DATANAB

MBus_WTH_LCD_ETH - MBus_WTH_LCD_ETH_EXT

The MBus_WTH_LCD_ETH and MBus_WTH_LCD_ETH_EXT modbus-enabled temperature and humidity sensors are designed for environment monitoring in industrial, commercial, and residential temperature & humidity applications.

Features:
- Sensor can be configured using buttons & LCD Display
- High performance digital sensors and circuits to ensure accurate measurement and temperature compensation.
- Good long term stability and reliability
- Fast response
- Multiple output signals selectable: 4-20mA, 0-5V or 0-10V
- RS845 communications port for Modbus-RTU, 19.2/9600 Baud
- Ethernet Port for ModbusTCP communication over IP

MBus_WTH_LCD_ETH

Relative Humidity:
Sensor: capacitance polymer
Operating Temperature: 0~50°C
Operating Humidity Range: 0~98% RH (Non condensing)
Output: 4-20mA, 0-5V or 0-10V, RS485 Modbus-RTU
Accuracy: 5% RH (25°C, 20~80% RH)
Hysteresis: < ±1% RH
Response time: < 10s (25°C, in slow air)
Drift: < ±0.5% RH / year

Temperature:
Sensor: Internal 10K Thermistor
Operating Temperature Range: -30~50°C (-22~122°F)
Output: 4-20mA, 0-5V or 0-10V, RS 485
Accuracy: < ±0.5°C @ 25°C

MBus_WTH_LCD_ETH_EXT

General:
Power Supply:
- If NOT using 0-10V or 4-20mA output transducers: 12-24VAC/DC +/- 10%
- If using 0-10V or 4-20mA output transducers: 15-24VAC/DC +/-10%
Power Consumption:
- **12VDC Power supply:** assume 2 watts per sensor
- **24VAC Power supply:** assume 1VA per sensor
Current Output Load: < 500Ω
Display: LCD screen for wall / outdoor mount and duct mount
Display Resolution: 0.1°C, 0.1% RH
Operating Temperature: -30~50°C, 0~98% RH (Non condensing)
Humidity sensor only accurate from 0~50°C.
Storage Temperature: -30~60°C
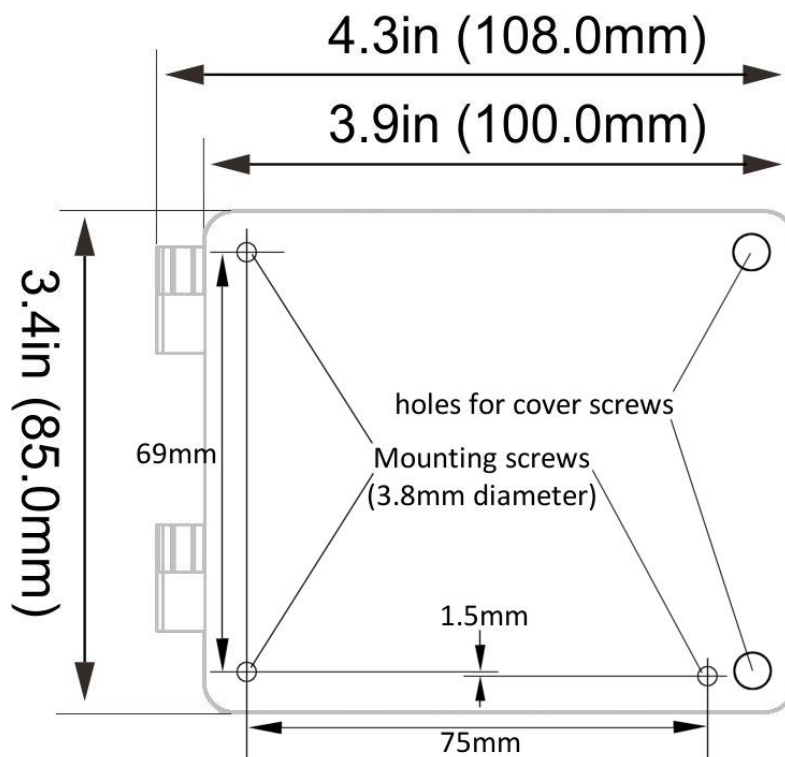**Plastic Housing**: Flammability rating UL 94V0 file E194560
Protection: IP65

