

# Multi-parameter Transmitter M800 EIP

## Ethernet/IP Setup Guide



# Content

|          |  |           |
|----------|--|-----------|
| <b>1</b> | <b>Introduction</b> .....              | <b>3</b>  |
| <b>2</b> | <b>METTLER TOLEDO Parameters</b> ..... | <b>3</b>  |
| <b>3</b> | <b>Wiring</b> .....                    | <b>4</b>  |
| 3.1      | M800 1-ch Ethernet/IP Wiring.....      | 5         |
| 3.2      | M800 2-ch Ethernet/IP Wiring .....     | 6         |
| 3.3      | Transmitter Terminal Assignment .....  | 7         |
| 3.4      | Ethernet Cable Assignment .....        | 8         |
| 3.5      | Connecting the Cable.....              | 8         |
| 3.5.1    | Connect the M12 Cable .....            | 8         |
| 3.5.2    | Connect RJ45 Cable .....               | 9         |
| <b>4</b> | <b>Commissioning Network</b> .....     | <b>10</b> |
| 4.1      | Network Configuration .....            | 10        |
| 4.2      | LED Definition .....                   | 10        |
| <b>5</b> | <b>Schematic Diagram</b> .....         | <b>11</b> |
| <b>6</b> | <b>Function Block Definition</b> ..... | <b>12</b> |
| 6.1      | Analog Output Function Blocks .....    | 12        |
| 6.2      | Discrete Output Function Blocks.....   | 13        |
| 6.3      | Discrete Input Function Blocks .....   | 15        |
| <b>7</b> | <b>Default</b> .....                   | <b>18</b> |

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# 1

## Introduction

### Statement of Intended Use

The M800 Ethernet/IP multi-parameter transmitters are online process instruments for measuring various properties of fluids and gases. These include conductivity, dissolved oxygen, O<sub>2</sub> gas, dissolved carbon dioxide, pH/ORP, and turbidity.

The M800 transmitters are available in different versions. The version indicates the number of measurement parameters that can be covered and which parameters. The version is indicated through the part number on the label of the transmitter.

### M800 Ethernet/IP parameter fit guide for 1-channel and 2-channel version

These versions are compatible with the following (digital) ISM<sup>®</sup> sensors.

#### M800 Profinet and Ethernet/IP parameter fit guide

| Version                                | Process 1-ch            | Process 2-ch            |
|--|-------------------------|-------------------------|
| Part no.                               | 30 530 023              | 30 530 024              |
| pH/ORP                                 | •                       | •                       |
| pH/pNa                                 | •                       | •                       |
| UniCond 2-e/4-e                        | •                       | •                       |
| Conductivity 4-e                       | •                       | •                       |
| Amp. Dissolved Oxygen ppm/ppb/trace    | • / • / • <sup>1)</sup> | • / • / • <sup>1)</sup> |
| Amp. Oxygen Gas ppm/ppb/trace          | • / • / • <sup>1)</sup> | • / • / • <sup>1)</sup> |
| Optical Dissolved Oxygen               | • <sup>1), 2)</sup>     | • <sup>1), 2)</sup>     |
| Dissolved Carbon Dioxide (InPro 5000i) | •                       | •                       |
| CO <sub>2</sub> hi (InPro 5500i)       | • <sup>2)</sup>         | • <sup>2)</sup>         |
| InPro 86X0i                            | •                       | •                       |
| Dissolved Ozone                        | –                       | –                       |

1) Ingold sensors.

2) Only one optical DO or thermal conductivity CO<sub>2</sub> sensor can be used together with 2-channel transmitter.

# 2

## METTLER TOLEDO Parameters

The following tables list the manufacturer-specific instrument parameters of function blocks.

### General explanatory remarks

#### Data type

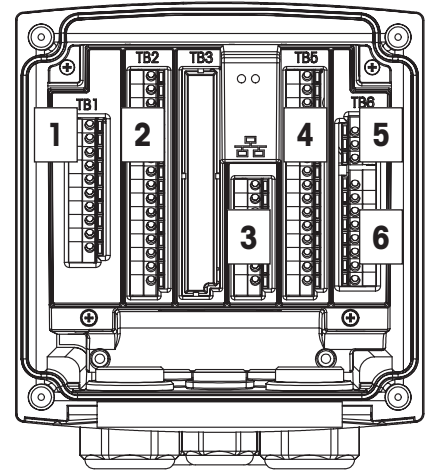
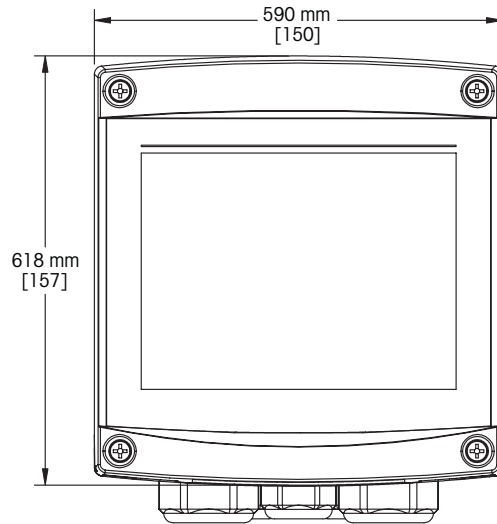
- DS: data structure, contains data types such as Unsigned8, Octet String etc.
- Float: IEEE 754 format
- Visible String: ASCII coded
- Unsigned: Unsigned8: value range = 0 to 255  
Unsigned16: value range = 0 to 65535  
Unsigned32: value range = 0 to 429496729

