

US50 SERIES

Datalogic Automation **US50** is the new series of ultrasonic sensors with M50 plastic tubular housing. All models are provided with a radial emitting head and offer the following versions:

- Digital bipolar **PNP/NPN NO/NC** configurable output;
- Analogue **0-10V / 4-20mA** configurable output.

Operating distance from **200mm to 8m** makes US50 ideal solution for all industrial applications where the target must be detected or measured really far away from the sensor.

The sensor functions are set using DIP-switches located on the rear side. Electrical connection is obtained through a standard **M12 5-pole** connector Euro Style.

These new sensors can be easily configurable thanks to the **TEACH-IN procedure**, performed through two **PUSH-BUTTONS** located on the rear side of the device or through the connector's **REMOTE input**. New Datalogic Automation US50 ultrasonic sensors can detect all objects independently from the material, transparency and/or colour.

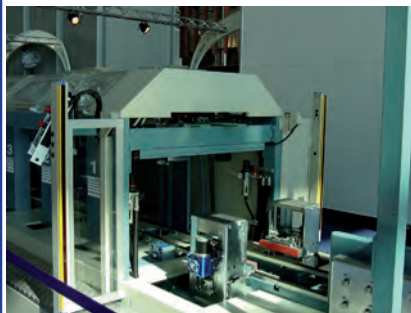


HIGHLIGHTS

- Digital bipolar PNP/NPN NO/NC configurable output model
- Digital and 0-10V / 4-20mA configurable analogue output model
- Operating range of 200mm...8m
- Minimum resolution: 1mm
- Analogue output Linearity: +/- 0.2% of span from 200 to 8000 mm; +/- 0.1% of span from 500 to 8000 mm (1 mm minimum)
- Minimum window size : 20mm
- Repeatability: 1mm
- Hysteresis: 5mm
- Response Time: 100ms to 1600ms
- DIP SWITCH selectable
- Access to bank of 8 DIP switches through sealed cover for superior user functionality
- Fast, easy-to-use REMOTE TEACH-Mode programming; no potentiometer adjustments
- Wide operating range of -20° to +70°C with compensation function
- Rugged encapsulated design for harsh environments
- Unique housing design allows for multiple mounting configurations
- Euro-style quick-disconnect fitting

