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M. B. Control & Systems Pvt. Ltd.

CIN: U67120WB1980PTC033012 | PAN: AABCM7980K | GST NO: 19AABCM7980K1ZU

Registered & Corporate Office

Srijan Industrial Logistic Park, Part A, Block B, 3rd Floor, NH 06, Howrah 711302

+91 9831330473, 9831206454 | +91 33 22870455 | enquiry@mbcontrol.com | www.mbcontrol.com



QM 004, EM 016



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IND/QMS/NAB-C1978/2658

MB MET 901 Series



**Model – MBMet-901A-B; MBMet-901B-A/B; MBMet-901C-A/B; MBMet-901D-A/B; MBMet-901E-B;
MBMet-901F-B**

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For service support call us on +91 8981051011 or mail us in service@mbcontrol.com



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1. Parts of Transducer.

Ambient Temperature Sensor RS-485 is shipped with the following components

1. Ambient Temperature Transducer – 1 No
2. Data Transmission Cable with Connector – 5Mtr
3. Solar Radiation Shield – 1 No
4. Pole Mount for Shield – 1 No
5. U Clamps with Nut, Screw, Washer and Spring Washer for pole mount – 2Set.

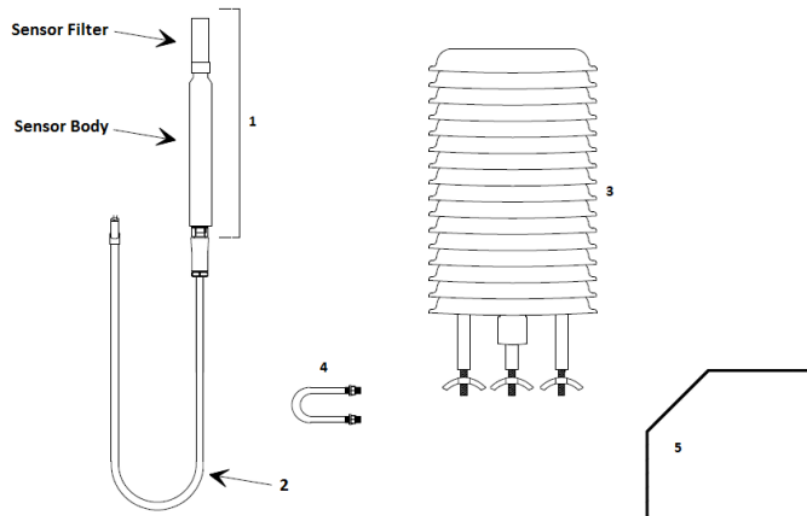


Fig:1.1 – Parts of Ambient Parameter transducer

2. Mounting Shield Mount Clamp on pole.

Mount the radiation shield mounting clam to the Pole (**Hole number A of Fig 2.1**).

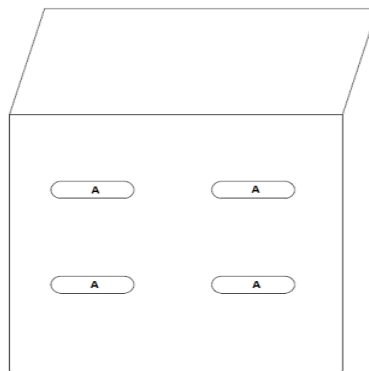


Fig 2.1 – Mounting Clamp (Pole Side)

Mount the Shield mounting plate with the U-Clamps provided as shown in fig 2.2

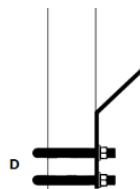


Fig 2.2 – Mounting Clamp connected in pole

3. Fixing the radiation shield to the Pole mount clamp.

Mount the radiation shield to the clamp (**Hole number B of Fig 3.1**).

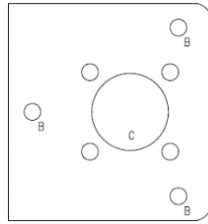


Fig 3.1 - Mounting Clamp (Shield side)

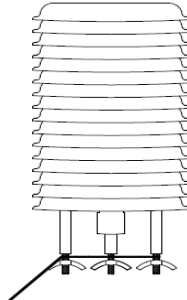


Fig 3.2 - View of shield after fixing to Mounting Clamp

4. Fixing the Sensor to the radiation shield.

- i) Loosen the Cable gland of the shield.
- ii) Insert the Temperature probe inside the shield. Take care that the sensor sensing part is not blocked in any way.
- iii) Tighten the cable gland so that the temperature probe does not fall off and connect the cable taking care that the alignment between male and female part is ok

