Non-Intrusive Signaller
Ultrasonic Passive Topside

The ID5000P is a fully ATEX certified, non-intrusive pig signaller which detects, signals and logs the passage of pigs at critical points along a pipeline both on land and offshore.
## ID5000P_5001

<table>
<thead>
<tr>
<th>Rev</th>
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</tr>
</thead>
</table>

### COMMENTS:
# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. GENERAL DESCRIPTION</td>
<td>3</td>
</tr>
<tr>
<td>2. SPECIFICATIONS</td>
<td>4</td>
</tr>
<tr>
<td>3. OPERATION</td>
<td>5</td>
</tr>
<tr>
<td>3.1. INSTALLATION</td>
<td>5</td>
</tr>
<tr>
<td>3.1.1. MAIN HOUSING INSTALLATION</td>
<td>5</td>
</tr>
<tr>
<td>3.1.2. TRANSDUCER INSTALLATION</td>
<td>5</td>
</tr>
<tr>
<td>3.2. TURN ON SEQUENCE</td>
<td>6</td>
</tr>
<tr>
<td>3.3. LISTENING MODE</td>
<td>7</td>
</tr>
<tr>
<td>3.4. DETECTION MODE</td>
<td>7</td>
</tr>
<tr>
<td>3.5. RELAY OUTPUT</td>
<td>7</td>
</tr>
<tr>
<td>3.6. CURRENT LOOP OUTPUT</td>
<td>8</td>
</tr>
<tr>
<td>3.7. SINGLE BUTTON MENU INTERFACE</td>
<td>8</td>
</tr>
<tr>
<td>3.7.1. EXIT</td>
<td>9</td>
</tr>
<tr>
<td>3.7.2. STATUS</td>
<td>9</td>
</tr>
<tr>
<td>3.7.3. VIEW EVENTS</td>
<td>9</td>
</tr>
<tr>
<td>3.7.4. DELETE ALL EVENTS</td>
<td>9</td>
</tr>
<tr>
<td>3.7.5. SHUTDOWN</td>
<td>9</td>
</tr>
<tr>
<td>3.7.6. MORE</td>
<td>9</td>
</tr>
<tr>
<td>3.7.7. SET OUTPUT</td>
<td>10</td>
</tr>
<tr>
<td>3.7.8. SET TIME/DATE</td>
<td>10</td>
</tr>
<tr>
<td>3.7.9. LIVE DISPLAY ON/OFF</td>
<td>11</td>
</tr>
<tr>
<td>3.7.10. SET FILTERS</td>
<td>11</td>
</tr>
<tr>
<td>3.7.11. SET LIMITS</td>
<td>11</td>
</tr>
<tr>
<td>3.7.12. SET COEFFICIENTS</td>
<td>11</td>
</tr>
<tr>
<td>3.7.13. FACTORY RESET</td>
<td>11</td>
</tr>
<tr>
<td>4. RECOMMENDED MAINTENANCE</td>
<td>12</td>
</tr>
<tr>
<td>4.1. MAIN BATTERY REPLACEMENT</td>
<td>12</td>
</tr>
<tr>
<td>5. EXTERNAL CONNECTIONS</td>
<td>13</td>
</tr>
<tr>
<td>5.1. STANDARD TERMINAL PCB</td>
<td>14</td>
</tr>
<tr>
<td>5.2. HEATER PCB OPTION</td>
<td>14</td>
</tr>
<tr>
<td>5.3. MODBUS PCB OPTION</td>
<td>15</td>
</tr>
<tr>
<td>6. WARRANTY</td>
<td>16</td>
</tr>
<tr>
<td>7. DISPOSAL OF UNIT</td>
<td>16</td>
</tr>
<tr>
<td>8. ATEX APPENDIX</td>
<td>17</td>
</tr>
</tbody>
</table>
1. GENERAL DESCRIPTION

The ID5000P (Passive) pig signaller is a fully ATEX certified, non-intrusive, pig signaller which detects, signals, and logs the passage of pigs at critical points along a pipeline both on land and offshore.

The unit uses Passive (listening) techniques to detect pig passage events. Events are signalled as they occur via a 2.7" graphical display and high brightness LEDs positioned around the perimeter of the display. Events can also be signalled remotely using several optional outputs.

