Application Note

A108

MWD SBP (R-Loop) Testing

Device family: Radar scanners

Topic:

The MWD SBP has an input for testing. This can be used, for example, to check the scanner and its cabling for errors before each barrier movement.
Testing only works in combination with the barrier control unit, which must process the signals from the scanner. The barrier control starts the test, evaluates the reaction of the scanner and prevents the barrier from closing automatically if the test fails.

Normative background

If the scanner is used instead of a light barrier as an additional device in accordance with EN12453 protection level D, the testing can prevent a manual check of the scanner's functionality which is **being required** at intervals of no more than 6 months.

Functionality of the test

Outside the testing process, the control unit applies 9-30V DC (corresponding to the supply on the brown wire) to the test input (yellow wire). To initiate the test, the potential must temporarily (10 ms - 5000 ms) change to GND. The scanner then reacts by triggering the safety area (gray wire) for the time that the test input is connected to GND.

Exception: If the sensor has detected a fault, there is no response to the test request. The control unit recognizes the error status based on the lack of a test response.

Please note

Testing also works in reverse if GND potential is permanently applied to the test input and 9-30 V DC is temporarily applied to activate testing. The scanner automatically recognizes the standard potential and reacts to the change.

Wire-no.	Group	Color	Description	Function
1	Supply	white	GND	
2		brown	9-30 V DC	
3		green	Auxiliary output	COM-Testing (9-30 V DC)
4	Input	yellow	Input	Testing
5	Outputs	gray	Output 1	Triggering of the safety area
6		pink	Output 2	Triggering of the opening/presence area
7		blue	Output 3	Drive-through (default)
8		red	COM- Output	

Wiring

Caution
The test input (yellow) must be at the same potential as the scanner supply (brown or white), otherwise the device may be damaged.

Connect the test input of the scanner (yellow) to the test output of the control unit .

If the test output of the control unit is realized via a relay, connect the green wire to the COM port of the relay. Otherwise, isolate the green wire or alternatively connect it to 9-30V DC (brown) to prevent a short circuit.

If no testing is required, either isolate the test input (yellow) or connect it to a fixed potential of the supply (brown or white).

Parametrization

Some control units expect both a triggering of the safety area (gray wire) and a triggering of the opening area (pink wire) as a reaction to the test. This can be set under the “Advanced settings” of the opening range. To do this, activate the “Opening range” option under “Testing”: