

FPBIGCHA STM20-20

FPBIGCHA STM20/40mm Safety Light Barriers Sensors Instruction Manual

Model: STM20-20

1. INTRODUCTION

This manual provides essential information for the safe and effective installation, operation, and maintenance of the FPBIGCHA STM20/40mm Safety Light Barriers Sensors. These devices are designed as protective switches for automation equipment, ensuring safety in industrial environments.

The STM20-20 model features a compact design, stable output, and is constructed from high-quality, durable materials. It is widely applicable in machine tool operating areas, general automation equipment, and stamping equipment.

2. SAFETY INFORMATION

WARNING: Failure to follow these safety instructions could result in serious injury or death.

- Always disconnect power before installation, maintenance, or troubleshooting.
- Installation and wiring must be performed by qualified personnel in accordance with all local and national electrical codes.
- Do not modify the sensor or its components. Unauthorized modifications can compromise safety and void the warranty.
- Ensure the sensor is correctly aligned and functioning before operating any machinery it protects.
- Regularly inspect the sensor for damage or wear. Replace damaged components immediately.
- This device is intended for use as a safety component. It must be integrated into a complete safety system designed by a qualified safety engineer.

3. PRODUCT FEATURES

The FPBIGCHA STM20/40mm Safety Light Barriers Sensors offer the following key features:

- **Stable Output:** Provides reliable and consistent performance for safety applications.
- **Compact Size:** Designed for integration into various automation setups without requiring excessive space.
- **Simple Installation:** Features a straightforward structure for easy mounting and setup.
- **Durable Material:** Constructed from high-quality materials to ensure longevity and resistance in industrial environments.
- **Wide Application:** Suitable for machine tool operating areas, general automation equipment, and stamping equipment.



Figure 1: Overview of the FPBIGCHA Safety Light Barrier Sensor.

4. SETUP AND INSTALLATION

The STM20/40mm safety light barriers are designed for simple installation. Follow these general guidelines:

1. **Mounting:** Securely mount the emitter and receiver units in parallel, ensuring they are rigidly fixed to prevent misalignment. Refer to the specifications for appropriate detection distance.
2. **Wiring:** Connect the sensor units to the control system according to the wiring diagram provided with the product (not included in this general manual). Ensure all connections are secure and correctly

polarized.

3. **Power Supply:** Connect to a stable power supply within the specified voltage range.
4. **Alignment:** Power on the units and align the emitter and receiver. Most units include indicator lights to assist with proper alignment. Adjust until the alignment indicator shows a strong signal.
5. **Testing:** After installation, perform thorough functional tests to ensure the safety light barrier operates correctly and stops machinery when the light beam is interrupted.

STM series 20mm

model	Number of optical axes, distance between optical axes		Protection height (H)	Appearance height (H1)	Detection distance (M)	Blind spot on top (A)	Blind spot below (B)
	(N)	(D)					
STM20-04NC	4	20	60	110	0.2-2.5m	20	30
STM20-06NC	6	20	100	150	0.2-2.5m	20	30
STM20-08NC	8	20	140	190	0.2-2.5m	20	30
STM20-10NC	10	20	180	230	0.2-2.5m	20	30
STM20-12NC	12	20	220	270	0.2-2.5m	20	30
STM20-14NC	14	20	260	310	0.2-2.5m	20	30
STM20-16NC	16	20	300	350	0.2-2.5m	20	30
STM20-18NC	18	20	340	390	0.2-2.5m	20	30
STM20-20NC	20	20	380	430	0.2-2.5m	20	30
STM20-22NC	22	20	420	470	0.2-2.5m	20	30
STM20-24NC	24	20	460	510	0.2-2.5m	20	30
STM20-26NC	26	20	500	550	0.2-2.5m	20	30
STM20-28NC	28	20	540	590	0.2-2.5m	20	30
STM20-30NC	30	20	580	630	0.2-2.5m	20	30
STM20-32NC	32	20	620	670	0.2-2.5m	20	30
STM20-34NC	34	20	660	710	0.2-2.5m	20	30
STM20-36NC	36	20	700	750	0.2-2.5m	20	30
STM20-38NC	38	20	740	790	0.2-2.5m	20	30
STM20-40NC	40	20	780	830	0.2-2.5m	20	30
STM20-42NC	42	20	820	870	0.2-2.5m	20	30
STM20-44NC	44	20	860	910	0.2-2.5m	20	30
STM20-46NC	46	20	900	950	0.2-2.5m	20	30
STM20-48NC	48	20	940	990	0.2-2.5m	20	30

Figure 2: Emitter and receiver units of the safety light barrier.