The unit logs the time and date of up to 100 events which can be viewed at any point using the local display. The user can turn the unit ON and OFF as well as modify several settings using a single control button and intuitive menu system.

The unit has two basic parts as shown below. The transducer is permanently connected to the main housing via a cable. The transducer is screwed into a mounting block which can be quickly and easily attached to the pipeline using ratchet straps or steel banding. The main housing contains all electronics, battery (if fitted), display and the control button. The main housing is mounted onto the pipeline using a mounting block and straps in a similar fashion to the transducer.
2. SPECIFICATIONS

GENERAL

Battery Type.................................................................15V Alkaline Non-Rechargeable Battery Pack
Battery life LISTENING at +20°C (from 15V Alkaline Non-Rechargeable Pack).............78 Days
Rechargeable Battery Type.............................................12V NiMH Rechargeable Battery Pack
Battery life LISTENING at +20°C (from 12V NiMH Rechargeable Battery Pack)............40 Days
External Supply...................................................................24.0VDC
Main Housing Ambient Temperature Range (External Power) ................. -20°C to +85°C *
Main Housing Ambient Temperature Range (Alkaline Batteries).............. -20°C to +54°C *
Main Housing Ambient Temperature Range (NiMH Rechargeable Batteries).... -20°C to +65°C *
Transducer Ambient Temperature Range.............................................. -40°C to +85°C *
Maximum Pipeline Surface Temperature.................................................. +150°C *
ATEX Code........................................................................II 2 G Ex d ib IIC T5...T6
EC Type Examination Certificate Number........................................... TRL08ATEX21161X
Housing Material (SS Unit Only) ..................................................316L Stainless Steel
Housing Material (Al Unit Only) .............................................Copper Free Aluminium Alloy LM25 (Al)
Transducer Material ..................................................................316L Stainless Steel
Weight in Stainless Steel...............................................................15kg
Weight in Aluminium ................................................................11.5kg

OUTPUTS:

SPDT Relay Outputs (Volt Free Contacts)......................................2A @ 30VDC / 0.5A @ 125VAC
Current Loop Output ..............5.0mA ±1.0mA (LISTENING) / 19.0mA ±1.0mA (DETECTION)
Logging.................................................................................100 Events with Time and Date

* See 8 ATEX APPENDIX and 3.1 INSTALLATION instructions for full specifications.
3. OPERATION

The Special Conditions for Safe Use detailed in section 8 ATEX APPENDIX of this manual must be observed and followed at all times.

3.1. INSTALLATION

The unit can be installed by the end user, but the configuration and final set-up will require the attendance of a representative from manufacturer, unless otherwise agreed.

For optimum results, the unit should be installed in the middle of a straight section of pipeline at least 10m long. Sources of vibration, bends, valves and other pipeline features will alter the expected acoustic signature of passing pigs and should be avoided. Drawings outlining the proposed location of the unit should be provided to the manufacturer for review and comment at the initial stage of any request. Contact manufacturer for further advice regarding suitable installation checks.

If pipeline surface temperature is greater than +85°C then the main housing must not be mounted on the pipeline and the sensor must be mounted on the lower half of the pipeline to prevent convective heating. The sensor can be mounted on pipelines with surface temperature up to +150°C assuming that ambient air temperature does not exceed +60°C.

3.1.1. MAIN HOUSING INSTALLATION

1. With the help of another person, sit the main housing assembly on the pipeline at a suitable location and using the provided straps, securely tighten the main housing assembly to the pipeline. Alternative mounting arrangements (such as pole mounted) can be specified at time of order.

2. If required, connect the earth stud on top of the housing to a suitable earth bonding point at the point of installation.

3.1.2. TRANSDUCER INSTALLATION

1. For optimum results, ensure that the pipeline surface at the point of installation is uniform, clean and smooth. If the surface is irregular, corroded, or has flaking paint, then an abrasive paper or wire brush should be used to prepare the surface. The unit will operate effectively through most painted layers as long as they are clean, uniform and are fully bonded to the pipeline surface, however in the case of surface coatings which contain air gaps, foam coatings, concrete coatings, thermally insulating coatings or composite coatings consisting of several materials with different densities, an area of coating should be removed to allow the installation of the Transducer directly onto the bare pipeline surface. Contact manufacturer for further advice if there are any doubts.

