

S7-1/2/4/5 SERIES INSTRUCTION MANUAL

CONTROLS

OUTPUT LED

The yellow LED on indicates that the NO output is closed.

DISPLAY (4 green-coloured digits)

The display indicates the signal level received, the switching threshold and messages relative to the parameter setting. Please refer to the "SETTING" paragraph for setup procedure indications.

STABILITY LED (S)

The green stability LED on indicates that the received signal has a safety margin larger than 30% of the output switching value.

DELAY LED (T)

The green delay LED on indicates that the function is active.

SPEED LED (H)

The green speed LED on indicates that the sensor is functioning with the maximum switching frequency.

SET PUSHBUTTON

A long pressure on the pushbutton activates the self-setting procedure.

The REMOTE input allows the external SET control.

This pushbutton also allows to set the sensor's parameters.

+ PUSHBUTTON and - PUSHBUTTON

A long pressure contemporarily on both pushbuttons, gives access to the setting menu of the parameters.

The switching threshold can be changed pressing the + or - pushbutton.

Please refer to the "SETTING" paragraph for setup procedure indications.

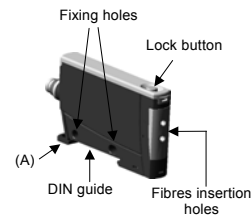
INSTALLATION

The transparent command protection cover rotates more than 130° in order to have an easy access.

It can be removed opening it completely and pulling it slightly, with a slight pression it can be replaced back.

Mount the sensor on a DIN rail or using to fixing holes and screws (M3x20 or longer).

For mounting on DIN rail, insert first part (A).



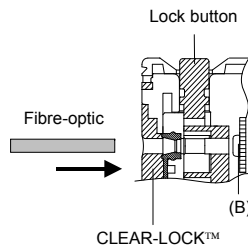
Installation of the fibre-optics:

Press the lock pushbutton and keep it pressed until all the fibres has been completely inserted.

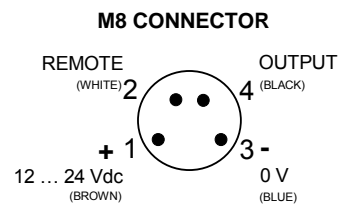
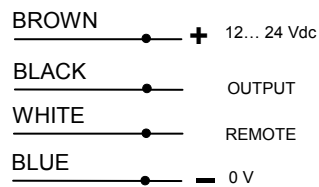
Insert the fibres in the corresponding holes as described in the dimension drawing.

The transparent CLEAR-LOCK™ fixing block allows to easily check that the fibres are correctly inserted.

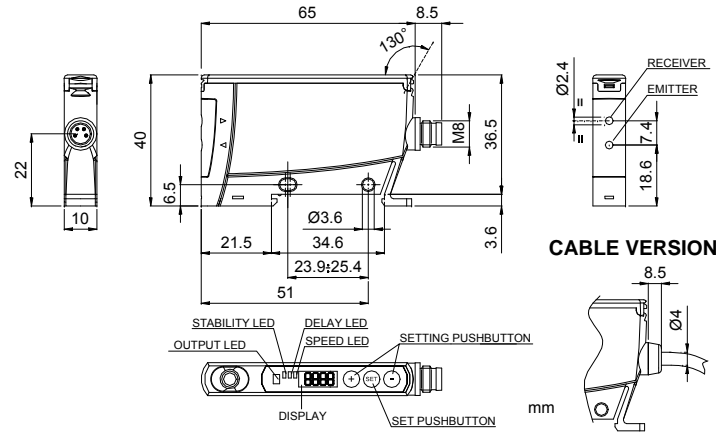
The insertion resistance is due to the O-ring seal; please insert the fibres for about 6mm deeper until they touch the photoelements (B).



CONNECTIONS



DIMENSIONS



TECHNICAL DATA

Table with technical specifications: Power supply (12... 24 Vdc ±10%), Ripple (2 Vpp max.), Consumption (≤ 50 mA), Outputs (NPN/PNP), Output current (100 mA max.), Response time (500 µs max.), Switching frequency (1 KHz max.), Indicators (4 digit DISPLAY), Setting (SET pushbutton), Data retention (non volatile EEPROM memory), Operating temperature (-10... 55 °C), Storage temperature (-25... 70 °C), Electrical protection (Class 2), Operating distance, Emission type, Ambient light rejection, Vibrations, Shock resistance, Housing material, Mechanical protection, Connections, and Weight.

SETTING

EASY TOUCH™

The sensor uses the patent-covered EASY TOUCH™ technology that allows a rapid and safe self-setting of the product.

Two different setting possibilities are available:

- EASY TOUCH™: a long pressure of the SET pushbutton allows self-setting.
- FINE DETECTION: to be used only in particularly critical conditions. This setting procedure is used only when the EASY TOUCH™ is not sufficient.

- pushbutton pressed ○ pushbutton not pressed

S7 setting

The EASY TOUCH™ foresees the LIGHT operating mode.

Thus using proximity fibres, the output is closed and the output LED is ON when the object is detected. Using through beam fibres, the output is closed and the output LED is ON when the object does not interrupt the beam (i.e. the object is not detected).

- EASY TOUCH™ (standard detection)

Place the object to detect in front of the proximity fibres within the operating range, or in the middle of the through beam fibres.

Display sequence table for standard detection: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- Press the SET pushbutton for at least 2sec.

