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 / 4-20m** configurable output.

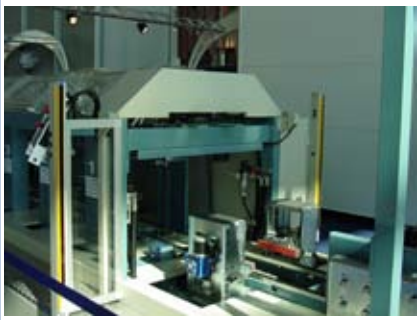
Operating distance from **200mm to 8m** makes US50 ideal solution for all industrial applications where the target must be detected or measured really far away from the sensor.
The sensor functions are set using DIP-switches located on the rear side. Electrical connection is obtained through a standard **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



Beverage & Bottling

Transportation lines

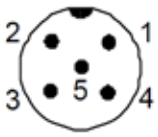
Packaging lines

CONNECTIONS

DIGITAL VERSION

5-POLE M12 CONNECTOR

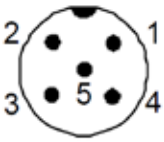
BROWN	1	+ 10 … 30 VDC
BLUE	3	– 0 V
WHITE	2	LOAD1 — Select NPN or PNP with Dipswitch
BLACK	4	LOAD2 — Select NPN or PNP with Dipswitch
GREY	5	REMOTE TEACH 0…2 VDC



ANALOGUE VERSION

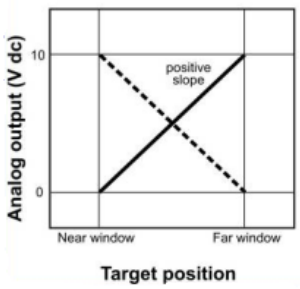
5-POLE M12 CONNECTOR

BROWN	1	+ 10 … 30 VDC
BLUE	3	– 0 V
WHITE	2	ANALOGUE OUTPUT (4…20 mA / 0…10 V)
BLACK	4	ANALOGUE OUTPUT (4…20 mA / 0…10 V)
GREY	5	REMOTE TEACH

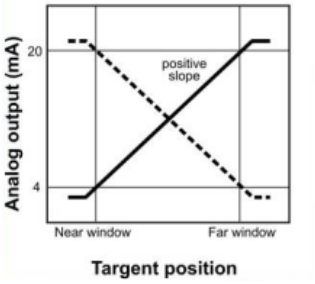


ANALOGUE OUTPUT DIAGRAMS

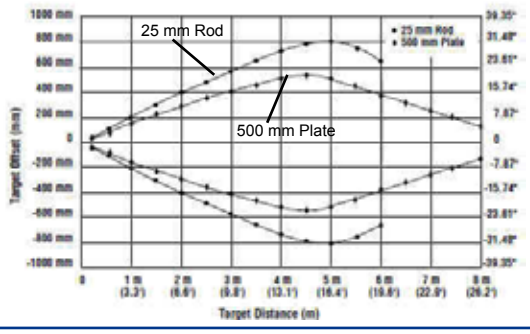
Voltage-sourcing models

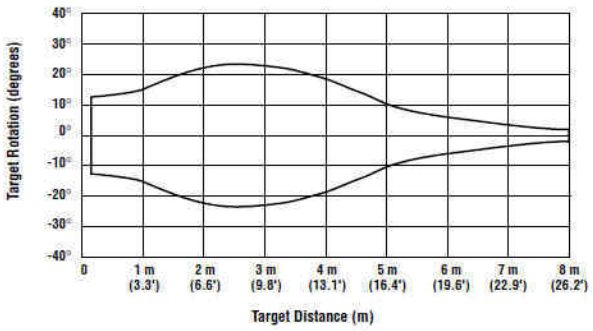


Current-sourcing models



READING DIAGRAMS





CONTROLS

DIGITAL CONTROLS

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

Output LEDs (Yellow or Red) – active when the target is inside to the window limits

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

ANALOGUE CONTROLS

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

Limit 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; impedence 12KΩ	-
Remote input levels:	-	Connect grey wire to 0 to +2 VDC; impedence 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