



Assembly Instructions

scanCONTROL 2910/2960BL

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 Identification

The following applies to the scanCONTROL 2910/2960BL:

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

The sensor is designed for use in industry and satisfies the requirements.

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

3. Proper Environment

- Protection class: IP 65
- Operating temperature: 0 to +45 °C (+32 to +113 °F), by free circulation of air
- Storage temperature: -20 to +70 °C (-4 to +158 °F)
- Humidity: 5 - 95 % (non condensing)

4. Scope of Delivery of scanCONTROL 2910/2960BL

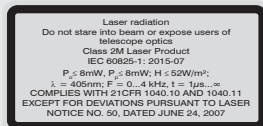
- 1 Sensor scanCONTROL 2910/2960BL with integrated controller
- 1 Multifunction cable PC2600/2900-5, length 5 m; for power supply, trigger and RS422; Escha screw connector and free cable ends
- Sensor acceptance report / assembly instructions
- 2 protective caps
- CD scanCONTROL Configuration Tools with drivers and documentation

5. Laser Safety

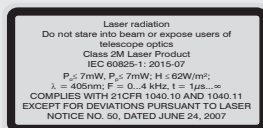
The scanCONTROL 2910/2960BL sensors operate with a semiconductor laser having a wavelength of 405 nm (visible/red). The laser operation is indicated visually by the LED on the sensor.

Laser Class 2M

scanCONTROL 2910/2960BL sensors with a maximum laser power up to 8 mW (scanCONTROL 29xx-10BL up to 7 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.



IEC label scanCONTROL 29xx-25/BL, 29xx-50/BL,
29xx-100/BL



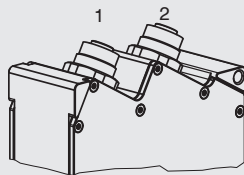
IEC label scanCONTROL 29xx-10/BL



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.

6. Connections, LED Displays



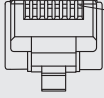
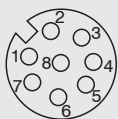
- 1 Ethernet port
- 2 Multifunction port (Power supply, IO)

RS422, Synchronization

The RS422 connection (Pin 11 and 12 of the multifunction port) can be used with either of the following configurations:

- RS422 (half-duplex): Load user modes, sensor control and transmission of measurement results (Modbus RTU or ASCII format).
- Synchronization/triggering: Synchronization respectively triggering using switching signals.

Ethernet Connection, Standard Connection to PC

RJ45 connector		8-pin screw connector (sensor side)		
Pin no.	Color stranded hook-up wire SC2600/2900-x	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 on pin side male cable connector		 View on solder pin side screw connector		

- The sensor supports an automatically, sensor-adapted IP address in the link-local-net (169.254.x.x). No collision detection is implemented. This is also the default setting.
 - The sensor supports DHCP. This setting is activated by default and has priority over the retrieval in the link-local-net.
 - The sensor scanCONTROL 2910/2960BL supports Power over Ethernet.
- NOTICE** If the sensor is connected to a network adapter/switch that is capable of POE and if you also use the power supply of the multifunction port, these two power supplies have to be galvanically isolated.

> Damage of the sensor and/or the Ethernet card!

- A fixed IP address can be assigned.

➔ Use the program "SensorFinder" delivered on the CD, to make the above-described sensor settings.

Trigger, Encoder, Mode Switching

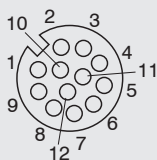
The switching inputs of the multifunction port can either be used for encoder input, for trigger input or for loading previously stored user modes.