2. Before the transducer mounting block is strapped to the pipeline, screw the transducer into the transducer mounting block so that it will require less than one full turn to securely press the transducer face to the pipeline surface when mounted. Care must be taken to avoid excessively twisting of the cable between the transducer and the main housing.

3. Securely strap the transducer assembly onto the pipeline ensuring that the transducer is held perpendicular to the pipeline surface.

4. Hand tighten the transducer firmly onto the pipeline surface. Using excessive force may damage the transducer. If more than one full turn is required to tighten the transducer, repeat the above procedure from step 2. Tighten the locking screw to prevent the transducer from turning. Using excessive force may damage the mounting block.
3.2. TURN ON SEQUENCE

To turn the unit on simply press and hold the control button until the COMPANY LOGO appears on the display and then release, this takes approximately 5 seconds.

The next screen shows the PRODUCT LOGO and firmware version at the bottom of the screen in Vxx format. This screen will be displayed for 5 seconds as shown by the COUNTDOWN INDICATOR at the bottom left corner of the display.

When the COUNTDOWN INDICATOR reaches zero, or the control button is pressed, the next screen will appear.

The next screen shows the time and date currently set in the unit. This can be changed if required. See Section 3.7.8 SET TIME/DATE for more information.

The next screen is the STATUS screen. This screen shows the current configuration of several settings. See section 3.7.2 STATUS for more information.

The unit now enters STABILISATION. During STABILISATION the unit will not detect or log any magnetic events. When the COUNTDOWN reaches zero or the control button is pressed the unit will enter LISTENING MODE.

The final screen shows the unit in LISTENING MODE. The 8 LEDs will flash once every five seconds while the unit waits for a pig passage. See Section 3.3 LISTENING MODE for more information.
3.3. LISTENING MODE

While in LISTENING mode the unit continuously monitors the sound energy produced by the pipeline as it waits for a pig passage to occur. The display shall be off and the LEDs around the perimeter of the display will flash every five seconds. The relay and current loop outputs will be in LISTENING state. There are two things that may cause this screen to change:

PIG PASSAGE – The unit is configured to recognize the unique sound signature produced by a pig as it passes under the transducer. If the unit detects a pig passage then the unit will show a PIG DETECTED message as per section 3.4 DETECTION MODE.

CONTROL BUTTON – Pressing the control button while the display is turned off will enter the DISPLAY MENU interface which is described in section 3.7 SINGLE BUTTON MENU INTERFACE.

3.4. DETECTION MODE

When a pig is detected the display will show a PIG DETECTED message and the time and date of the event as shown. The LEDs around the perimeter of the display will flash every second and the relay and current loop will be in the DETECTION state. The time and date of the pig passage are stored in internal memory and can be viewed later using the menu interface.

The length of time the unit will remain in this state for is determined by the OUTPUT DELAY value. See section 3.7.7 SET OUTPUT for a description of this parameter and how to alter its value. It should be configured to give the pig enough time to get out of the range of the sensor after it has been detected to avoid re-trigger. When dealing with pig trains, the expected pig speed and separation should be used to configure a suitable value for the OUTPUT DELAY such that the unit will not detect the same pig twice but will enter LISTENING MODE in time to detect the next pig.

Once the OUTPUT DELAY has expired, or the control button is pressed the unit will automatically return to LISTENING MODE.

3.5. RELAY OUTPUT

Refer to section 5 EXTERNAL CONNECTIONS for connection instructions.

While in LISTENING state, the Normally Closed (NC) contact of the relay will be connected to the Common contact (COM) and the Normally Open (NO) contact will be open.

While in DETECTION state, the Normally Closed contact will be open and the Normally Open contact will be connected to the Common contact.

Note that the relay logic may be INVERTED as per see section 3.7.7 SET OUTPUT.
3.6. CURRENT LOOP OUTPUT

Refer to section 5 EXTERNAL CONNECTIONS for connection instructions.