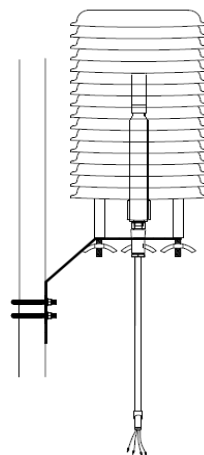


Fig 4 - Ambient temperature sensor inside shield

5. Sensor Connection for PLC/ Data logger/ RTU end.

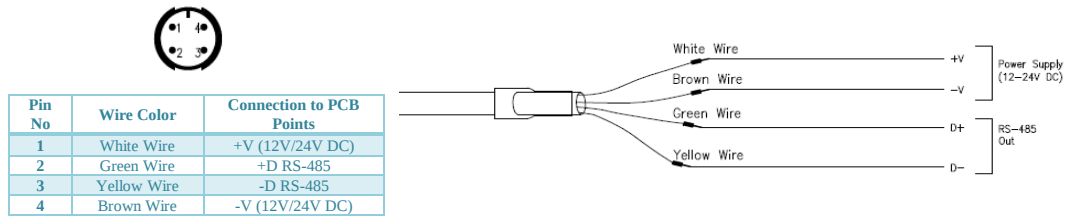


Fig 5.1 - Sensor Connection for MBMet-901A/B/C/D/E/F-B

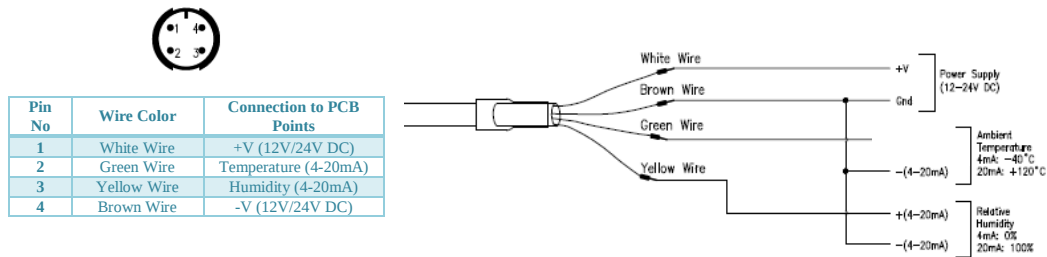


Fig 5.2 - Field wiring for MBMet-901B-A

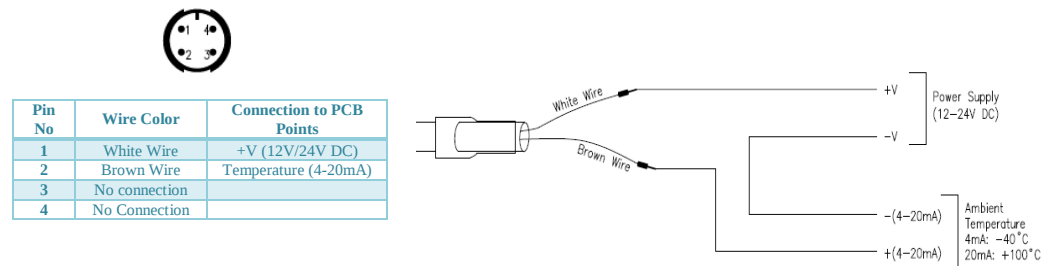


Fig 5.3 - Field wiring for MBMet-901C/D-A

6. Ambient Air Parameters Transducer Specifications

Model / Parameters	MBMet-901A	MBMet-901B		MBMet-901C		MBMet-901D		MBMet-901E	MBMet-901F
Communication Output	-B RS-485 Modbus	-A 4-20 mA	-B RS-485 Modbus	-A 4-20 mA	-B RS-485 Modbus	-A 4-20 mA	-B RS-485 Modbus	-B RS-485 Modbus	-B RS-485 Modbus
Sensor Type	Semi-conductor	Semiconductor		RTD	Semi-conductor	Semiconductor		Semi-conductor	Semi-conductor
Power Consumption	300mW	60mW	300mW	60mW	300mW	80mW	300mW	300mW	300mW
Ambient Temperature									
Measuring Range	-40°C to +125°C	-40°C to +125°C		-40°C to +125°C		-		-	-40°C to +125°C
Resolution	0.1°C	0.1°C		0.1°C		-		-	0.1°C
Accuracy	±0.2°C (typical)	±0.3°C (0-90°C)	±0.2°C (typical)	±0.3°C (0-90°C)	±0.2°C (typical)	-		-	±0.2°C (typical)
Response Time	5-30s	5-30s		5-30s		-		-	5-30s
Stability	<0.02°C per year	<0.02°C per year		<0.02°C per year		-		-	<0.02°C per year
Relative Humidity									
Measuring Range	0 to 100% RH	0 to 100% RH		-		0 to 100% RH		-	0 to 100% RH
Resolution	0.1% RH	0.1% RH		-		0.1% RH		-	0.1% RH
Accuracy	±2% RH (10-80% RH)	±2% RH (0-90%)	±2% RH (10-80% RH)	-		±2% RH (0-90%)	±2% RH (10-80% RH)	-	±2% RH (10-80% RH)
Response Time	8-30s	8-30s		-		8-30s		-	8-30s
Stability	<0.25% RH per year	<0.25% RH per year		-		<0.25% RH per year		-	<0.25% RH per year
Dew Point									
Measuring Range	-	-	-40°C to 105°C	-		-		-	-40°C to 105°C
Resolution	-	-	0.1°C	-		-		-	0.1°C
Accuracy	-	-	-	-		-		-	-
Response Time	-	-	8-30s	-		-		-	8-30s
Barometric Pressure									
Measuring Range	300 to 1250 hPa	-		-		-		300 to 1250 hPa	300 to 1250 hPa
Resolution	0.01hPa	-		-		-		0.01hPa	0.01hPa
Accuracy	±1hPa	-		-		-		±0.4hPa	±1hPa
Response Time	0.1s	-		-		-		0.1s	0.1s

Stability	-1 hPa per year	-	-	-	-1 hPa per year	-1 hPa per year
Air Density						
	-	-	-	-	--	✓

Table No 6 – Ambient Parameter Transducer Specifications

7. Modbus Addresses

Modbus register addresses for reading measured parameter values, configure communication parameters and device information.

