

Photoelectrics

Anti-collision control

FE7W Series

FEATURES

- Self-contained
- Two front detection scanning zones, independently adjustable
- Selectable front zones width
- Selectable side detection
- Mutual interference protection (Selectable frequencies)
- PNP or NPN Open Collector output
- Sensitivity adjustments
- Infrared beam
- High ambient light immunity

TYPICAL APPLICATIONS

- Automatic guided vehicles
- Gantry cranes obstacle detection
- Automatic storage and retrieval systems
- Driverless tractors



GENERAL INFORMATION

The FE7W helps prevent automatic guided vehicles from colliding with people or objects in their path. When the AGV's is equipped with an on-board Programmable Logic Controller, the FE7W can offer immediate and flexible control without manual intervention. Crosstalk interference can be completely avoided by the selection of up to 8 different operating frequencies.

The FE7W is equipped with a 2 stage front scanning system. The long-range beam and short-range beam enable the vehicle to operate in a slow-before-stopping mode. Two separate potentiometers allow individual adjustments.

The FE7W series also has a larger beam width, selectable by an additional input, to accommodate narrow aisle, and right and left-scanning controls that can be activated individually to provide 45° side viewing when turning corners. These functions are selectable through high-speed control inputs, allowing to instantaneously adapt the scanning range to the movement of the AGV. The scan ranges of the left and right beams scan range are adjusted via a common potentiometer.

The FE7W operates over 18 to 30 Vdc. Its output is Open-collector, available both in PNP or NPN. Operating temperature ranges from -10 to 60° C.

SPECIAL
PURPOSE

FE7W

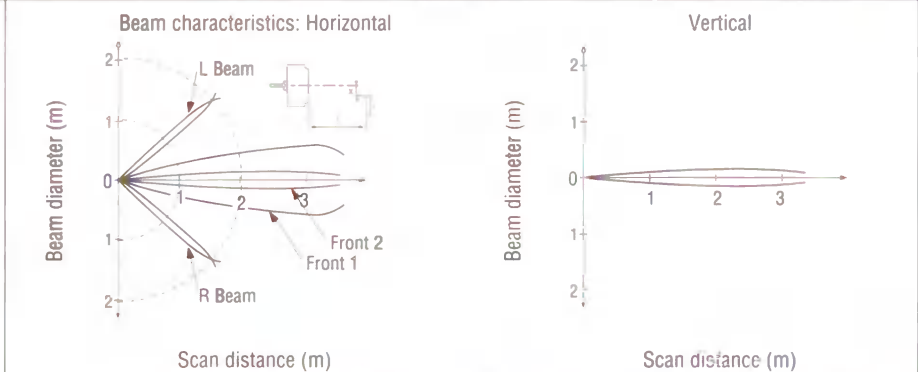
- Long scan distance 3 m
- Selectable scan width
- Right / left scanning control
- Mutual interference protection with selectable frequency