While in LISTENING state the loop current shall be 5mA ±1mA.

While in DETECTION state the loop current shall be 19mA ±1mA.

Note that if the MODBUS INTERFACE is fitted then inverting the relay logic as per section 3.7.7 SET OUTPUT will also reverse the state of the CURRENT LOOP output. See section 5.3 MODBUS PCB OPTION for more information.

3.7. SINGLE BUTTON MENU INTERFACE

While in LISTENING MODE, the control button can be pressed at any point to enter the menu interface. While in the menu interface, the unit will ignore all pig passages. From the menus the user can configure several parameters which are discussed in this section.

While in the menu system, every time the user presses the control button the CURSOR will move down one line and the COUNTDOWN INDICATOR will be reset to 5. Once the CURSOR is pointing at the desired item the user simply allows the COUNTDOWN INDICATOR to reach 0 and the selected item will be executed. This simple behaviour is used throughout the menu interface to modify settings and interact with the unit.

To modify parameters, simply follow the instructions provided on the screen. All parameters are incremented by pressing the control button until they are at the desired value then allowing the COUNTDOWN INDICATOR to reach 0.

If you do not wish to modify a parameter then simply allow the COUNTDOWN INDICATOR to reach 0 without operating the control button. The menu system is designed so that the unit will always return to LISTENING MODE if the control button is left released for a long enough time.
3.7.1. EXIT

The first item on every page of the menu system is EXIT. If no other selection is made then EXIT is selected by default and the unit will exit the menu system and return to LISTENING MODE.

3.7.2. STATUS

The STATUS screen is also shown as part of section 3.2 TURN ON SEQUENCE. It shows the Date, Time, Output Delay, Relay State and the Number of Logged Events. The STATUS screen can be halted by pressing and holding the control button.

3.7.3. VIEW EVENTS

When VIEW EVENTS is selected, the unit automatically scrolls through logged event data. If no data has been logged, then a NO EVENTS message will be displayed. If logged data is available, then screens similar to those shown will be displayed.

Each screen displays the event number along with the time and date of the event. The current time and date is displayed at the top of the screen. If the countdown indicator is allowed to reach zero, then the next event screen will appear until all events have been displayed, after which the unit will return to LISTENING MODE. If the control button is pressed at any point then the unit will immediately return to LISTENING MODE.

3.7.4. DELETE ALL EVENTS

When DELETE ALL EVENTS is selected, a screen showing the message “*WARNING* PRESS TO ERASE ALL EVENTS” will appear. If the user wishes to delete all logged data, then they should press the control button once before the countdown indicator reaches zero. If you do not wish to erase all logged data, then simply allow the countdown indicator to reach zero without pressing the control button.

3.7.5. SHUTDOWN

Selecting this item will switch the unit off. When the countdown indicator reaches zero, the display will go blank and the LEDs will flash once. The unit is fitted with a non-volatile memory which will remember all settings (such as OUTPUT DELAY and TIME/DATE) until the next time the unit is switched on. It is imperative that the unit is turned off using this command rather than simply disconnecting the battery to allow any memory storage processes to terminate prior to turning OFF.

3.7.6. MORE...

Selecting this item shows the next page of the menu system. See the figure in section 3.7 SINGLE BUTTON MENU INTERFACE for all available pages.
3.7.7. SET OUTPUT

Selecting this item allows the user to set the period of time which the unit shall remain in DETECTION MODE for as per section 3.4 DETECTION MODE and also how the outputs will behave as per sections 3.5 RELAY OUTPUT and 3.6 CURRENT LOOP OUTPUT.

**SET OUTPUT DELAY** – Select this item to modify the OUTPUT DELAY in HH:MM:SS format. See section 3.4 DETECTION MODE for more information.

If a value of 99 is entered for the hours (HH) the unit will latch in DETECTION MODE if a pig is detected and will require the user to press the control button to reset the unit back to LISTENING MODE.

**RELAY LOGIC** – RELAY NORMAL indicates that the relay outputs will behave as described in Section 3.5 RELAY OUTPUT, RELAY INVERTED indicates that the behaviour of the relay outputs will be inverted.

3.7.8. SET TIME/DATE

Selecting these items allow the time and date to be adjusted.