The signal levels are switchable for all switching inputs between LLL (low-voltage-, TTL logic) and HLL (high-voltage-, HTL logic):

- LLL level: Low 0 V ... 0.8 V, high 2.4 V ... 5 V, internal pull-up 10 k Ω to 5 V
- HLL level: Low 0 V ... 3 V, high 11 V ... 24 V (permitted to 30 V), internal pull-up 10 k Ω to 24 V
- Pulse duration: $\geq 5 \mu\text{s}$

Multifunction Port

Designation	Sensor connector Pin	Cable color PC2600/2900-x	Notes
+Ub	9	red	+ 11 V - 30 V DC (rated value 24 V); max. 500 mA
GND	2	blue	0 V
+Laser on/off	3	white	optional
-Laser on/off	1	brown	
RS422	12	red-blue	RS422, input respectively output
/RS422	11	gray-pink	
In1	6	yellow	Digital Input 1
GND-In1	4	green	Ground In 1
In2	5	pink	Digital Input 2
GND-In2	8	gray	Ground In 2
In3	10	purple	Digital Input 3
GND-In3	7	black	Ground In 3
Shield	Housing	black	No galvanic connection to GND



12-pin screw connector, view on solder pin side
 GND: galvanically isolated from 1, 2, 3, RS422, Laser on/off
 Laser on/off: Input galvanically isolated from GND, IN1...3, RS422
 IN1, IN2, IN3, RS422: Inputs galvanically isolated from GND and Laser on/off

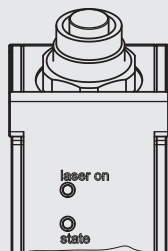
External Laser Switching

The sensors of the scanCONTROL 29xx/BL-SI series offer this function.

➡ 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. 5.2.6.

LED Displays



LED "laser on"	Green: Laser on	Note: The "state" 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. For a detailed description of the error codes, please refer to the instruction manual, Chap. 11.

7. Transmitting Measurement Results

scanCONTROL 2910/2960BL offers the following options for transmitting measurement results:

- Ethernet interface
 - Modbus TCP protocol
 - UDP protocol
 - Analog output of measurement values (via optional Output Unit)
 - Digital output of switching signals (via optional Output Unit)
- RS422 interface
 - Modbus RTU protocol
 - Measurement value transmission in ASCII format

8. System Requirements scanCONTROL Configuration Tools

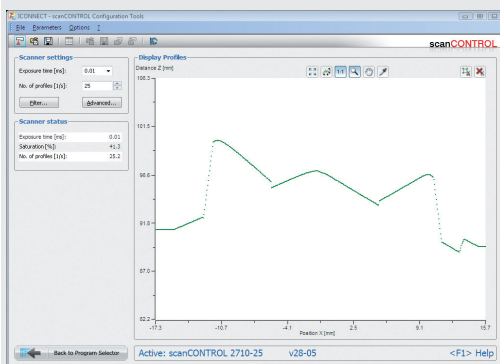
The following minimum system specification is necessary:

- 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 or faster (32 bit and 64 bit) processor / 1 GB RAM
- Screen resolution: 1024 x 768

9. First Profile

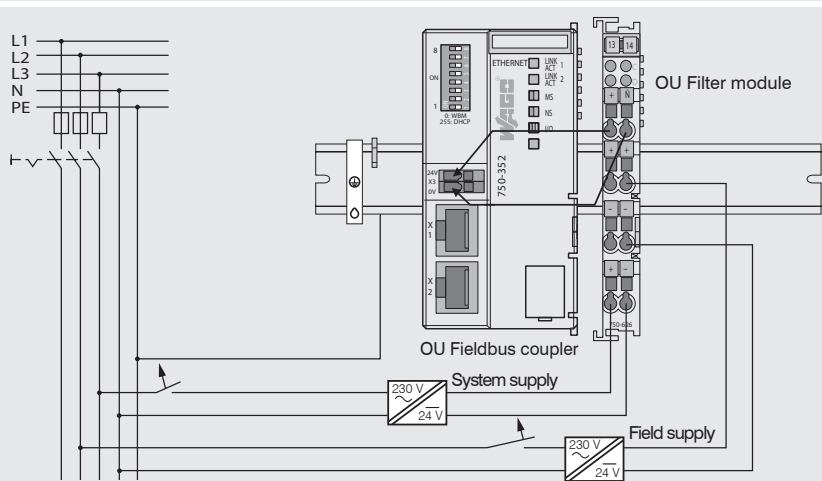
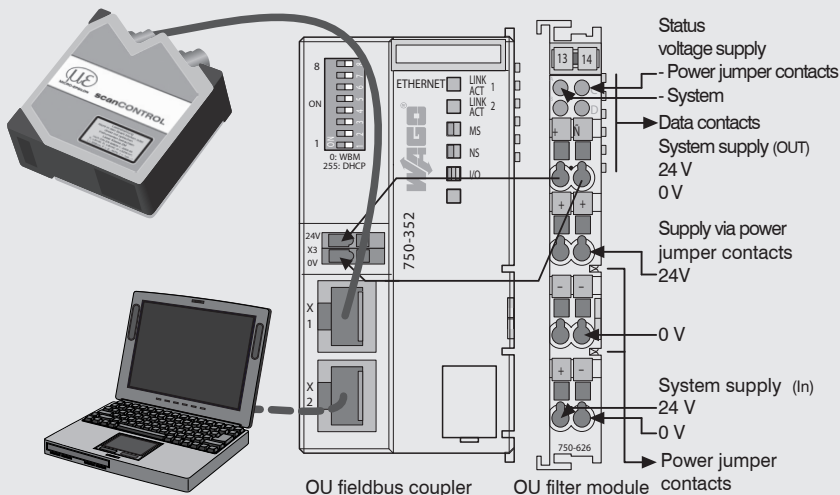
➡ Now start the scanCONTROL Configuration Tools software. Click on “Display Profiles” in the main window.