#### Storage class

- C: constant parameter
- D: dynamic parameter
- N: nonvolatile parameter
- S: static parameter

### 3

## Wiring



- 1: Digital Input Terminal
- 2: Sensor Input Terminal
- 3: Ethernet Port
- 4: Analog Input/Digital Input Terminal
- 5: Power Supply Terminal
- 6: Relay Output Terminals

### 3.1 M800 1-ch Ethernet/IP Wiring

**Power connections:**

N(-) for Neutral and L(+) for Line for 20 to 30 VDC. N for Neutral and L for Line for 100 to 240 VAC.

| Terminal number | TB1  | TB2 (ISM Ch1/2) | TB3  | TB4    | TB5  | TB6        |
|-----------------|------|-----------------|------|--------|------|------------|
|                 |      |                 |      |        |      | L(+)       |
|                 |      |                 |      |        |      | N(-)       |
|                 |      |                 |      |        |      | Ground     |
| 1               | DI1+ | DI2+            | n.a. | n.a.   | AI1+ | Relay1_NC  |
| 2               | DI1- | DI2-            |      | n.a.   | AI1- | Relay1_NC  |
| 3               | n.a. |                 |      | n.a.   | DI4+ | Relay2_NO  |
| 4               | n.a. |                 |      | n.a.   | DI4- | Relay2_COM |
| 5               | n.a. |                 |      | n.a.   | DI5+ | n.a.       |
| 6               | n.a. |                 |      | Ground | DI5- | n.a.       |
| 7               | n.a. |                 |      | Ground | DI6+ | n.a.       |
| 8               | n.a. |                 |      | Ground | DI6- | n.a.       |
| 9               | n.a. | 24V_Ch1         |      | n.a.   | n.a. | n.a.       |
| 10              | n.a. | GND 24V_Ch1     |      | n.a.   | n.a. | n.a.       |
| 11              | n.a. | 1-Wire_Ch1      |      | n.a.   | n.a. | n.a.       |
| 12              | n.a. | GND 5V_Ch1      |      | n.a.   | n.a. | n.a.       |
| 13              | n.a. | RS485 B_Ch1     |      | n.a.   | n.a. | n.a.       |
| 14              | n.a. | RS485 A_Ch1     |      | n.a.   | n.a. | n.a.       |
| 15              | n.a. | GND 5V_Ch1      |      | n.a.   | n.a. | n.a.       |
| 16              | n.a. | 5V_Ch1          |      | n.a.   | n.a. | n.a.       |

NO: normally open (contact open if un-actuated).

NC: normally closed (contact closed if un-actuated).

n.a. not available.

## 3.2 M800 2-ch Ethernet/IP Wiring

**Power connections:**

N(-) for Neutral and L(+) for Line for 20 to 30 VDC. N for Neutral and L for Line for 100 to 240 VAC.

| Terminal number | TB1  | TB2 (ISM Ch1/2) | TB3  | TB4    | TB5  | TB6        |
|-----------------|------|-----------------|------|--------|------|------------|
|                 |      |                 |      |        |      | L(+)       |
|                 |      |                 |      |        |      | N(-)       |
|                 |      |                 |      |        |      | Ground     |
| 1               | DI1+ | DI2+            | n.a. | n.a.   | AI1+ | Relay1_NC  |
| 2               | DI1- | DI2-            |      | n.a.   | AI1- | Relay1_COM |
| 3               | n.a. | 1-Wire_Ch1      |      | n.a.   | DI4+ | Relay2_NO  |
| 4               | n.a. | GND 5V_Ch1      |      | n.a.   | DI4- | Relay2_COM |
| 5               | n.a. | RS485 B_Ch1     |      | n.a.   | DI5+ | n.a.       |
| 6               | n.a. | RS485 A_Ch1     |      | Ground | DI5- | n.a.       |
| 7               | n.a. | GND 5V_Ch1      |      | Ground | DI6+ | n.a.       |
| 8               | n.a. | 5V_Ch1          |      | Ground | DI6- | n.a.       |
| 9               | n.a. | 24V_Ch2         |      | n.a.   | n.a. | n.a.       |
| 10              | n.a. | GND 24V_Ch2     |      | n.a.   | n.a. | n.a.       |
| 11              | n.a. | 1-Wire_Ch2      |      | n.a.   | n.a. | n.a.       |
| 12              | n.a. | GND 5V_Ch2      |      | n.a.   | n.a. | n.a.       |
| 13              | n.a. | RS485 B_Ch2     |      | n.a.   | n.a. | n.a.       |
| 14              | n.a. | RS485 A_Ch2     |      | n.a.   | n.a. | n.a.       |
| 15              | n.a. | GND 5V_Ch2      |      | n.a.   | n.a. | n.a.       |
| 16              | n.a. | 5V_Ch2          |      | n.a.   | n.a. | n.a.       |

NO: normally open (contact open if un-actuated).