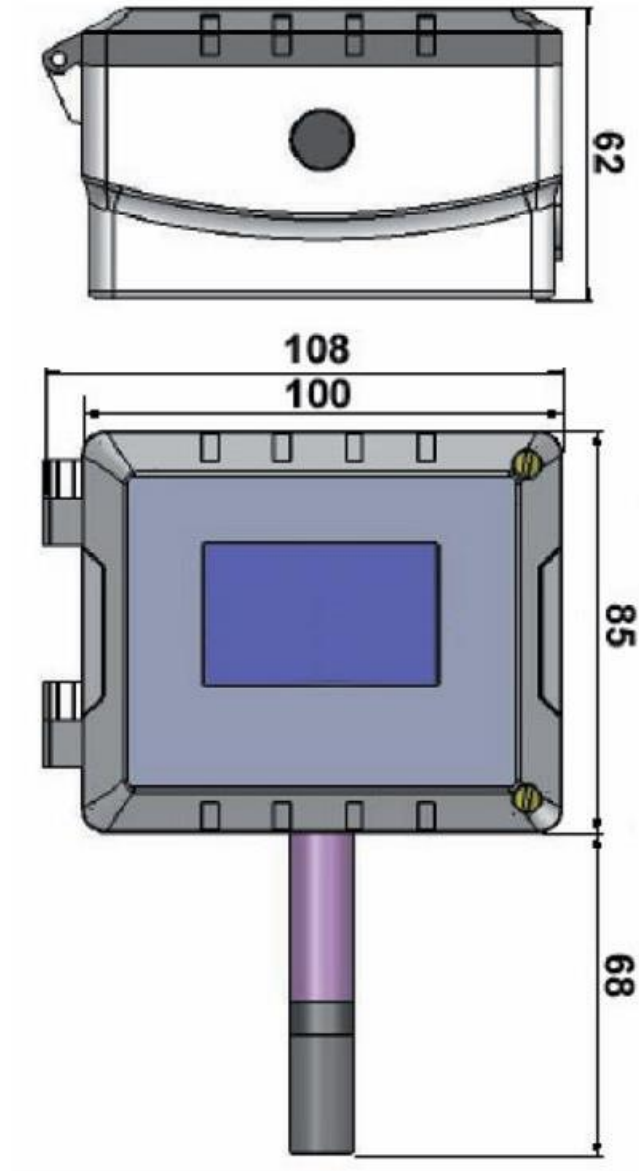**Enclosure views and Dimensions**

3.4in (85.0mm)

2.4in (61.6mm)

3.9in (100.0mm)

4.3in (108.0mm)

4.3in (108.0mm)

3.9in (100.0mm)

3.4in (85.0mm)