APPLICATIONS

Ceramics



Transportation lines



Beverage & Bottling

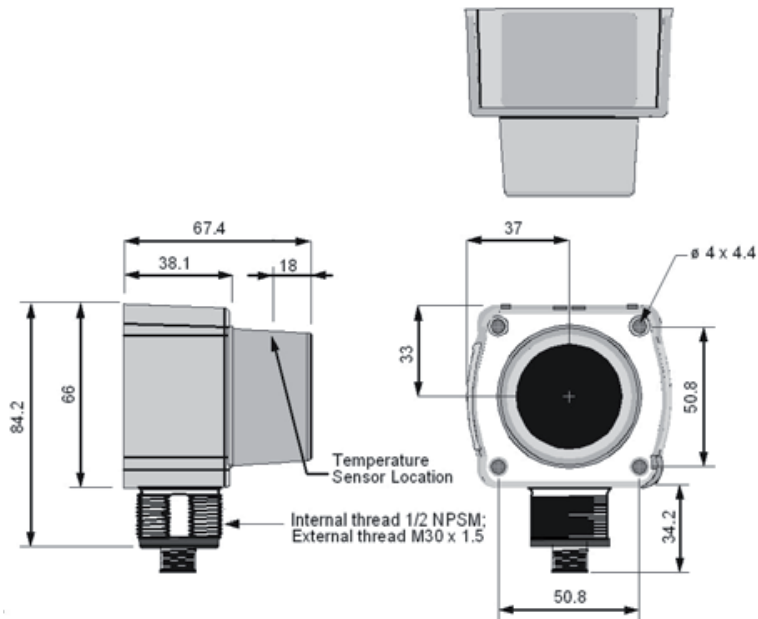


Packaging lines

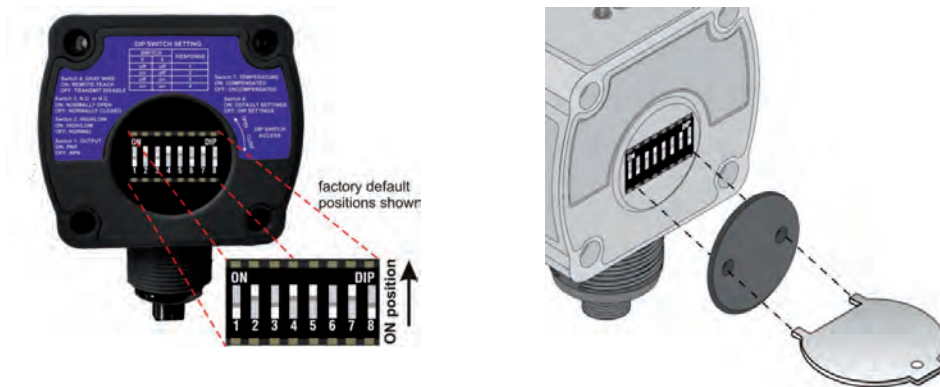


SAFETY & MEASUREMENT

DIMENSIONS



SENSOR PROGRAMMING



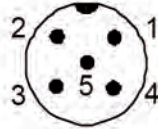
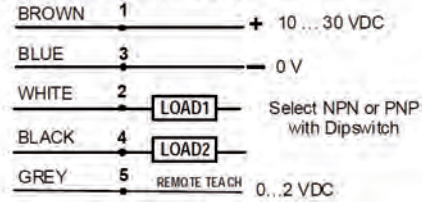
Switch	Digital models - Functions	Analogue model - Functions
1	PNP or NPN select	Voltage/Current mode
2	Window / Fill level	Loss of echo
3	Output operation	Min-max
4	Teach/Disable control	Teach/Enable control
5 and 6	Response (100 ms/cycle) 1 cycle 4 cycles* 8 cycles 16 cycles	Analogue voltage output response for 95% of step change 100 ms with 100 ms update 500 ms with 100 ms update* 1100 ms with 100 ms update 2300 ms with 100 ms update
7	Temperature compensation	Temperature compensation
8	Factory calibration	Factory calibration

Note: for DIP-switches settings and corresponding factory defaults refer to the user manuals

CONNECTIONS

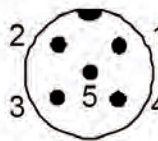
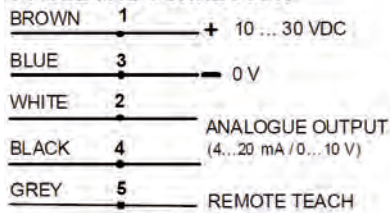
DIGITAL VERSION

5-POLE M12 CONNECTOR



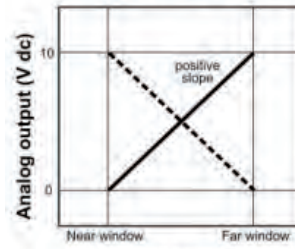
ANALOGUE VERSION

5-POLE M12 CONNECTOR



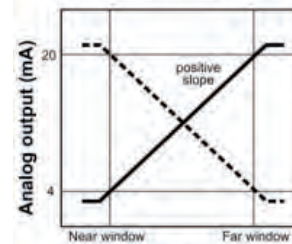
DETECTION DIAGRAMS

Voltage-sourcing models



Target position

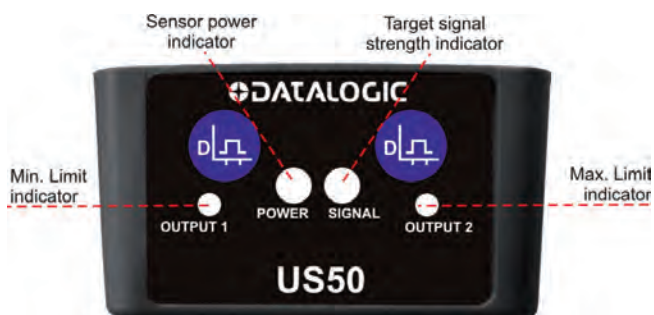
Current-sourcing models



Target position

CONTROLS

DIGITAL CONTROLS



ANALOGUE CONTROLS



Signal LED (Red) – indicates the strength and condition of the sensor's incoming signal.