NC: normally closed (contact closed if un-actuated).

n.a. not available.

### 3.3 Transmitter Terminal Assignment

**TB2 – Terminal Assignment for Optical Oxygen, CO<sub>2</sub> hi and UniCond 2-e/4-e ISM Sensors**

| Terminal | 1-Ch version (ISM Ch1) | 2-Ch version (ISM Ch1,2) | Optical Oxygen <sup>1)</sup> , CO <sub>2</sub> hi <sup>1)</sup> |                        | UniCond 2-e/4-e <sup>2)</sup> |
|----------|------------------------|--------------------------|---|------------------------|-------------------------------|
|          | Function               | Function                 | VP8 cable wire color  | 5-pin cable wire color | Cable wire color              |
| 1        | DI2+                   | DI2+                     | –   | –                      | –                             |
| 2        | DI2–                   | DI2–                     | –   | –                      | –                             |
| 3        | –                      | 1-Wire_Ch1               | –   | –                      | –                             |
| 4        | –                      | GND5V_Ch1                | –   | –                      | –                             |
| 5        | –                      | RS485B_Ch1               | –   | –                      | black                         |
| 6        | –                      | RS485A_Ch1               | –   | –                      | red                           |
| 7        | –                      | GND5V_Ch1                | –   | –                      | white                         |
| 8        | –                      | 5V_Ch1                   | –   | –                      | blue                          |
| 9        | 24V_Ch1                | 24V_Ch2                  | grey  | brown                  | –                             |
| 10       | GND24V_Ch1             | GND24V_Ch2               | blue  | black                  | –                             |
| 11       | 1-Wire_Ch1             | 1-Wire_Ch2               | –   | –                      | –                             |
| 12       | GND5V_Ch1              | GND5V_Ch2                | green/yellow  | grey                   | –                             |
| 13       | RS485B_Ch1             | RS485B_Ch2               | brown   | blue                   | black                         |
| 14       | RS485A_Ch1             | RS485A_Ch2               | pink  | white                  | red                           |
| 15       | GND5V_Ch1              | GND5V_Ch2                | –   | yellow                 | white                         |
| 16       | 5V_Ch1                 | 5V_Ch2                   | –   | –                      | blue                          |

1) Only one O<sub>2</sub> optical or CO<sub>2</sub> hi sensor can be connected to 2-ch version.

2) Transparent wire not connected.

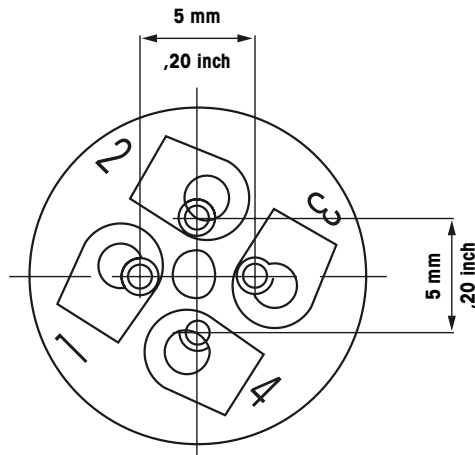
**TB2 – Terminal Assignment for for pH, Amp. Oxygen, Cond 4-e, CO<sub>2</sub> and O<sub>3</sub> ISM Sensors**

| Terminal | 1-Ch version (ISM Ch1) | 2-Ch version (ISM Ch1,2) | pH, Amp. Oxygen, Cond 4-e, CO <sub>2</sub> and O <sub>3</sub> |
|----------|------------------------|--------------------------|---|
|          | Function               | Function                 | Cable wire color  |
| 1        | DI2+                   | DI2+                     | –   |
| 2        | DI2–                   | DI2–                     | –   |
| 3        | –                      | 1-Wire_Ch1               | transparent (cable core)                                      |
| 4        | –                      | GND5V_Ch1                | red   |
| 5        | –                      | RS485B_Ch1               | –   |
| 6        | –                      | RS485A_Ch1               | –   |
| 7        | –                      | GND5V_Ch1                | –   |
| 8        | –                      | 5V_Ch1                   | –   |
| 9        | 24V_Ch1                | 24V_Ch2                  | –   |
| 10       | GND24V_Ch1             | GND24V_Ch2               | –   |
| 11       | 1-Wire_Ch1             | 1-Wire_Ch2               | transparent (cable core)                                      |
| 12       | GND5V_Ch1              | GND5V_Ch2                | red   |
| 13       | RS485B_Ch1             | RS485B_Ch2               | –   |
| 14       | RS485A_Ch1             | RS485A_Ch2               | –   |
| 15       | GND5V_Ch1              | GND5V_Ch2                | –   |
| 16       | 5V_Ch1                 | 5V_Ch2                   | –   |

### 3.4 Ethernet Cable Assignment

The physical interface supports RJ45 or M12 (included in delivery), the Ethernet cable assignment is below.

| RJ45 | Standard cable | Description | Industrial normed cable | M12 |
|------|----------------|-------------|-------------------------|-----|
| 2    | OR             | TxD-        | amber                   | 3   |
| 1    | OR/WH          | TxD+        | yellow                  | 1   |
| 6    | GN             | RxD-        | blue                    | 4   |
| 3    | GN/WH          | RxD+        | white                   | 2   |