Display sequence table for EASY TOUCH™ detection: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- The "Easy" text appears for EASY TOUCH™ detection

- The single detection is made releasing the pushbutton

Display sequence table for switching threshold setting: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- The switching threshold value begins to blink
- The switching threshold can be changed using the + or - pushbuttons
- The sensor returns to the Normal mode, visualising the received signal, after 5sec.of inactivity

Fine detection

This mode offers an improved detection precision. The sensor can function either in the DARK operating or in the LIGHT operating mode.

Place the object to detect in front of the proximity fibres within the operating distance, or in the middle of the through beam fibres.

Display sequence table for Fine detection: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- Press the SET pushbutton for at least 4sec.

Display sequence table for Fine detection: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- The "SET1" text appears to detect the object's condition
- The output LED begins to blink releasing the SET pushbutton, The "SET2" text appears.

Display sequence table for Fine detection: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- Remove the object to detect and press the SET pushbutton again

Display sequence table for Fine detection: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- If the detection is correct the switching threshold value begins to blink
- The switching threshold can be changed with the + or - pushbutton
- The sensor returns to the Normal mode, visualising the received signal, after 5sec.of inactivity.

Display sequence table for Fine detection: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- The "FAIL" message appears if the detection is not correct and the output turns off
- The STABILITY LED blinks.

Switching threshold setting

Display sequence table for switching threshold setting: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- Press the + or - pushbutton for at least 2sec.

Display sequence table for switching threshold setting: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- The switching threshold value begins to blink.

Display sequence table for switching threshold setting: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- The switching threshold value is changed pressing the + or - pushbutton
- The units change at each pressure
- The digits change if the pressure is maintained
- The display returns to the Normal mode if the pushbuttons are not pressed for at least 5sec.

PARAMETER SETTING

Display sequence table for parameter setting: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- Pressing contemporarily the + and - pushbuttons 2sec.

Display sequence table for parameter setting: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

- The "Menu" text appears, access to the parameter setting is obtained releasing the buttons

Visualisation of the delay value

By simply pressing the + or - pushbutton, the menu is visualised (onwards and backward) showing the following:

Display sequence table for delay value setting: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

At each pressure of the SET pushbutton, the different levels of the output deactivation delay are visualised cyclically and the relative delay value is also memorised. When the "del0" message is visualised, the T LED is off; it is on in all the other levels (del...del3). The + pushbutton has to be pressed to continue through the setting menu (the - pushbutton to go backwards).

The delay levels are: 0=no delay; 1=5ms; 2=10ms; 3=20ms; 4=40ms.

Visualisation of the sensor's switching frequency

Display sequence table for switching frequency setting: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

At each pressure of the SET pushbutton, the different levels of the switching frequency are visualised. When the Fast speed is selected the H LED is on; the H LED is off if the low "NorM" speed is selected. The + pushbutton has to be pressed to continue through the setting menu (the - pushbutton to go backwards).

Visualisation of the sensor's LIGHT/DARK logic switching

Display sequence table for LIGHT/DARK logic switching: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

At each pressure of the SET pushbutton, the two logic types (LIGHT or DARK) are visualised. When the LIGHT mode is selected the "L-On" is visualised; "d-On" to select the DARK mode. The + pushbutton has to be pressed to continue through the setting menu (the - pushbutton to go backwards).

Visualisation of the display orientation

Display sequence table for display orientation: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

At each pressure of the SET pushbutton, the visualisation of the messages on the display is inverted. The + pushbutton has to be pressed to continue through the setting menu (the - pushbutton to go backwards).

Visualisation of the display turning off

Display sequence table for display turning off: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

At each pressure of the SET pushbutton, the turning off or on of the display is visualised. If "dSOF" is selected the display will be turned off when back to the normal mode and turned on at each pressure. It will turn off again if not pressed for at least 5 sec. The + pushbutton has to be pressed to continue through the setting menu (the - pushbutton to go backwards).

Visualisation of the SAVE parameters set by the user

Display sequence table for SAVE parameters: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

All the changed values will be memorised by pressing the SET pushbutton and you exit the menu, returning to the normal mode.

The + pushbutton has to be pressed to continue through the setting menu (the - pushbutton to go backwards).

Visualization of the parameter RESET with pre-set values

Display sequence table for parameter RESET: OUT S T H Dig1 Dig2 Dig3 Dig4 + SET -

The default parameters are reset when the SET pushbutton is pressed.

The "RESET" text blinks until the pushbutton is pressed.

The sensor returns to function normally when the button is released.

Default parameters: Delay NO DELAY

Switching frequency NORM

Switching logic LIGHT

Orientation DS_UP

Display DS_ON

REMOTE FUNCTION

The REMOTE wire connected to +Vdc is equal to pressing the SET pushbutton. The keyboard block is activated if at the sensor powering the REMOTE wire is connected +Vdc, and thus the SET pushbutton is no longer active. To deactivate the keyboard block the sensor has to be turned off and then turned on with the REMOTE wire not connected.

DECLARATION OF CONFORMITY

We DATALOGIC AUTOMATION declare under our sole responsibility that these products are conform to the 2004/108/CE and successive amendments.

WARRANTY

DATALOGIC AUTOMATION warrants its products to be free from defects. DATALOGIC AUTOMATION will repair or replace, free of charge, any product found to be defective during the warranty period of 36 months from the manufacturing date. This warranty does not cover damage or liability deriving from the improper application of DATALOGIC AUTOMATION products.

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