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

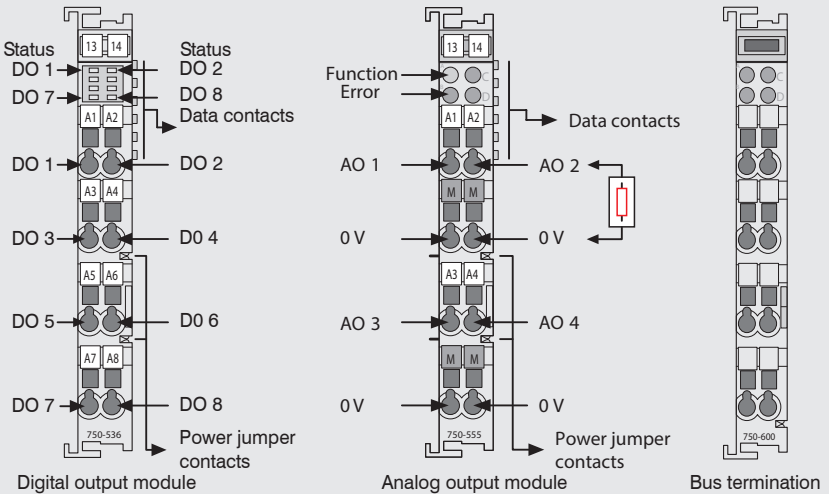


On the left side you can adjust the settings for your measurement task, the right side shows the profile data and information about the measurement.

10. scanCONTROL 2910/2960BL with scanCONTROL Output



Unit for Connections to an SPS



Connect the supply voltage

Digital output modules need a field supply of 5 VDC or 24 VDC depending on the module type.

After mounting of the modules install the required wiring.

- ➔ Connect the “System supply (out)” terminals of the OU-Filter module to the “System supply (in)” terminals of the OU-Fieldbus Coupler (0 V and 24 V).
- ➔ Connect the system supply (in) of the OU-Filter module to the power supply (0 V and 24 V).
- ➔ Connect the field supply (in) of the OU-Filter module to the power supply (0 V and 24 V resp. 0 V and 5 V).

i The system supply and field supply should be separated to ensure the bus operation and electrical isolation in case of a short-circuit of an actor.

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.

12. Quick Start: Commissioning, Software

➔ Install the software.



Please insert the scanCONTROL Configuration Tools 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 Ethernet and the multifunction port are fitted with an Escha screw connector.

➔ Loosen the screws before you remove the connector from the socket.

➔ 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 scanCONTROL Configuration Tools.

i Operating a scanCONTROL sensor via Ethernet may require a modification of the IP settings of the PC/sensor or a modification of the firewall settings, see Chap. 5.2.5 of instruction manual.

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