### 3.5 Connecting the Cable

**Note:** The sensor, fieldbus and Ethernet cables must be shielded.

#### 3.5.1 Connect the M12 Cable

1. Take out the Ethernet cable. Spare part number PN: 30530035





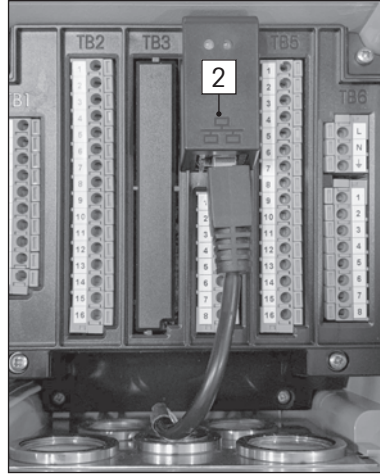
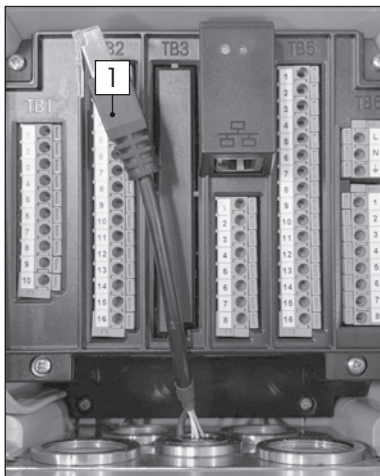
2. Route the cable in the housing (through the M20) as per the wiring diagram



3. Tighten the M12 (1) connector



4. Attach the RJ45 connector (1) to the socket (2).



### 3.5.2 Connect RJ45 Cable

- 1) Release a suitable cable length
- 2) Route the cable in the housing through M25 hole
- 3) Insert the RJ45 connector to the socket

## 4 Commissioning Network

### 4.1 Network Configuration

1. Install the EDS file which is included in the delivery to DCS/PLC with the engineering tool.
2. Update the hardware catalogue.
3. Integrate the M800 Ethernet/IP transmitter into the network.
4. Set the allocation device name and IP address via the local display menu. (PATH:\Configuration\Ethernet IP Setting) or engineering tool.
5. Perform parameterization via on-site. For more information see user manual of M800 series.
6. Upon successful integration of the M800 Ethernet/IP transmitter, the symbol "EIP" appears on the upper right corner of the main display.