69mm

holes for cover screws

Mounting screws
(3.8mm diameter)
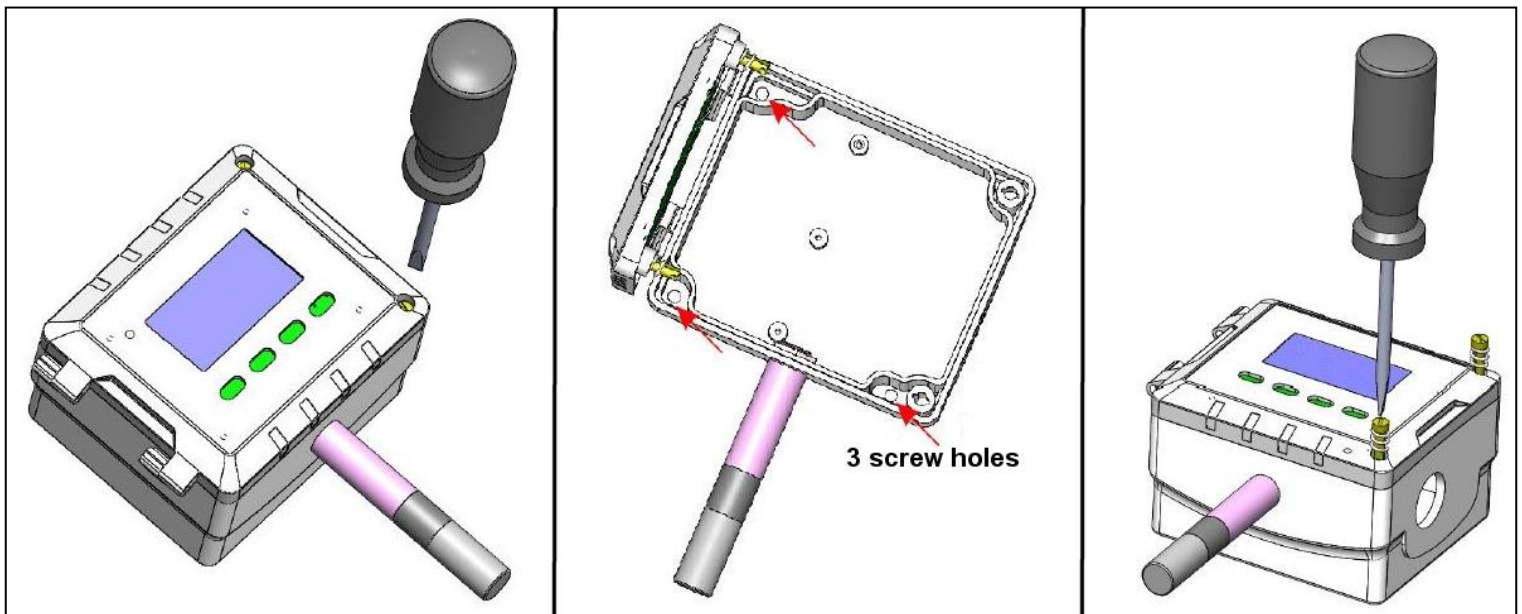
1.5mm

75mm

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Housing Dimensions (in mm) for both models.
Probe Dimensions (in mm) for MBus_WTH_LCD_ETH.

Probe Dimensions for MBus_WTH_LCD_ETH_EXT (mm)
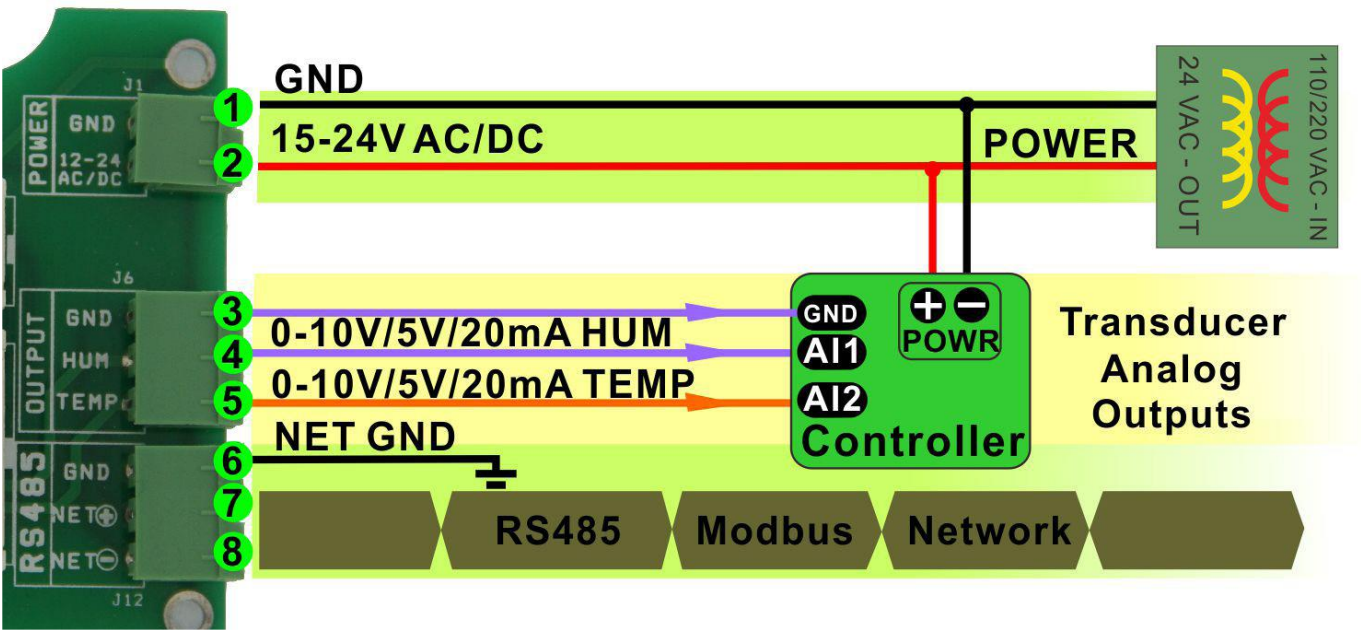
97mm

81mm

2m extension cable

Probe Diameter is 13.3mm

Opening and mounting enclosure.

