-4.5 RS422 from the optional accessories.

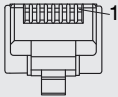
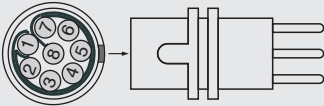
The RS422 port can be used with either of the following configurations:

- RS422: Loading of programs and transmitting of measurement results.
- Synchronization/Triggering: Synchronization resp. triggering using switching signals.

1) Optional RS422 interface cable (SC2700-4,5RS422) from Micro-Epsilon, compatible to the RS422 to USB converter. All outputs or inputs are designed symmetrically. Internal terminating resistors 120 Ohm.

Ethernet connection, standard link to the PC

RJ45 connector		8-pin. connector			The pin numbers refer to the scanCONTROL 27xx unit. Micro-Epsilon recommends using the Ethernet connection cable SC2700-5/ET from the recommended accessories.
Pin no.	Color stranded hook-up wire	Pin no.	10BaseT, 100BaseTX	1000BaseT	
1	white (orange)	5	Tx+	D1+	
2	orange	6	Tx-	D1-	
3	white (green)	8	Rx+	D2+	
4	blue	1		D3+	
5	white (blue)	2		D3-	
6	green	7	Rx-	D2-	
7	white (brown)	3		D4+	
8	brown	4		D4-	

 View: pin side male cable connector	 View on solder pin side, ODU
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- The sensors are supported by an automatically, sensor adapted IP address in the link-local-net (169.254.x.x). There is no collision testing effected. This is the standard setting.
- The sensor supports the DHCP protocol. This setting is activated by default and has priority over the retrieval in the link-local-net.
- A fixed IP address can be used.

➔ Use the „Ethernet Configurator“ software provided on the CD in order to make the sensor settings described above.

7. System Requirements scanCONTROL Configuration Tools

The following minimum system requirements are necessary:

- Windows 7 (32 bit and 64 bit), Windows 8 or 8.1 (32 bit and 64 bit), Windows 10 (32 bit and 64 bit)
- 1-GHz processor (32 bit and 64 bit) or faster / 1 GB RAM
- Screen resolution: 1024 x 768

8. Quick Start: Commissioning, Software

- ➔ Install the software.



Please insert the scanCONTROL Software CD in the CD-ROM device. Follow the dialog through the installation process.

- A. Reading of installation help
- B. Installation of software
- C. Further informations in the online documentation

- ➔ Mount the sensor according to the installation instructions.
- ➔ Connect the sensor to the PC via the Ethernet cable.
- ➔ Connect the sensor to display or monitoring units.
- ➔ Connect the sensor to the power supply.

The connectors for the operating voltage, switching signals and Ethernet are fitted with push-pull locking.

- ➔ Pull apart at the grip to release the connection.
- ➔ Connect the shield of the power supply cable to the PE protective earth conductor of the main power supply. Close unused connection plugs with the provided protective caps. Switch on the power supply (24 VDC).

i Only connect the sensor to the peripheral equipment, if it is disconnected from the power supply, i.e. only when the operating voltage is switched off. The sensor needs a warm-up time of typically 20 minutes for high precision measurements.

- ➔ Please wait until the scanCONTROL device is recognized by the PC.

This may take a few seconds.

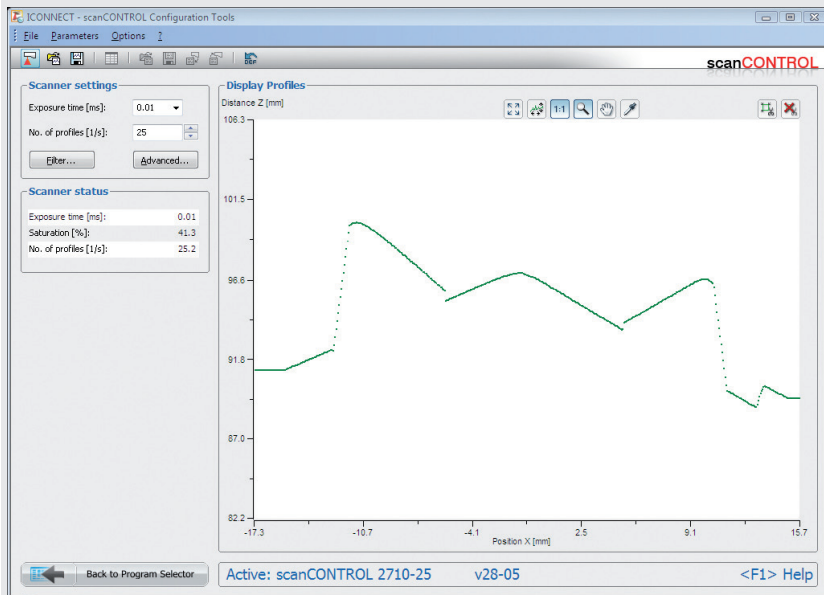
Now you can operate the scanCONTROL measurement system with the scanCONTROL software packages.

i No driver is required for scanCONTROL devices with an Ethernet interface.

9. First Profile

➔ Now start the scanCONTROL Configuration Tools software. Click on “Display Profiles” in the main window.

If the software shows the error message “No scanCONTROL found” in the status line, please check the Ethernet connection between scanCONTROL and PC.



On the left side you can adjust the settings for your measurement task, the right side shows the profile data and information about the measurement.

10. How to Access Profile Data

Profile data of scanCONTROL can be accessed via:

- GigEVision and GenICam for digital cameras via Ethernet interface
- SDK for fast application integration (C, C++, C# and others)

For details how to access profile data refer to the enclosed online manual.

11. Further Information

Please refer to

- the enclosed online manual
- the section "Status and Error Messages" and "Notes" in the scanCONTROL Configuration Tools manual.

You will find details to the separate programs in the respective instruction manuals or in the instruction manual of this sensor, Chap. 6.2. You will find the instruction manuals online or on the provided CD.

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