**SET TIME** - Select this item to modify the TIME in HH:MM format. Ensure that a valid and correct time is entered.

**SET DATE** - Select this item to modify the DATE in DD/MM/YY format. Ensure that a valid and correct date is entered.
3.7.9. LIVE DISPLAY ON/OFF

Selecting LIVE DISPLAY ON allows the signal being monitored by the unit to be viewed and the unit configured for correct operation if required. This screen should only be used by qualified personnel that have been trained by manufacturer. Modifying the settings available within this screen without any training may result in an inoperative unit. Select LIVE DISPLAY OFF within the menu system to turn this display off.

The method used to select and modify items in the LIVE DISPLAY is slightly different from the normal menu system. Individual items are highlighted (MENU is shown highlighted here) by using long presses to move between items. Once the required item is highlighted a short press will select or modify the highlighted item.

There are 6 configurable items available on the LIVE DISPLAY.

1. MENU. Enters the normal menu system when selected.
2. ↑ or ↓. Toggles between incrementing (↑) or decrementing (↓) editable items when selected.
3. R or S. Toggles LIVE DISPLAY between showing raw (R) or processed data (S) when selected.
4. Z##. Sets the horizontal zoom level when modified. Default value is Z01.
5. G##. Sets the gain when modified. Default value is G20.
6. ##x. Sets the vertical zoom level when modified. Default value is 15x.

3.7.10. SET FILTERS

These parameters should only be modified by qualified personnel that have been trained by manufacturer. Modifying these parameters without training may result in an inoperative unit.

3.7.11. SET LIMITS

These parameters should only be modified by qualified personnel that have been trained by manufacturer. Modifying these parameters without training may result in an inoperative unit.

3.7.12. SET COEFFICIENTS

These parameters should only be modified by qualified personnel that have been trained by manufacturer. Modifying these parameters without training may result in an inoperative unit.

3.7.13. FACTORY RESET

The user can perform a FACTORY RESET if advised by manufacturer, but the unit will then lose any pre-configured settings made before shipment or on site. After FACTORY RESET the unit automatically re-boots and performs its normal start up sequence.
4. RECOMMENDED MAINTENANCE

The Special Conditions for Safe Use detailed in section 8 ATEX APPENDIX of this manual must be observed and followed at all times.

Frequent inspections should be made. A schedule for maintenance checks should be generated according to the environment and frequency of use but should be regular enough to ensure the equipment continues to operate in the designed manner. It is recommended that it should be at least once a year.

External parts of the equipment should be periodically cleaned using fresh water to ensure that deposits are not allowed to accumulate. Avoid the use of aggressive chemicals.

Check flame paths / threads on the enclosure body and lid for signs of corrosion or damage. If badly pitted or damaged, replace the relevant component.

The unit contains a coin cell (BR2032) used to power the Real Time Clock (RTC) circuitry which provides system date and time. This battery should be replaced every 5 years.

All components that are replaced must be in accordance with the manufacturers’ specifications. Failure to use such components may invalidate the certification/approval and may make the equipment dangerous.

4.1. MAIN BATTERY REPLACEMENT

1. The Special Conditions for Safe Use detailed in section 8 ATEX APPENDIX of this manual must be observed and followed at all times.

2. Referring to the figure below use a 3mm AF Hex key to loosen the locking GRUB SCREW which locks the main housing lid shut. Unscrew and remove the lid to expose the electronics and display.

3. Using a 3mm AF Hex key remove the 4x M4x12 cap screws holding the main PCB down and then carefully lift off the main PCB to reveal the battery pack. Place the main PCB somewhere safe where it will not be accidentally damaged while the battery pack is being replaced. Note the position of the RTC cell behind the display.

4. Note the orientation of the battery with the two metal contacts on the same side as the button and cable entries as shown in the figure above.

5. Re-assemble the unit following these instructions in reverse. When replacing the main PCB ensure it is located properly using the dowel pins provided. Ensure that all PCB connections mate properly. Do not over tighten the locking GRUB SCREW.
5. EXTERNAL CONNECTIONS

The Special Conditions for Safe Use detailed in section 8 ATEX APPENDIX of this manual must be observed and followed at all times.

