



Thank you for purchasing the OdaLog® portable gas logger manufactured by Thermo Fisher Scientific Australia Pty Ltd.

In our quest to continually improve the product we manufacture, we look forward to your feedback on your experience using the OdaLog® in different environments and applications, as well as the usefulness of the information you collect using it's data-logging function.

If you have any suggestions or comments, please contact your distributor or alternatively e-mail us direct on sales@odalog.com.

Gas Logger

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The sole purpose of this document is to assist in the operation of the OdaLog® portable gas logger.

We do not convey any right to use this information for any purpose other than in the operation or maintenance of the OdaLog® portable gas logger.

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GENERAL DISCLAIMER

This Manual summarises our knowledge of the OdaLog® portable gas logger including how to use it based on the information available at the time. You should read this Manual carefully and consider the information in the context of how the instrument is to be used.

The OdaLog® portable gas logger is sold subject to our standard terms and conditions of sale and any written warranty given by Thermo Fisher Scientific. Thermo Fisher Scientific does not accept any other liability either directly or indirectly for any losses suffered in connection with the use and application of the OdaLog® portable gas logger, whether or not in accordance with any advice, specification, recommendation or information given by it or as a result of any errors or omissions in this Manual.

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1 CERTIFICATION / CONFORMITY

1.1 Explosion-Protected Electrical Equipment - Certification & Performance Conformity

The following Authorities have granted intrinsic safety approval to the OdaLog® Logger (Type L2).

Authority	Certificate Number	Code
EX TC	IECEX ITA 08.0010X	Ex ia IIC T4 (T _{AMB} = -20°C to +50°C) Ga IP66/68
PRESAFE	PRESAFE 19 ATEX 09596X	 II 1 G, Ex ia IIC T4 Ga IP66/68

1.2 Conditions of Safe Use

- ◆ FOR SAFETY REASONS THIS EQUIPMENT MUST BE OPERATED AND SERVICED BY QUALIFIED PERSONNEL ONLY. READ INSTRUCTION MANUAL, UNDERSTAND AND ADHERE TO MANUFACTURER'S LIVE MAINTENANCE PROCEDURES BEFORE OPERATING OR SERVICING.
- ◆ THE BATTERY SHALL ONLY BE REMOVED OR REPLACED IN A NON-HAZARDOUS AREA.
- ◆ SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
- ◆ ONLY USE WITH ODALOG® APPROVED BATTERY TYPE.
- ◆ BATTERY MUST BE REPLACED WITH ONE OF THE FOLLOWING TYPES LISTED IN TABLE 1.
- ◆ TO AVOID BUILD-UP OF ELECTROSTATIC CHARGE, THE ODALOG TYPE L2 SHALL BE USED OR PLACED WHERE IT WILL BE PROTECTED FROM INADVERTENT RUBBING AND SHALL ONLY BE CLEANED OR WIPED WITH A DAMP CLOTH WHEN USED IN EXPLOSIVE ATMOSPHERES CLASSIFIED AS GROUP IIC. THIS CONDITION DOES NOT APPLY FOR GROUPS IIA AND IIB.

Table 1 Approved Battery Types

Manufactures Part Number Code	Type	Size
Saft LS26500	Lithium	C
Tadiran TL-5920/S	Lithium	C

1.3 Electromagnetic compatibility (EMC) – Compliance Statement

The OdaLog® Type L2 and accessories comply with the emissions and immunity requirements of:

Standard Number	Standard Title	Compliance
EN 50270: 2015	Electrical Magnetic Compatibility – Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen.	Fully

1.4 FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

1.5 Quality Statement

Thermo Fisher Scientific Australia Pty Ltd produces this product in accordance with our accredited AS/NZ ISO 9001, and ISO/IEC 80079-34 Quality System.