Output LEDs (Yellow or Red) – indicate the position of the target relative to the window limits

Power ON/OFF LED (Green) – indicates the operating status of the sensor.

Signal LED (Red) – indicates the strength and condition of the sensor's incoming signal.

Output LEDs (Red or Yellow) – indicate the position of the target relative to the window limits

Power ON LED (Green) – indicates the operating status of the sensor.

TECHNICAL DATA

	DIGITAL VERSION	ANALOGUE VERSION
Power supply:	10 ... 30 VDC reverse polarity protection	10 ... 30 VDC reverse polarity protection
Ripple:	≤ 2 VPP	≤ 2 VPP
Consumption (load current excluded):	100mA max. at 10V 40mA max. at 30V	100mA max. at 10V 40mA max. at 30V
Ultrasonic frequency:	75 kHz burst, rep. rate 96 ms	75 kHz burst, rep. rate 96 ms
Output configuration:	NPN or PNP, selectable via DIP switch	Voltage sourcing: 0...10 VDC (Short-circuit protection) Current sourcing: 4...20mA
Output ratings:	150 mA max. OFF-state leakage current: < 5 µA Output saturation NPN: < 200 mV @ 10 mA and <650 mV @ 150 mA Output saturation PNP: < 1.2V @ 10 mA and <1.65V @ 150 mA	-
Response time:	100 ms to 1600 ms	100 ms to 2300 ms
Indicators:	Power ON LED (GREEN), Signal LED (RED), Output LED (bicolour YELLOW/RED)	Power ON LED (GREEN), Signal LED (RED), Output LED (bicolour YELLOW/RED)
Setting:	Teach-in push-button or remotely via TEACH input	ANALOG push-button, remote command input (remote teach). Minimum and maximum detection limits can be programmed using the ANALOG push-button or remote input.
Remote Teach:	Connect grey wire to 0 to +2 VDC; impedance 12KΩ	-
Remote input levels:	-	Connect grey wire to 0 to +2 VDC; impedance 12KΩ
Delay at Power On:	1.5 sec	1.5 sec
Temperature effect:	Uncompensated: 0.2% of distance /°C Compensated: 0.02% of distance /°C	Uncompensated: 0.2% of distance /°C Compensated: 0.02% of distance /°C
Hysteresis:	5 mm	-
Linearity:	-	± 0.2% of span from 200 to 8000 mm; ± 0.1% of span from 500 to 8000 mm (1mm min.)
Resolution:	-	1 mm
Repeatability:	1 mm	-
Minimum reading window size:	20 mm	20 mm
Operating temperature:	-20 ... 70 °C	-20 ... 70 °C
Storage temperature:	-20 ... 70 °C	-20 ... 70 °C
Maximum relative humidity:	100%	100%
Operating distance (typical values):	200...8000 mm	200...8000 mm
Vibrations:	0.5 mm amplitude, 10...55 Hz frequency, for every axis (EN60068-2-6)	0.5 mm amplitude, 10...55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance:	11 ms (30 G) shock for every axis (EN60068-2-27)	11 ms (30 G) shock for every axis (EN60068-2-27)
Reference standard:	EN60947-5-2	EN60947-5-2
Housing material:	ABS polycarbonate	ABS polycarbonate
Push-button material:	Polyester	Polyester
Mechanical protection:	IP67	IP67
Connections:	M12 5-poles connector	M12 5-poles connector
Weight:	260 g	260 g.

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
US50-PR-5-N43-OH	US50-PR-5-N43-OH RIGHT ANGLE B.PNP/NPN	95B040120
US50-PR-5-N43-IVH	US50-PR-5-N43-IVH RIGHT ANGLE B. AN. OUT	95B040130

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
ST-30SC	ST-30SC US50 MOUNT. BRACKET ASSY	95ACC7820
ST-30MM	ST-30MM US50 STAINLESS STEEL BRACKET	95ACC7830



The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.