A suitable cable and ATEX certified gland must be provided by the user. A suitable gland to use with a non-mineral filled cable would be a Peppers Cable Glands Limited CR-XSCK1/20S/M20 barrier gland. A single M20x1.5 threaded entry is provided as standard. The cable cores should have a length of approximately 150mm inside the unit to allow for ease of connection.

Unless the unit has been ordered with a battery pack the unit will be delivered with a 4mm² TERMINAL BLOCK and PARTITION PLATE already fitted inside the battery compartment as shown.

If the unit is to be connected to any external circuitry such as an external power supply or SCADA system then the unit must be fitted with a PARTITION PLATE and the main battery must be removed.

Remove the lid and main PCB to gain access to the battery compartment as described in section 4.1 MAIN BATTERY REPLACEMENT.

If a TERMINAL BLOCK and PARTITION PLATE are fitted already then the unit is ready for connecting external circuits. One of three possible PCBs will be fitted at the TERMINAL PCB position. Each PCB is described by one of the following sections: 5.1 STANDARD TERMINAL PCB, 5.2 HEATER PCB OPTION or 5.3 MODBUS PCB OPTION. A TERMINAL BLOCK and PARTITION PLATE will always already be fitted if a MODBUS or HEATER PCB is fitted at the TERMINAL PCB position.

If a TERMINAL BLOCK and PARTITION PLATE are not fitted then follow the instructions below to fit them.

1. Observe how the wires connected to the transducer cable are routed inside the housing before removing the 2x M4x25 cap screws holding the plastic battery compartment in place and carefully withdrawing the entire assembly out of the main housing. While withdrawing the battery compartment be very careful not to damage any existing wiring.

2. Observe how the transducer cable is connected to the assembly and then disconnect.

3. To fit the TERMINAL BLOCK, terminate the wires to the TERMINAL PCB as per section 5.1 STANDARD TERMINAL PCB.

4. To fit the PARTITION PLATE simply slot into position in the battery compartment and lock into place using the 2mm dowels provided.

5. Re-connect the transducer cable and then carefully re-fit the battery compartment inside the housing. While refitting the battery compartment be very careful not to damage any of the wiring by initially positioning the wiring so that it points straight down into the housing until the wiring has passed the housing lip and then repositioning the wiring from inside the compartment so that it passes along one of the slots on the bottom of the battery compartment. Ensure all wiring is safely located inside the enclosure and is not trapped under the battery compartment.

6. Secure the battery compartment with the 2x M4x25 cap screws.

7. Refer to section 5.1 STANDARD TERMINAL PCB to make the required external connections.
5.1. STANDARD TERMINAL PCB

This is the standard TERMINAL PCB fitted to the unit. It provides connections for external power, relay output, and a current loop output.

All connections are made to the PCB using 3.5mm pitch removable terminal blocks which can accept wire sizes up to 1.5mm². Connections are clearly labelled on the PCB and are connected to a TERMINAL BLOCK using the wire colours shown below.

**Diagram 1**

**Legend:**
- **COM** - Common contact of relay
- **NC** - Normally Closed contact of relay
- **NO** - Normally Open contact of relay
- **EXT** - Positive side of external 24VDC supply
- **GND** - Negative side of external 24VDC supply
- **Tx** - Do not use this connection
- **Rx** - Do not use this connection
- **SGND** - Do not use this connection
- **CL+** - Positive side of current loop 24VDC supply
- **CL-** - Negative side of current loop 24VDC supply

Refer to sections 3.5 RELAY OUTPUT and 3.6 CURRENT LOOP OUTPUT. All power supplies must provide between 23.0VDC and 25.0VDC. A single power supply may be shared for the positive side of external supply and the positive side of the current loop supply.

5.2. HEATER PCB OPTION

The HEATER PCB is fitted when low temperature operation is required (-40°C to -20°C). It also provides connections for external power and relay output. There is no provision for a current loop output. The HEATER PCB should only be used with an EXTERNAL POWER SUPPLY. Use with a battery pack is not recommended.