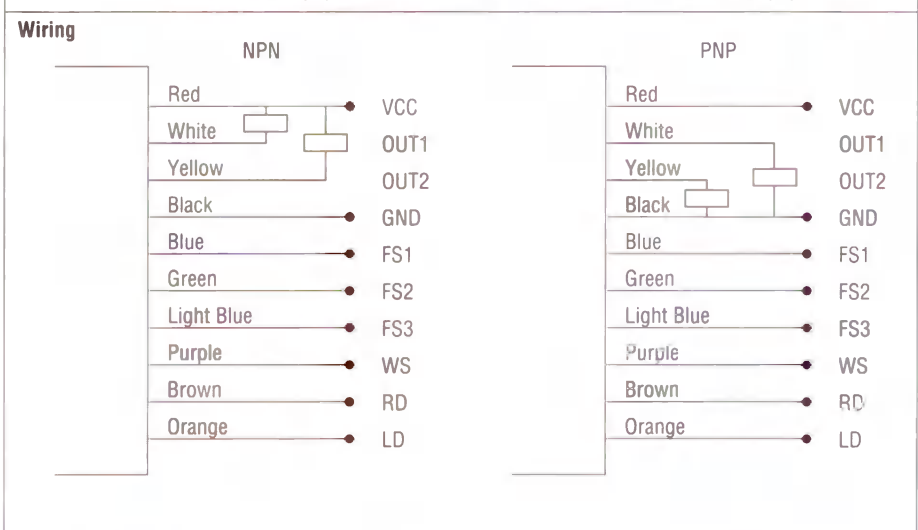
Specifications Scan type Scanning distance Supply voltage Power / current consumption Output type Output saturation voltage Response time Response time after Control input change Maximum low-level input voltage Standard functions Ambient light resistance Operating temperature Sealing Relative humidity Insulation resistance Withstand voltage Vibration Shock Termination Light source type Beam Width Right / left scanning control Light frequency control Circuit protection	Diffuse (selectable scan width) OUT 1 : 3 m, OUT 2 : 2.5 m, left/right : 1 m (1) 18 to 30 Vdc (10% ripple) 70 mA max. 100 mA NPN or PNP (2) 1 V max. (at 100 mA) 30 ms at 25° C (80 ms max.) 5 ms max. 1.5 V max. ① ② ③ ④ ⑤ ⑥ Incandescent : 3 000 Lux / sunlight : 10 000 Lux -10 to 60° C IP 64 45 to 85% RH (without condensation) 20 M Ω min. (3) 500 Vac for 1 mn 10 to 55 Hz, 1.5 mm amplitude (4) 50 G, 3 times X, Y and Z directions Prewired with 2 m cable Infrared Horizontal : 0.3 or 1 m selectable / Vertical : 0.3 m 1 m adjustable (5), operation selectable 8 frequencies programmable ① ② ③
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Ordering information	NPN LO NPN DO PNP LO PNP DO	FE7W-DA5K FE7W-DB5K FE7W-DD5K FE7W-DE5K
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- Circuit protection key**
- ① Reverse polarity of supply voltage
 - ② False pulses during power switch On
 - ③ Output short circuit protection
- Standard functions key**
- ① Power indication
 - ② Output indication - OUT1 and OUT2
 - ③ Selectable scan width
 - ④ Right / left scanning control
 - ⑤ 2 detection ranges
 - ⑥ Sensitivity adjustment
- Notes**
- (1) Diffuse beam diameter measurements and scanning distances are measured with 30 cm x 30 cm white card
 - (2) For output 1 and output 2
 - (3) Measured with 500 V megohmmeter
 - (4) 2 hours in X, Y and Z directions
 - (5) R / L controls are common and cannot be adjusted individually



Preferred listings are shown in bold type



SPECIAL PURPOSE

Applications

- Automatic guided vehicles
- Robots
- Stacking cranes

Frequency changeover code table

FE7W-D□5K

	Selectable frequencies							
	1	2	3	4	5	6	7	8
FS1	○	○	○	○	●	●	●	●
FS2	○	○	●	●	○	○	●	●
FS3	○	●	○	●	○	●	○	●

External control input

		Detection Area
(WS) Narrow beam	●	
(WS) Wide beam	○	
(RD) Right Detection	●	
(LD) Left Detection	●	
Right Detection Left Detection	●	

○ Leave open
● Connect to GND (NPN), or Vdc (PNP)

O₁ Output 1
O₂ Output 2

Beam key

Front1: Both front beams wide. Selected by "Width Selection" control input.

Front2 : Both front beams narrow.

L Beam: Left beam. Selected by "Left Detection" control input.

R Beam: Right beam. Selected by "Right Detection" control input.

Wiring key

VCC, GND : Power supply.

OUT1 : Long range front scan output.

OUT2 : Short range front scan and side beams output. OUT2 is triggered when any of the beams meet a target.

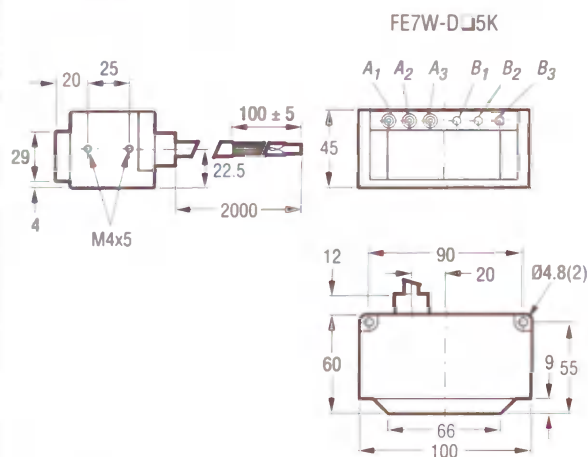
FS1, FS2, FS3 : Frequency selection.

WS : Width Selection: Connect to GND (NPN) or Vdc (PNP) for narrow front beams. Leave open for wide front beams.

LD : Left Detection: Connect to GND (NPN) or Vdc (PNP) to enable left scan beam. Leave open to disable it.

RD : Right Detection: Connect to GND (NPN) or Vdc (PNP) to enable right scan beam. Leave open to disable it.