5. OPERATING INSTRUCTIONS

Once installed and aligned, the safety light barrier operates automatically to detect intrusions into the protected area.

- **Normal Operation:** When the light beams between the emitter and receiver are unobstructed, the sensor provides an "all clear" signal to the connected machinery, allowing it to operate.
- **Interruption Detection:** If any object or person breaks one or more light beams, the sensor immediately sends a "stop" signal to the machinery, initiating a safe shutdown or halt.
- **Reset:** After an interruption, the protected area must be cleared, and the safety system typically requires a manual reset before machinery can resume operation. Consult your machine's specific

safety system documentation for reset procedures.

STM20-40NC	40	20	940	990	0.2-2.5m	20	30
STM20-50NC	50	20	980	1030	0.2-2.5m	20	30
STM20-52NC	52	20	1020	1070	0.2-2.5m	20	30
STM20-54NC	54	20	1060	1110	0.2-2.5m	20	30
STM20-56NC	56	20	1100	1150	0.2-2.5m	20	30

Figure 3: Safety light barrier detecting an object.

6. MAINTENANCE

Regular maintenance ensures the continued reliable operation of your safety light barriers.

- **Cleaning:** Keep the optical surfaces of both the emitter and receiver clean. Dust, dirt, or debris can interfere with the light beams. Use a soft, lint-free cloth and a mild cleaning solution if necessary.
- **Inspection:** Periodically inspect the sensor units, cables, and mounting hardware for any signs of damage, corrosion, or loose connections.
- **Functional Test:** Perform a functional test at regular intervals (e.g., daily or weekly, depending on application and safety requirements) to confirm the sensor correctly detects interruptions and triggers the safety stop.
- **Alignment Check:** Verify that the emitter and receiver remain properly aligned. Re-align if necessary.

7. TROUBLESHOOTING

If the safety light barrier is not functioning as expected, consider the following common issues:

Problem	Possible Cause	Solution
Sensor not detecting / Machine not stopping	Misalignment of emitter/receiver; Obstructed beams (dirt, debris); Wiring error; Faulty unit.	Check alignment and re-align if needed; Clean optical surfaces; Verify wiring connections; Test unit functionality.
Sensor constantly detecting / Machine won't start	Beam obstructed; Misalignment; External light interference; Faulty unit.	Clear obstruction; Check alignment; Shield from strong external light; Test unit functionality.
Indicator lights off	No power; Wiring error; Faulty unit.	Check power supply; Verify wiring; Replace unit if faulty.

If troubleshooting steps do not resolve the issue, contact qualified technical support.

8. SPECIFICATIONS

The following table details the specifications for the STM20 series safety light barriers, including the STM20-20 model.

Model	Optical Axis Count (N)	Optical Axis Diameter (D)	Protection Height (H)	Appearance Height (H1)	Detection Distance (M)	Blind Spot Top (A)	Blind Spot Bottom (B)
STM20-20NC	20	20	380	430	0.2-2.5m	20	30
STM20-04NC	4	20	60	110	0.2-2.5m	20	30
STM20-06NC	6	20	100	150	0.2-2.5m	20	30
STM20-08NC	8	20	140	190	0.2-2.5m	20	30
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STM20-22NC	22	20	420	470	0.2-2.5m	20	30
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STM20-28NC	28	20	540	590	0.2-2.5m	20	30
STM20-30NC	30	20	580	630	0.2-2.5m	20	30
STM20-32NC	32	20	620	670	0.2-2.5m	20	30
STM20-34NC	34	20	660	710	0.2-2.5m	20	30
STM20-36NC	36	20	700	750	0.2-2.5m	20	30
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STM20-42NC	42	20	820	870	0.2-2.5m	20	30
STM20-44NC	44	20	860	910	0.2-2.5m	20	30
STM20-46NC	46	20	900	950	0.2-2.5m	20	30
STM20-48NC	48	20	940	990	0.2-2.5m	20	30
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STM20-52NC	52	20	1020	1070	0.2-2.5m	20	30
STM20-54NC	54	20	1060	1110	0.2-2.5m	20	30
STM20-56NC	56	20	1100	1150	0.2-2.5m	20	30

General Product Specifications:

- **Package Dimensions:** 1.18 x 0.79 x 0.39 inches
- **Item Weight:** 4.41 pounds
- **Manufacturer:** FPBIGCHA
- **Assembly Required:** No
- **Number of Pieces:** 1

9. WARRANTY AND SUPPORT

Specific warranty details and direct support contact information are not provided in the available product data. For warranty claims or technical assistance, please refer to the documentation included with your purchase or contact the seller directly.