All connections are made to the PCB using 3.5mm pitch removable terminal blocks which can accept wire sizes up to 1.5mm². Connections are clearly labelled on the PCB and are connected to a TERMINAL BLOCK using the wire colours shown below.

**Diagram 2**

**Legend:**
- **COM1** - Common contact of relay 1
- **NC1** - Normally Closed contact of relay 1
- **NO1** - Normally Open contact of relay 1
- **COM2** - Common contact for relay 2
- **NC2** - Normally Closed contact of relay 2
- **NO2** - Normally Open contact of relay 2
- **VEXT** - Positive side of external 24VDC supply
- **GND** - Negative side of external 24VDC supply
- **HTR+** - Positive side of heater 24VDC supply
- **HTR-** - Negative side of heater 24VDC supply

Refer to sections 3.5 RELAY OUTPUT and 3.6 CURRENT LOOP OUTPUT. All power supplies must provide between 23.0VDC and 25.0VDC. A single power supply may be shared for external power and the heater.
5.3. MODBUS PCB OPTION

The MODBUS PCB is fitted when a MODBUS interface is required. It also provides connections for external power, relay output, and a current loop output. The MODBUS PCB should only be used with an EXTERNAL POWER SUPPLY. Use with a battery pack is not recommended.

The connections to the MODBUS PCB are non-detachable (soldered) and care must be taken not to damage them if removing the battery compartment. Connections are clearly labelled on the PCB and are connected to a TERMINAL BLOCK using the wire colours shown below.

<table>
<thead>
<tr>
<th>Label</th>
<th>Description</th>
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<tbody>
<tr>
<td>RGND</td>
<td>RS485 ground connection</td>
</tr>
<tr>
<td>TX(B)</td>
<td>RS485 B connection</td>
</tr>
<tr>
<td>RX(A)</td>
<td>RS485 A connection</td>
</tr>
<tr>
<td>COM2</td>
<td>Common contact for relay 2</td>
</tr>
<tr>
<td>NC2</td>
<td>Normally Closed contact for relay 2</td>
</tr>
<tr>
<td>NO2</td>
<td>Normally Open contact for relay 2</td>
</tr>
<tr>
<td>COM1</td>
<td>Positive side of current loop 24VDC supply</td>
</tr>
<tr>
<td>NC1</td>
<td>Negative side of current loop 24VDC supply</td>
</tr>
<tr>
<td>NO1</td>
<td>Do not use this connection</td>
</tr>
<tr>
<td>PWR+</td>
<td>Positive side of external 24VDC supply</td>
</tr>
<tr>
<td>PWR-</td>
<td>Negative side of external 24VDC supply</td>
</tr>
</tbody>
</table>

Refer to sections 3.5 RELAY OUTPUT and 3.6 CURRENT LOOP OUTPUT. All power supplies must provide between 23.0VDC and 25.0VDC. A single power supply may be shared for the positive side of external supply and the positive side of the current loop supply.

The MODBUS PCB provides a current loop output utilising connections COM1 and NC1 as shown above. Because relay 1 is used to control the current loop then inverting the relay logic as per section 3.7.7 SET OUTPUT will also reverse the state of the CURRENT LOOP output.

The only information provided over the MODBUS interface is the status of the relay which is described in section 3.5 RELAY OUTPUT. Access to this single ‘bit’ of information is accessed using MODBUS commands:

- CMD 2 “Read Discrete Input” at coil 8
- CMD 3 “Read Holding Register” at register 0 bit 0.
- CMD 4 “Read Input Register” at register 0 bit 0.

Assuming that the relay logic has not been inverted (see section 3.7.7 SET OUTPUT) then the relay bit will be ‘1’ while the relay is in the DETECTION state and ‘0’ while the relay is in the LISTENING state.

The MODBUS interface is configured by selecting SET OUTPUT->CONFIGURE MODBUS in the menu system. There are 3 configurable parameters:

- MODBUS address for the unit (if zero – MODBUS disabled)
- BAUD rate for communications (9600, 19200, 38400, 57600, 115200)
- WORD format (no/even/odd parity, 7 or 8 bit word, 1 or 2 stop bits)

If a non-zero address is entered then the MODBUS interface will become active on exit from the menu and will await commands.
6. WARRANTY

Online products are guaranteed for one year from the date of purchase. Goods should be returned transportation prepaid to Online Electronics Limited.

