

MNU-IS Series

Intrinsically Safe Ultrasonic Modbus Sensor

Datasheet



MNU-IS ultrasonic sensors are rugged units, rated Intrinsically Safe for hazardous location installations. They feature APG's new QuickMode for power-saving, on-demand measurements, and optional GDT surge protection. All MNU-IS sensors are fully programmable via RS-485 Modbus communications, and with APG Modbus software and an RS-485-to-USB converter.

Features

- Ranges: 1 ft – 25 ft, 5 in – 12 ft
- Self-Contained Sensor
- Multiple Housing Options
- RS-485 Modbus RTU Interface
- Measure Distance, Level, or Volume
- Internal Temperature Compensation
- cCSAus, ATEX, IECEx approved Intrinsically Safe
- 2" NPT and 3/4" NPT mounting options
- QuickMode ready-to-read in as little as 250 ms
- Optional Gas Discharge Tube surge protection

MNU-IS SPECIFICATIONS

Housing Option 2



Housing Option 4



Performance

- Frequency/Operating Range:
 - 69 kHz: 1 – 25 ft (0.30 – 7.62 m)
 - 81 kHz: 5" – 12 ft (0.13 – 3.66 m)
- Beam Pattern: 9° off axis
- Internal Temperature Compensation
- Accuracy: $\pm 0.25\%$ of detected range
- Resolution: 0.1 in. (2.5 mm)
- Response Time: Programmable

Connectivity

- Output:
 - Modbus RTU (RS-485)
- Online Access/Control
 - Via APG's Settler and Explorer

Environmental

- IP68 (3 meters submerged for 48 hours)
M12 connector only rated IP67
- Operating Temp:
Standard: – 22° to 140°F (–30° to 60°C)

Programming

- Interface with RS-485 Modbus RTU
- APG Modbus Windows-compatible software can be provided to adjust internal parameters.
- User selected Units of Measure, Response Rate, Volume Calculations, and more.

Electrical

- Supply Voltage: 8 – 24 VDC
- Operating Current Draw:
 - 18 – 26 mA @ 24 VDC, Typical 18 mA
 - 32 – 63 mA @ 8 VDC, Typical 37 mA
- Waiting Status Current Draw:
 - 13 mA @ 24 VDC
 - 17 mA @ 8 VDC
- Wiring Connection:
 - 4-conductor shielded, twisted-pair cable
- Gas Discharge Tube Surge Protection
150 V, 1 kA

Physical

- Upper Housing: PC/PBT blend
- Transducer Face: PVDF

Certification

- CSA/cCSAus Contract #237484
Intrinsically Safe
 - Class I, Div. 1, Groups C & D, T4
 - Class I, Zone 0, AEx ia IIB T4 Ga
 - Ex ia IIB T4 Ga
- ATEX
 - II 1G Ex ia IIB T4 Ga
- IECEx
 - Ex ia IIB T4 Ga
- CE

COMMON MODEL CONFIGURATIONS

Model Number	Model Description
MNU-IS-6424-C6A	1 – 25 ft. range, 69 kHz, 2" NPT, 6 ft cable , Cable Gland with Spiral Strain Relief
MNU-IS-6424-C6M	1 – 25 ft. range, 69 kHz, 2" NPT, M12 Micro Connector w/ mate, 6 ft cable
MNU-IS-6444-C6A	1 – 25 ft. range, 69 kHz, 2" NPT, Recessed Transducer, 6 ft cable , Cable Gland with Spiral Strain Relief
MNU-IS-8424-C6A	5 in. – 12 ft. range, 81 kHz, 2" NPT, 6 ft cable , Cable Gland with Spiral Strain Relief
MNU-IS-8444-C6M	5 in. – 12 ft. range, 81 kHz, 2" NPT, Recessed Transducer, M12 Micro Connector w/ mate, 6 ft cable

MNU-IS ACCESSORIES

Please order separately, by part number.

Description	Part Number
Barrier	
RS-485 Communications Barrier (2-wire)	200186
24 VDC Barrier (2-wire)	200187

MODEL CONFIGURATION OPTIONS

Model Number: MNU – IS – _____ – _____ – _____ – _____ – _____
A B C D E F G

A. Range, Frequency

- 6** 1 – 25 ft. (305 – 7620 mm); 69 kHz Transducer
- 8▲** 5 – 144 in. (127 – 3658 mm); 81 kHz Transducer

B. Lid Interface Threads

- 4▲** 3/4 in. MNPT

C. Housing

- 2▲** 2 in. MNPT, Valox PBT
- 4** 2 in. MNPT, Valox PBT, Recessed Transducer

D. Output

- 4▲** RS-485 Modbus RTU, Intrinsically Safe
- 5** RS-485 Modbus RTU, Intrinsically Safe w/ Gas Discharge Tube Surge Protection

E. Cable

- C▲** Shielded Cable with Flying Leads†
- N** No Cable

F. Electrical Cable Length

- _____ Specify Length (6 ft. standard length + 5 ft. increments)
- 0** No Cable

G. Seal

- A▲** Cable Gland with Spiral Strain Relief
- B** Cable Gland
- M** M12 Micro Connector (on lid)†

Note: ▲Indicates this option is standard.

† For mating connection & cable with M12 Micro Connector, use Cable and Cable Length in sections E & F

Note: Approved mating connector and cable required with M12 Micro Connector for IS use. Contact factory for information.



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