	Modbus Register	Parameters	Resolution	Register Type	Parameter Type
Measured Parameter	0	Ambient Air Temperature	0.1	Read only	Signed 16 Bits
	1	Dew Point	0.1	Read only	Signed 16 Bits
	2	Atmospheric Pressure in hPa (Low)*	0.01	Read only	Unsigned 32 Bits
	3	Atmospheric Pressure in hPa (High)*			
	4	Relative Humidity in %	0.1	Read only	Unsigned 16 Bits
	5	Air Density in Kg/m ³	0.001	Read only	Unsigned 16 Bits
	20	Ambient Air Temperature	-	Read only	Float 32 Bits
	22	Dew Point	-	Read only	Float 32 Bits
	24	Atmospheric Pressure in hPa (Low)*	-	Read only	Float 32 Bits
	26	Relative Humidity in %	-	Read only	Float 32 Bits
	28	Air Density in Kg/m ³	-	Read only	Float 32 Bits
Communication Parameter	100	MODBUS ID (Default:1) 1<ID<247	-	Read/Write	Unsigned 16 Bits
	101	Baud rate (Default: 1) 0=4800; 1=9600; 2=19200	-	Read/Write	Unsigned 16 Bits
	102	Parity (Default: 0) 0=None; 1=Odd; 2=Even	-	Read/Write	Unsigned 16 Bits
	103	Stop bits (Default: 1) 1; 2	-	Read/Write	Unsigned 16 Bits
	104	Temperature Units (Default: 0) 0 = °C; 1 = °K; 2 = °F	-	Read/Write	Unsigned 16 Bits
	105	Save configured parameter (1 to save)	-	Write only	Unsigned 16 Bits
Device Information	110	Device Model No	-	Read only	Unsigned 16 Bits
	111	Hardware Version	-	Read only	Unsigned 16 Bits
	112	Software Version	-	Read only	Unsigned 16 Bits
	113	Manufacture Year	-	Read only	Unsigned 16 Bits
	114	Device Serial No	-	Read only	Unsigned 16 Bits

Table No 7 – Modbus register addresses

* Pressure is a 32Bit Parameter and should be read accordingly

8. Re-setting Default Communication Parameter

(to be done by experienced MBCS engineers only) *

Step-1 Remove the sensor from the Radiation Shield but do not disconnect the cable.

- Step-2 Open the Filter Cap of the sensor. Please be careful and do not soil the Filter.
 Step-3 Locate the J1 Shorting points as shown in the fig 8.4.

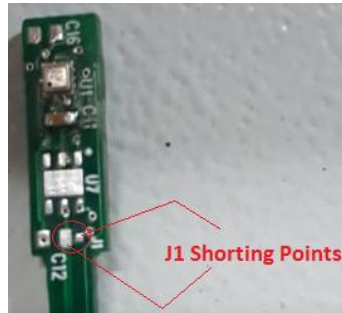


Fig: 8 - Open top part of the sensor

- Step-4 Short the two points carefully so that no other points are touched. Do not touch the sensors, these will get damaged if touched.
 Step-5 Screw on the cap filter, Re-cycle the Power Supply and reinsert the sensor in the Radiation Shield. The sensor is set to its factory default communication parameters.

9. Maintenance: Changing the Filter cap

- Step-1 Power off the Sensor
 Step-2 Disconnect the Sensor Cable.
 Step-3 Loosen the Cable gland of the shield and take out the sensor.

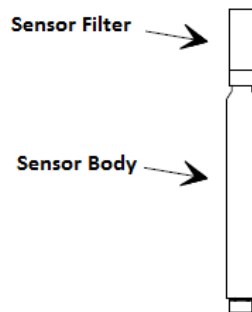


Fig 9 – Sensor after taking out of radiation shield

- Step-4 Hold the sensor body in one hand firmly and the sensor filter cap with the help of index finger and thumb of the other hand and un-screw the cap rotating it in anti-clock direction. Care to be taken so that the sensing element inside the filter is untouched and undamaged.
 Step-5 Hold the new filter cap carefully in the plastic part so that the filter does not soil. Rotate the cap in the clockwise direction. **Do not touch any part on the board. This will damage the sensor.**
 Step-6 Insert the sensor in the shield and tighten the cable gland.
 Step-7 Reconnect the cable to the sensor.
 Step-8 Power on the sensor