There is no charge for parts or labour should any product require repair due to a manufacturing deficiency during the guarantee period.

In the event of a manufacturing deficiency the inward transportation costs will be repaid to the client.

7. DISPOSAL OF UNIT

Online Electronics Ltd (OEL) takes its responsibilities under the WEEE Regulations extremely seriously and has taken steps to be compliant in line with our corporate and social responsibilities. In the UK, OEL has joined a registered compliance scheme WeeeCare (registration number WEEMP3538PZ/SCH).

Electrical and electronic equipment should never be disposed of with general waste but must be separately collected for the proper treatment and recovery.

The crossed out bin symbol, placed on the product, reminds you of the need to dispose of it correctly at the end of its life.

When buying a new product you will have the possibility to return, free of charge, another end of life product of equivalent type that has fulfilled the same functions as the supplied equipment. These items may be deposited at:

Online Electronics Ltd
Online House
Woodburn Road
Blackburn Business Park
Blackburn
Aberdeen
AB21 0PS
UK

Alternatively, to arrange a collection of any waste electrical equipment, obligated to OEL please telephone WeeeCare on 0844 800 2004.
8. ATEX APPENDIX

EQUIPMENT: ID5000P

MANUFACTURER: Online Electronics Ltd.
Web: www.online-electronics.com

NOTIFIED BODY NUMBER: 0891

ATEX CERTIFICATE: TRL08ATEX21161X

ATEX MARKINGS: Ex d ib IIC T5/T6

IECEx CERTIFICATE: IECEx TRC 12.0011X

IECEx MARKINGS: Ex d ib IIC T5....T6 Gb

APPLICABLE STANDARDS:
EN 60079-0:2012+A11
EN 60079-1
EN 60079-11
IEC 60079-0:2011
IEC 60079-11:2011

SPECIAL CONDITIONS FOR SAFE USE:

1. Transducer face must be positioned close to the pipeline surface and adequately protected from impacts.
2. Transducer, cable and electronics shall only be used as a complete assembly.
3. Equipment must be adequately earth bonded via the external earth terminal. Conductor size shall be 2.5mm² or the same size as the input power cabling, whichever is the greater.
4. External power and signals shall only be supplied according to manufacturer’s instructions by suitable cable using a suitable ATEX Certified cable gland.
5. Unused cable entries shall be sealed using suitable ATEX certified blanking elements.
6. The temperature at the cable entry point may exceed +70°C. Cables suitable for use at this temperature must be used.
7. Only ID5000 battery packs shall be used with the ID5000P.
8. The battery pack must be removed if the external power supply is attached.
9. Do not open enclosure nor replace battery packs when a potentially explosive atmosphere is present.
10. The battery pack shall only be charged when removed from the equipment and moved to a safe area.
11. Temperature class is reliant on the operating ambient temperature, the internal power dissipation (Pd), and whether internal cells are fitted.

<table>
<thead>
<tr>
<th>Power Dissipation (Pd) Watts</th>
<th>External Power</th>
<th>Alkaline Battery</th>
<th>Rechargeable Battery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T5</td>
<td>T6</td>
<td>T5</td>
</tr>
<tr>
<td>7W &lt; Pd &lt;= 10W</td>
<td>-40...70°C</td>
<td>-40...55°C</td>
<td>-20...54°C</td>
</tr>
<tr>
<td>3W &lt; Pd &lt;= 7W</td>
<td>-40...75°C</td>
<td>-40...60°C</td>
<td>-20...54°C</td>
</tr>
<tr>
<td>2W &lt; Pd &lt;= 3W</td>
<td>-20...75°C</td>
<td>-20...65°C</td>
<td>-20...54°C</td>
</tr>
<tr>
<td>1W &lt; Pd &lt;= 2W</td>
<td>-20...80°C</td>
<td>-20...65°C</td>
<td>-20...54°C</td>
</tr>
<tr>
<td>Pd &lt;= 1W</td>
<td>-20...85°C</td>
<td>-20...70°C</td>
<td>-20...54°C</td>
</tr>
</tbody>
</table>