3 screw holes

Inside view & details

Captive screws
No lost screws

Rubber seal IP65
outdoor rated

Hidden mounting
screws(TYP of 3)

Water tight
½inch EMT
wire entry

Ethernet
port

Sensor
HUM   CO2
PRESS   TEMP

S/N:
H/W:

OUTPUT
SIGNAL
0-10V
0-5V
4-20MA

Transducer mode signal
type 20ma/5V/10V

Removable lid

Field Swappable
Sensor

Wiring Diagram

GND

① 15-24V AC/DC

②

POWER

110/220 VAC - IN

24 VAC - OUT

③ 0-10V/5V/20mA HUM

④

⑤ 0-10V/5V/20mA TEMP

GND

AI1

AI2

+ −
POWR

Transducer
Analog
Outputs

Controller

⑥ NET GND

⑦

⑧

RS485   Modbus   Network

Modbus Register List

Default RS485 Comm Parameters: **115200 baud, 8 data bits, no parity, 1 stop bit**. (configurable under "misc" LCD menu)
Default Modbus-ID for Modbus-RTU over RS485 communication is: **1**. (configurable under "misc" LCD menu)
Default IP Address for Modbus-TCP over IP communication is: **192.168.0.3** (configurable under "misc" LCD menu)
Use Function Code 3 (Read Holding Registers) to read values and Function Code 6 (Write Single Register) to write values.

Address	Bytes	Range	Defaults	Register & Description
0-3	4	-	-	Serial Number: Read only
4-5	2	-	-	Firmware Version: Read only
6	1	0-255	1	Modbus Device Address: You can read/change this under the LCD "Miscellaneous" menu
8	1			Hardware Revision: Read only
15	1	0-4	4	Baudrate: 0=9600baud, 1=19200baud, 2=38400baud, 3=57600baud, 4=115200baud
40-45	6	-	-	MAC Address: Read only
46	1	0-1	0	IP Mode: 0=Static, 1=DHCP
47-48	2	-	-	Upper 2 bytes of IP Address
49-50	2	-	-	Lower 2 bytes of IP Address
51-52	2	-	-	Upper 2 bytes of Subnet mask
53-54	2	-	-	Lower 2 bytes of Subnet mask
55-56	2	-	-	Upper 2 bytes of Gateway IP
57-58	2	-	-	Lower 2 bytes of Gateway IP
60	1	0-255	502	Modbus TCP Port
61-75	15	-	-	UNUSED: Mirrors registers 46-60: used as temp memory when any IP info is changed.
100	2	-	-	**Room Temp Reading in DegF x10**. Can be written to adjust temp calibration offset.
101	2	-	-	**Room Temp Reading in DegC x10**. Can be written to adjust temp calibration offset.
121	1	0-1	1	**Temperature units for LCD display**: 0=DegC, 1=DegF
186	1	1-3	3	Analog Output jumper setting: 1=0-10V, 2=0-5V, 3=4-20mA (Read Only)
285	2	-	-400	Temp AO Low Range (DegC x 10)
286	2	-	600	Temp AO High Range (DegC x 10)
287	2	-	0	Hum AO Low Range (%RH x 10)
288	2	-	1000	Hum AO High Range (%RH x 10)
304	2	0-1000	**-**	**Humidity Reading in %RH x 10.** This reg can be written to adjust hum calibration offset
362	1	0-255	255	LCD Backlight timeout: 0=Always Off, 255=Always On, 1-254=timeout period
370	1	0-3	-	Analog Output Auto/Manual Select. Bit0:temp, Bit1:hum. 0=Auto, 1=Manual
371	2	-	-	Temp Analog Output Manual Command (if bit0 set to 1 in Reg370)
372	2	-	-	Humidity Analog Output Manual Command (if bit1 set to 1 in Reg370)
373	2	0-1000	-	Mirrors humidity reading in Reg304 (Read only)
381-400	-	-	-	Factory Calibration points for Humidity Sensor (Read only - do not change)
401-410	-	-	-	Temperature AO voltage calibration offsets. (expert only)
411-420	-	-	-	Humidity AO voltage calibration offsets. (expert only)
421-430	-	-	-	Temperature AO Current calibration offsets. (expert only)
431-440	-	-	-	Humidity AO Current calibration offsets. (expert only)
450	-	-	-	Temperature Calibration Offset: In DegC x 10. So -10 Cal offset = Temp change of -1.0C
451	-	-	-	Humidity Calibration Offset: In %RH x 10. So +100 Cal offset = %RH change of 10%RH
452	1	0-100	5	Temperature filter (expert only)
453	1	0-100	5	Humidity filter (expert only)
482	2	-	-	Dewpoint in DegC x 10
483	2	-	-	Dewpoint in DegF x 10
1239-1242	-	-	-	RTC date parameters - 1239:year, 1240:month, 1241:day, 1242:day of week.
1243-1245	-	-	-	RTC time parameters - 1243:hour, 1244:minute, 1245:second.

For more detailed modbus register information, please email support@datanab.com