2 WARNINGS AND CAUTIONS

- ◆ DO NOT USE SOLVENTS TO CLEAN THE ODALOG® GAS LOGGER. DAMP CLOTH SHALL BE USED TO CLEAN OR WIPE.
- ◆ DO NOT INSERT OBJECTS (INCLUDING FINGER) INTO GAS INLET AS THE FILTER MAY BE DAMAGED
- ◆ DO NOT REPLACE BATTERIES IN THE FIELD (DO IT IN A CLEAN ENVIRONMENT)
- ◆ DO NOT ATTEMPT TO DISASSEMBLE SENSORS AS THEY ARE POTENTIALLY CORROSIVE
- ◆ THE USE OF LITHIUM BATTERIES OTHER THAN THE LITHIUM BATTERIES LISTED IN TABLE 1 WILL INVALIDATE THE INTRINSIC SAFETY APPROVAL
- ◆ BEFORE EACH DAY'S USE, SENSITIVITY MUST BE TESTED ON A KNOWN CONCENTRATION OF TEST GAS (TO MATCH THE SENSOR TYPE) EQUIVALENT TO 20-50 PERCENT OF FULL-SCALE CONCENTRATION. ACCURACY MUST BE WITHIN $\pm 10\%$ OF ACTUAL CONCENTRATION OR $\pm 5\%$ OF FULL SCALE. ACCURACY MAY BE CORRECTED BY CALIBRATION AS DESCRIBED IN THE "CALIBRATING THE ODALOG" SECTION
- ◆ THE ODALOG® GAS LOGGER IS NOT DESIGNED TO OPERATE AS A SAFETY DEVICE. WHEN ENTERING CONFINED SPACES AND TOXIC HAZARD ENVIRONMENTS ALL APPROPRIATE REGULATIONS AND OCCUPATIONAL HEALTH AND SAFETY PRECAUTIONS SHOULD BE STRICTLY ADHERED TO. IF UNSURE OF POTENTIAL HAZARDS OR SAFETY STANDARDS, SEEK ADVICE FROM YOUR WORKPLACE OCCUPATION HEALTH AND SAFETY DEPARTMENT OR GOVERNMENT REGULATORY BODY
- ◆ THE AMBIENT TEMPERATURE RANGE THAT THE APPARATUS IS SUITABLE FOR IS -20°C TO $+50^{\circ}\text{C}$
- ◆ "EX" CERTIFICATION IS VALID ONLY TO 21% VOL OXYGEN. THE ODALOG® GAS LOGGER SHOULD NOT BE USED IN OXYGEN ENRICHED ATMOSPHERES.

WARNING TO AVOID ELECTROSTATIC CHARGE

- ◆ TO MINIMIZE THE RISK FROM ELECTROSTATIC DISCHARGE, THE INSTRUMENT SHOULD ONLY BE USED OR PLACED WHERE IT WILL BE PROTECTED FROM INADVERTENT RUBBING OR WIPING.
- ◆ ONLY TOUCH THE INSTRUMENT WITH AN INSULATING OBJECT.
- ◆ TO AVOID BUILD-UP OF ELECTROSTATIC CHARGE, THE OdaLog TYPE L2 SHALL BE USED OR PLACED WHERE IT WILL BE PROTECTED FROM INADVERTENT RUBBING AND SHALL ONLY BE CLEANED OR WIPED WITH A DAMP CLOTH WHEN USED IN EXPLOSIVE ATMOSPHERES CLASSIFIED AS GROUP IIC. THIS CONDITION DOES NOT APPLY FOR GROUPS IIA AND IIB.

3 DESCRIPTION

The OdaLog® is a compact portable gas data-logger, designed by industry-proven manufacturer Thermo Fisher Scientific Australia – the gas detection specialists for harsh environments, such as the waste water industry. With superior sealing and use of heavy-duty materials, this instrument is corrosion-resistant, durable and reliable.

The new generation OdaLog® Logger picks up where its respected predecessor left off. With super-low power consumption coupled with a long-life lithium cell power-source, battery life will exceed 12 months in most cases, taking 'low-maintenance' to a whole new level.

New and faster infrared wireless communication, as well as magnetic switches enables the OdaLog® to be easily calibrated, configured and the download of logged data without the need for any disassembly.

The extra large, easy to read LCD makes the OdaLog® simple to use and interpret instrument data and settings on-site. The instrument main features can be viewed on-screen, such as: gas readings, temperature, % of memory used, logging mode and time intervals, as well as a battery level indicator.

OdaLog® interfaces with Thermo Fisher Scientific's own dedicated, easy to use *OdaStat-G™* software package that brings logged data into the office environment in a user-friendly format.

WARNING

The OdaLog® Gas Logger is not designed to operate as a safety device. When entering confined spaces and toxic hazard environments all appropriate regulations and occupational health and safety precautions should be strictly adhered to. If unsure of potential hazards or safety standards, seek advice from your workplace occupation health and safety department or Government regulatory body.