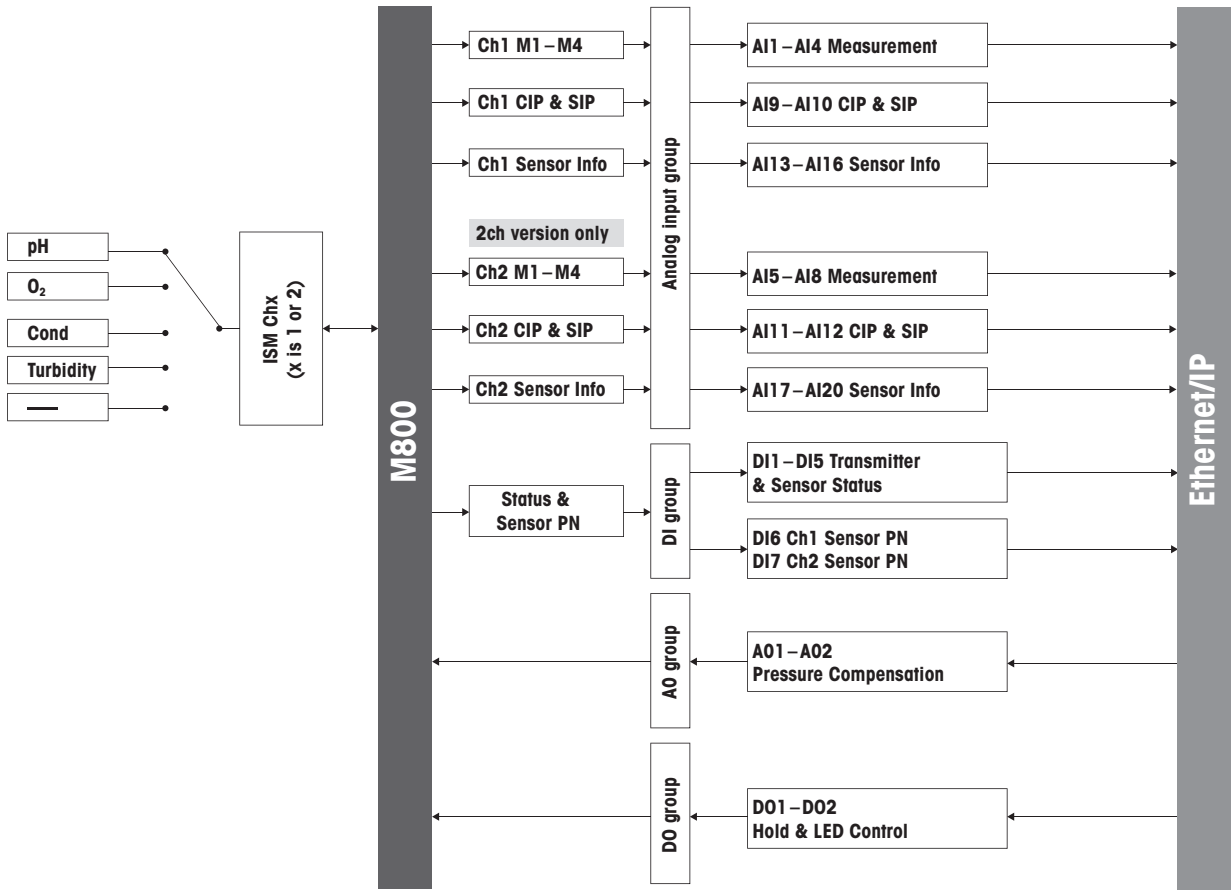


### 4.2 LED Definition

There are two LEDs inside the transmitter that confer diagnostics information.

| Green              | Red                | Status                             |
|--------------------|--------------------|------------------------------------|
| Off                | Off                | Check power supply                 |
| Off                | Blink with 0.5 sec | Device defective                   |
| Off                | On                 | PLC communication error            |
| Blink with 0.5 sec | Off                | Internal RS232 communication error |
| Blink with 0.5 sec | On                 | PLC and RS232 error                |
| On                 | Off                | System normal                      |
| Blink with 0.3 sec |                    | Device in bootloader mode          |

# 5 Schematic Diagram



**Note:** ISM Ch2 only for M800 2-channel Ethernet/IP version.

|                  | Channel              | Slot Number | Block             | Slot Name              | Unit                    | Bytes | Data Type | Param   | Block Info   |
|------------------|----------------------|-------------|-------------------|------------------------|-------------------------|-------|-----------|---------|--------------|
| <b>AI group1</b> | ISM Ch1              | 1           | Analog Input 1    | ISM Ch1-M1 Value       | Depend on the configure | 4     | Float32   | Param1  | 1 Block Info |
|                  |                      | 2           | Analog Input 2    | ISM Ch1-M2 Value       | Depend on the configure | 4     | Float32   | Param2  | 1 Block Info |
|                  |                      | 3           | Analog Input 3    | ISM Ch1-M3 Value       | Depend on the configure | 4     | Float32   | Param3  | 1 Block Info |
|                  | ISM Ch2              | 4           | Analog Input 4    | ISM Ch1-M4 Value       | Depend on the configure | 4     | Float32   | Param4  | 1 Block Info |
|                  |                      | 5           | Analog Input 5    | ISM Ch2-M1 Value       | Depend on the configure | 4     | Float32   | Param5  | 1 Block Info |
|                  |                      | 6           | Analog Input 6    | ISM Ch2-M2 Value       | Depend on the configure | 4     | Float32   | Param6  | 1 Block Info |
|                  |                      | 7           | Analog Input 7    | ISM Ch2-M3 Value       | Depend on the configure | 4     | Float32   | Param7  | 1 Block Info |
|                  |                      | 8           | Analog Input 8    | ISM Ch2-M4 Value       | Depend on the configure | 4     | Float32   | Param8  | 1 Block Info |
|                  | ISM Ch1<br>CIP & SIP | 9           | Analog Input 9    | ISM Ch1 CIP Value      |                         | 4     | Float32   | Param9  | 1 Block Info |
|                  | ISM Ch2<br>CIP & SIP | 10          | Analog Input 10   | ISM Ch1 SIP Value      |                         | 4     | Float32   | Param10 | 1 Block Info |
|                  |                      | 11          | Analog Input 11   | ISM Ch2 CIP Value      |                         | 4     | Float32   | Param11 | 1 Block Info |
|                  |                      | 12          | Analog Input 12   | ISM Ch2 SIP Value      |                         | 4     | Float32   | Param12 | 1 Block Info |
| <b>DI group1</b> |                      | System 1    | 13                | Discrete Input 1       | HW and setpoint status  |       | 4         | Dword   | Param13      |
|                  |                      | 14          | Discrete Input 2  | Measurement Status 1   |                         | 4     | Dword     | Param14 | 1 Block Info |
|                  | ISM Ch1              | 15          | Discrete Input 3  | ISM Ch1 Status         |                         | 4     | Dword     | Param15 | 1 Block Info |
|                  | ISM Ch2              | 16          | Discrete Input 4  | ISM Ch2 Status         |                         | 4     | Dword     | Param16 | 1 Block Info |
| <b>AI group2</b> | ISM Ch1              | 17          | Analog Input 13   | ISM Ch1 SN             |                         | 4     | Float32   | Param17 | 2 Block Info |
|                  |                      | 18          | Analog Input 14   | ISM Ch1 Slope          | Depend on the sensor    | 4     | Float32   | Param18 | 2 Block Info |
|                  |                      | 19          | Analog Input 15   | ISM Ch1 Offset         | Depend on the sensor    | 4     | Float32   | Param19 | 2 Block Info |
|                  |                      | 20          | Analog Input 16   | ISM Ch1 Operating hrs  |                         | 4     | Float32   | Param20 | 2 Block Info |
|                  | ISM Ch2              | 21          | Analog Input 17   | ISM Ch2 Sensor SN      |                         | 4     | Float32   | Param21 | 2 Block Info |
|                  |                      | 22          | Analog Input 18   | ISM Ch2 Sensor Slope   | Depend on the sensor    | 4     | Float32   | Param22 | 2 Block Info |
|                  |                      | 23          | Analog Input 19   | ISM Ch2 Offset         | Depend on the sensor    | 4     | Float32   | Param23 | 2 Block Info |
|                  |                      | 24          | Analog Input 20   | ISM Ch2 Operating hrs  |                         | 4     | Float32   | Param24 | 2 Block Info |
| <b>DI group2</b> | System 2             | 25          | Discrete Input 5  | Measurement Status 2   |                         | 4     | Dword     | Param25 | 2 Block Info |
|                  | ISM Ch1              | 26          | Discrete Input 6  | Ch1 Sensor PN          |                         | 4     | Dword     | Param26 | 2 Block Info |
|                  | ISM Ch2              | 27          | Discrete Input 7  | Ch2 Sensor PN          |                         | 4     | Dword     | Param27 | 2 Block Info |
| <b>AO group</b>  |                      | 28          | Analog Output 1   | AO1_Pressure           | mbar                    | 4     | Float32   | Param28 | 1 Block Info |
|                  |                      | 29          | Analog Output 2   | AO2_Pressure           | mbar                    | 4     | Float32   | Param29 | 1 Block Info |
| <b>DO group</b>  |                      | 30          | Discrete Output 1 | Hold and LED Control 1 |                         | 4     | Dword     | Param30 | 1 Block Info |
|                  |                      | 31          | Discrete Output 2 | Hold and LED Control 2 |                         | 4     | Dword     | Param31 | 1 Block Info |