Dimensions (mm)



Dimensions key

A₁ Sensitivity adjustment for long range front scan (OUT1)

A₂ Sensitivity adjustment for short range front scan (OUT2)

A₃ Sensitivity adjustment for R/L beams

B₁ Power indicator

B₂ Output indicator for OUT1

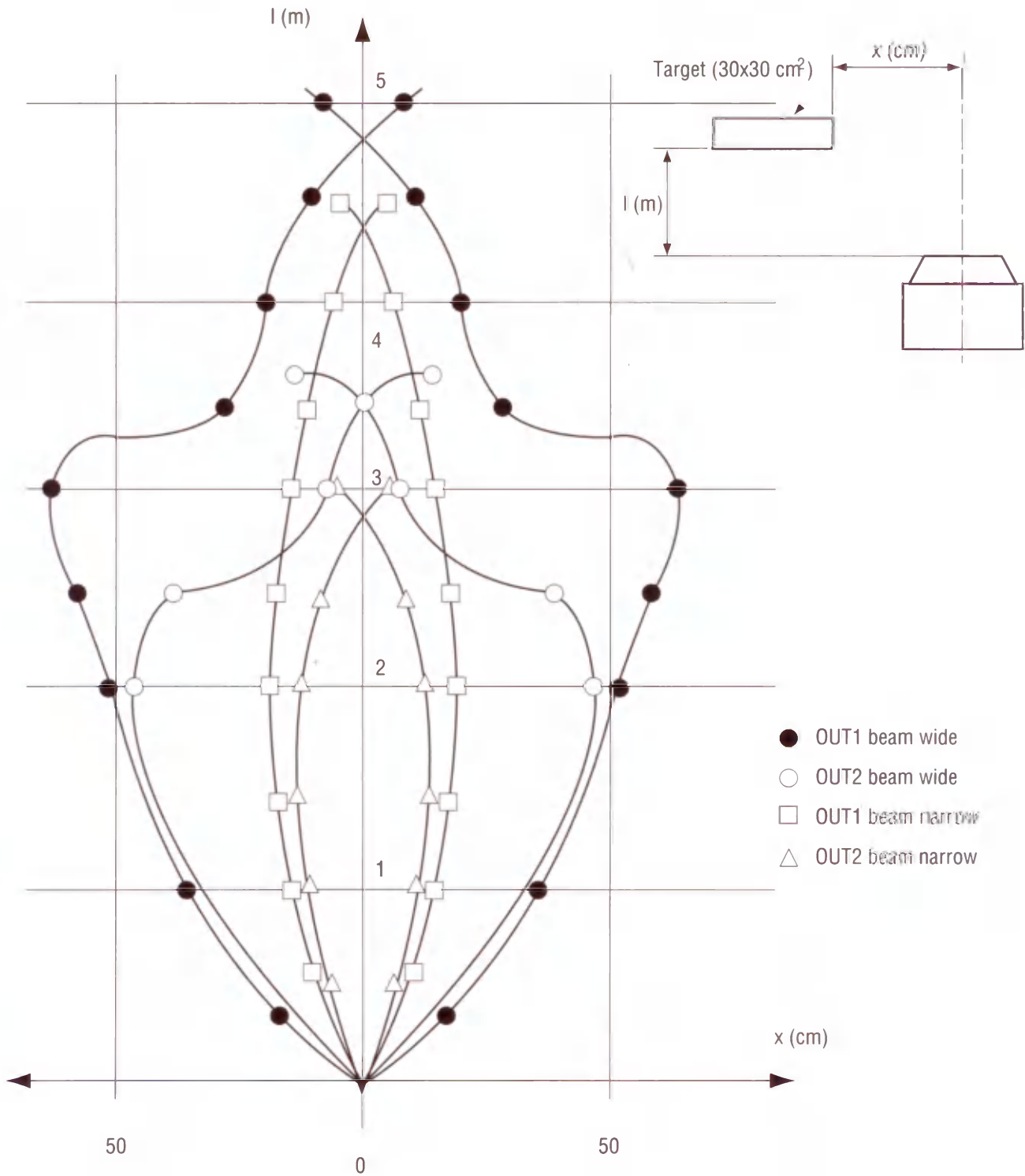
B₃ Output indicator for OUT2

SPECIAL
PURPOSE

FE7W



Front Beam characteristics
(Target : 30x30 cm white card)



SPECIAL
PURPOSE

Honeywell

Sensorstecnicos & Semiconductors, S.L.

Special Purpose sensors
www.sensorstecnicos.net