## 6 Function Block Definition

### 6.1 Analog Output Function Blocks

|     | Meaning                                 |
|-----|---|
| AO1 | 1 <sup>st</sup> Process Pressure (mbar) |
| AO2 | 2 <sup>nd</sup> Process Pressure (mbar) |

**Note:** Only valid when the related channel is configured to oxygen sensor and ProcPress options are "Bus AO1" or "Bus AO2".

## 6.2 Discrete Output Function Blocks

| D01 |       | Bit     | Meaning   |
|-----|-------|---------|---|
| D01 | Ch1   | 0       | System Hold Control<br>On – 1<br>Off = 0  |
|     |       | 1       | PLC Setting ODO LED (default Invalid):<br>000 – Invalid<br>001 – LED on<br>010 – LED off<br>Only valid when LED mode is Auto and only for 1-ch PN version   |
|     |       | 2       |   |
|     |       | 3       |   |
|     |       | 4, 5    | Remote Cal control (default Invalid): bit[4][5]<br>00 – Invalid<br>01 – Start Cal Approval<br>10 – Save Cal Approval<br>11 – Reject<br><br>1. Only be valid for process version when Cal. control=BUS (DI1)<br>2. Set to Invalid value after 10s when DCS set to Reject value                                 |
|     |       | 6       | Reserve   |
|     |       | 7       | Reserve   |
|     | Ch2   | 8       | System Hold, same as Bit0   |
|     |       | 9       | Same as Ch1 ODO LED   |
|     |       | 10      |   |
|     |       | 11      |   |
|     |       | 12, 13  | Same as ISM CH1<br>Remote Cal control (default Invalid):<br>bit[12][13]<br>00 --- Invalid<br>01 --- Start Cal Approval<br>10 --- Save Cal Approval<br>11 --- Reject<br><br>1. Only be valid for process version when Cal. control=BUS (DI1)<br>2. Set to Invalid value after 10s when DCS set to Reject value |
|     |       | 14      | Reserve   |
|     |       | 15      | Reserve   |
|     | Flow1 | 16      | System Hold, same as Bit0   |
|     |       | 17 – 23 | Reserve   |
|     | Flow2 | 24      | System Hold, same as Bit0   |
|     |       | 25 –31  | Reserve   |

| <b>D02</b> |         | <b>Bit</b>  | <b>Meaning</b> |
|------------|---------|---|----------------|
| Ch3        | 0       | System Hold Control<br>On – 1<br>Off = 0  |                |
|            | 1       | PLC Setting ODO LED (default Invalid):<br>000 – Invalid<br>001 – LED on<br>010 – LED off<br>Only valid when LED mode is Auto and only for 1-ch PN version |                |
|            | 2       |   |                |
|            | 3       |   |                |
|            | 4 – 7   | Reserve   |                |
| Ch4        | 8       | System Hold, same as Bit0   |                |
|            | 9       | Same as Ch1 ODO LED   |                |
|            | 10      |   |                |
|            | 11      |   |                |
|            | 12 – 15 | Reserve   |                |

### 6.3 Discrete Input Function Blocks

| Configuration    | DI1 | Bit    | Meaning  |
|------------------|-----|--------|--|
| HW and SP status |     | 1      | RELAY 1 Status   |
|                  |     | 2      | RELAY 2 Status   |
|                  |     | 3      |  |
|                  |     | 4      |  |
|                  |     | 5      |  |
|                  |     | 6      |  |
|                  |     | 7      |  |
|                  |     | 8      | Digital Input 1 Status (High = 1, Low = 0)   |
|                  |     | 9      | Digital Input 2 Status   |
|                  |     | 10     | Digital Input 3 Status   |
|                  |     | 11     | Digital Input 4 Status   |
|                  |     | 12     | Digital Input 5 Status   |
|                  |     | 13     | Digital Input 6 Status   |
|                  |     | 14     | Communication Error  |
|                  |     | 15     |  |
|                  |     | 16     | SP1 Alarm (On = 1, Off = 0)  |
|                  |     | 17     | SP2 Alarm (same as SP1)  |
|                  |     | 18     | SP3 Alarm (same as SP1)  |
|                  |     | 19     | SP4 Alarm (same as SP1)  |
|                  |     | 20     | SP5 Alarm (same as SP1)  |
|                  |     | 21     | SP6 Alarm (same as SP1)  |
|                  |     | 22     | SP7 Alarm (same as SP1)  |
|                  |     | 23     | SP8 Alarm (same as SP1)  |
|                  |     | 24     | Flow Ch1 Hold Status (Active = 1; Inactive = 0)  |
|                  |     | 25     | Flow Ch2 Hold Status (Same as Flow Ch1)  |
|                  |     | 26     | Cal. Control status (0 = local, 1 = Bus)   |
|                  |     | 27     | Reserve  |
|                  |     | 28, 29 | Ch1: Send Request Signal to DCS (Default Invalid)<br>00 – Invalid<br>01 – Start Cal Request<br>10 – Save Cal Request<br><br>These two bits be valid when bit[26] = 1 |
|                  |     | 30, 31 | Ch2: Send Request Signal to DCS (Default Invalid)<br>00 – Invalid<br>01 – Start Cal Request<br>10 – Save Cal Request<br><br>These two bits be valid when bit[26] = 1 |

| Configuration      | DI2        | Bit         | Meaning  |
|--------------------|------------|-------------|--|
| Measurement Status | AI1 Status | 0           | 0 – Normal, 1 – Over Range, 2 – Under Range, 3 – Invalid |
|                    |            | 1           |  |
|                    | AI2 Status | 2           | Same as AI1  |
|                    |            | 3           |  |
|                    | AI3 Status | 4           | Same as AI1  |
|                    |            | 5           |  |
|                    | AI4 Status | 6           | Same as AI1  |
|                    |            | 7           |  |
|                    | AI5 Status | 8           | Same as AI1  |
|                    |            | 9           |  |
|                    | AI6 Status | 10          | Same as AI1  |
|                    |            | 11          |  |
|                    | AI7 Status | 12          | Same as AI1  |
| 13                 |            |             |  |
| AI8 Status         | 14         | Same as AI1 |  |
|                    | 15         |             |  |
| AI9 Status         | 16         | Same as AI1 |  |
|                    | 17         |             |  |
| AI10 Status        | 18         | Same as AI1 |  |
|                    | 19         |             |  |
| AI11 Status        | 20         | Same as AI1 |  |
|                    | 21         |             |  |
| AI12 Status        | 22         | Same as AI1 |  |
|                    | 23         |             |  |
|                    |            | 24 – 31     | Reserve  |

| Configuration       | DI5        | Bit         | Meaning  |
|---------------------|------------|-------------|--|
| Measurement Status2 | AI3 Status | 0           | 0 – Normal, 1 – Over Range, 2 – Under Range, 3 – Invalid |
|                     |            | 1           |  |
|                     | AI4 Status | 2           | Same as AI3  |
|                     |            | 3           |  |
|                     | AI5 Status | 4           | Same as AI3  |
|                     |            | 5           |  |
|                     | AI6 Status | 6           | Same as AI3  |
|                     |            | 7           |  |
|                     | AI7 Status | 8           | Same as AI3  |
|                     |            | 9           |  |
| AI8 Status          | 10         | Same as AI3 |  |
|                     | 11         |             |  |
| AI9 Status          | 12         | Same as AI3 |  |
|                     | 13         |             |  |
| AI20 Status         | 14         | Same as AI3 |  |
|                     | 15         |             |  |
|                     |            | 16 – 31     | Reserve  |



| Configuration                  | DI3 for Ch1<br>DI4 for Ch2<br>DI6 for Ch3<br>DI7 for Ch4 | Bit | Meaning  |
|--------------------------------|--|-----|--|
| ISM Ch1<br>Universal<br>Status |  | 0   | Calibration Data Warning eg: Slope > 102 % for pH sensor |
|                                |  | 1   | Calibration Data Error eg: Slope > 103 % for pH sensor   |
|                                |  | 2   |  |
|                                |  | 3   | Hold Status (Active or inactive)                         |
|                                |  | 4   | Clean Status (Active or inactive)                        |
|                                |  | 5   |  |
|                                |  | 6   | Maintenance Required                                     |
|                                |  | 7   | Calibration Required                                     |
|                                |  | 8   | CIP Counter Expired                                      |
|                                |  | 9   | SIP Counter Expired                                      |
|                                |  | 10  | Autoclave Counter Expired                                |
|                                |  | 11  |  |
|                                |  | 12  | Sensor Disconnected                                      |
|                                |  | 13  | Change Sensor  |
|                                |  | 14  |  |
| 15                             |  |     |  |

| Configuration            | DI3 for Ch1<br>DI4 for Ch2<br>DI6 for Ch3<br>DI7 for Ch4 | Bit   | Meaning                             |
|--------------------------|--|-------|-------------------------------------|
| ISM Chx<br>pH/ORP Status |  | 16    | Warning pHGs Change <0.3            |
|                          |  | 17    | Warning pHGs Change >3              |
|                          |  | 18    | Warning pHRef Change <0.3           |
|                          |  | 19    | Warning pHRef Change >3             |
|                          |  | 20    | Error pH Ref Res > 150 K $\Omega$   |
|                          |  | 21    | Error pH Ref Res < 1000 $\Omega$    |
|                          |  | 22    | Error pH GIs Res > 2000 M $\Omega$  |
|                          |  | 23    | Error pH GIs Res < 5 M $\Omega$     |
|                          |  | 24    | Error pNa GIs Res > 2000 M $\Omega$ |
|                          |  | 25    | Error pNa GIs Res < 5 M $\Omega$    |
|                          |  | 26    | Warning pNaGs Change <0.3           |
|                          |  | 27    | Warning pNaGs Change >3             |
|                          |  | 28–31 |                                     |

| Configuration             | DI3 for Ch1<br>DI4 for Ch2<br>DI6 for Ch3<br>DI7 for Ch4 | Bit   | Meaning        |
|---------------------------|--|-------|----------------|
| ISM Chx<br>Optical Status |  | 16    | ODO LED Status |
|                           |  | 17    | Change Spot    |
|                           |  | 18    | Shaft Error    |
|                           |  | 19    | Signal Error   |
|                           |  | 20    | Hardware Error |
|                           |  | 21–31 |                |

| Configuration          | D13 for Ch1<br>D14 for Ch2<br>D16 for Ch3<br>D17 for Ch4 | Bit   | Meaning              |
|------------------------|--|-------|----------------------|
| ISM Chx<br>Cond Status |  | 16    | Error Dry Sensor     |
|                        |  | 17    | Error Sensor Shorted |
|                        |  | 18    | Error Cell Deviation |
|                        |  | 19–31 |                      |

| Configuration            | D13 for Ch1<br>D14 for Ch2<br>D16 for Ch3<br>D17 for Ch4 | Bit   | Meaning                 |
|--------------------------|--|-------|-------------------------|
| ISM Chx<br>Oxygen Status |  | 16    | Error Electrolyte Level |
|                          |  | 17–31 |                         |

| Configuration                      | D13 for Ch1<br>D14 for Ch2<br>D16 for Ch3<br>D17 for Ch4 | Bit   | Meaning                  |
|------------------------------------|--|-------|--------------------------|
| ISM Chx<br>Turbidity (Sta-<br>tus) |  | 16    | Electronic Error         |
|                                    |  | 17    | Stray Light too High     |
|                                    |  | 18    | Measurement not Reliable |
|                                    |  | 19–31 |                          |

| Configuration                                   | D13 for Ch1<br>D14 for Ch2<br>D16 for Ch3<br>D17 for Ch4 | Bit   | Meaning                      |
|---|--|-------|------------------------------|
| ISM Chx<br>CO <sub>2</sub> Beverage<br>(Status) |  | 16    | Hardware Error               |
|   |  | 17    | Software Error               |
|   |  | 18    | CO <sub>2</sub> out of Range |
|   |  | 19    | Change Membrane              |
|   |  | 20    | CO <sub>2</sub> not Reliable |
|   |  | 21    | Temperature out of Range     |
|   |  | 22–31 |                              |

## 7

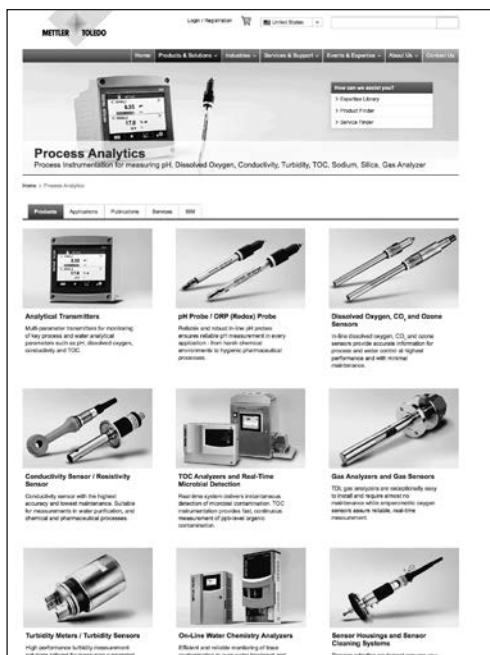
### Default

|             |                   |    |
|-------------|-------------------|----|
| IP Address  | 192.168.0.7       | RW |
| Netmask     | 255.255.255.0     | RW |
| Gateway     | 192.168.0.2       | RW |
| MAC Address | xx:xx:xx:xx:xx:xx | RO |



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