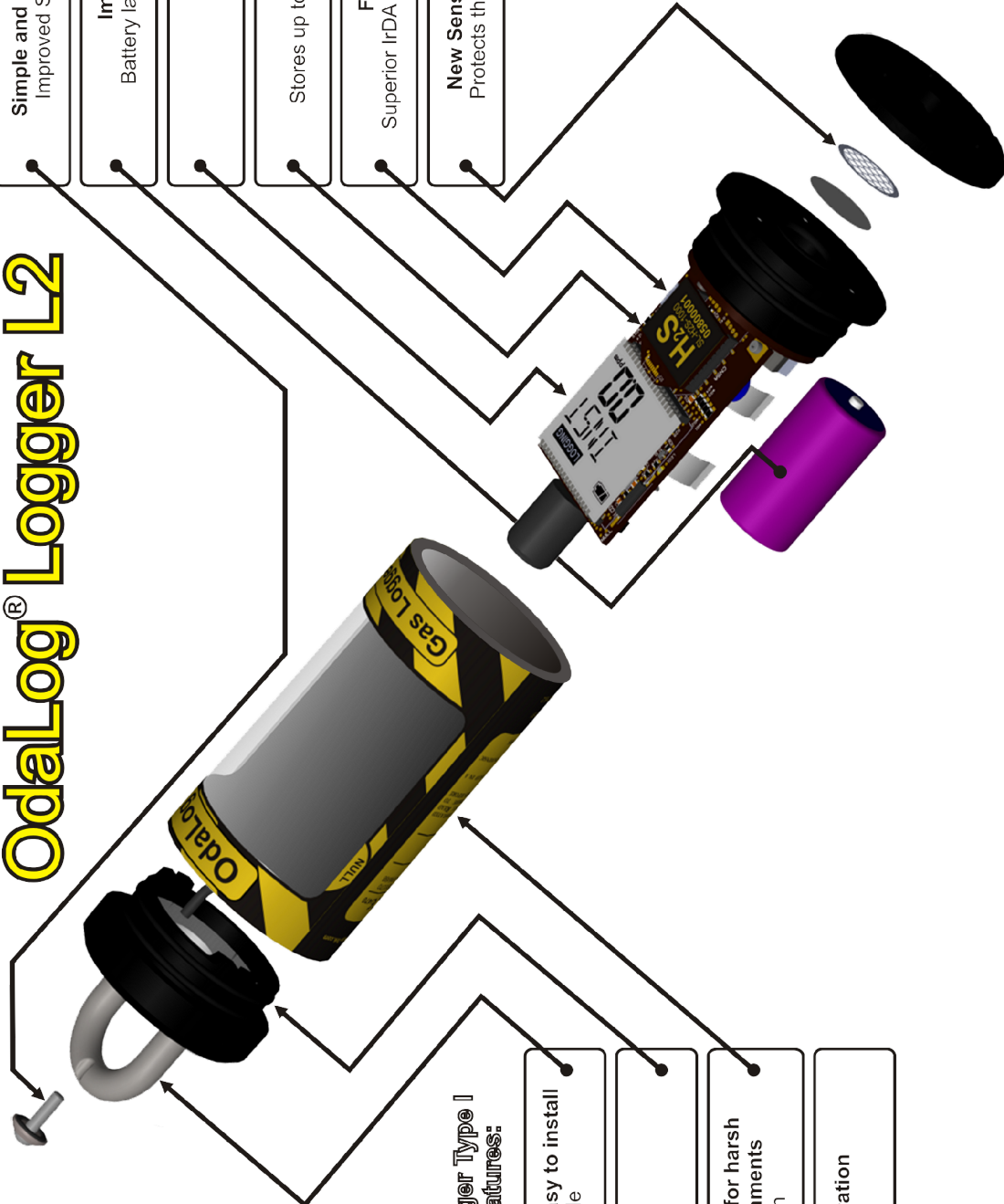
The use of Lithium Batteries other than lithium batteries listed in Table 1 will invalidate the intrinsic safety approval.



ThermoFisher SCIENTIFIC OdaLog® Logger L2

OdaLog Logger Type L2 New Features:

- Simple and effective assembly**
Improved Single Screw Design
- Improved battery life**
Battery lasts up to 12 months
- Easy to read menu**
Larger LCD display
- Increased Memory**
Stores up to 42,000 data points
- Faster downloading**
Superior IrDA communication Link
- New Sensor Protection Grill**
Protects the filter from damage



OdaLog Logger Type I Proven Features:

- Built Strong and easy to install**
Stainless steel handle
- Water proof seal**
Double o-ring seals
- Purpose designed for harsh wastewater environments**
Unique robust design
- Single Button Operation**
User Friendly

4 GENERAL SPECIFICATIONS

Table 2 General Product Specifications

Instrument Temp Range	-20°C (-4°F) to 50°C (122°F)
Sensor Temp Range	-10°C to +40°C (14°F to 104°F)
Instrument Relative Humidity Range	15-90% non-condensing
Ingress Protection	IP66/68
External Dimensions	Diameter 62mm (2.44”) x Height 196mm (7.72”)
Instrument Weight	420g (14.8oz)
Power Supply(s)	Replaceable C-Size Lithium Battery (see Table 1) (approved battery type/brand/make only)
Battery Life/ Run Time	Greater than 8months (for life of Lithium battery)
Data Logging Capacity	Up to 42,000 readings in total
Interval	Selectable from 1 second to 1 hour
Data Logging Duration Example	Capacity > Logging Interval of 1min = 29 days Capacity > Logging Interval of 5min = 6+ months

Storage of the OdaLog® instrument, with sensors fitted, should be limited to the temperature range of 0°C (32°F) to +25°C (75°F), and between 20% to 80% RH.

The following is a list of gas types available for the OdaLog® L2:

Table 3 Available Gas Sensing Types

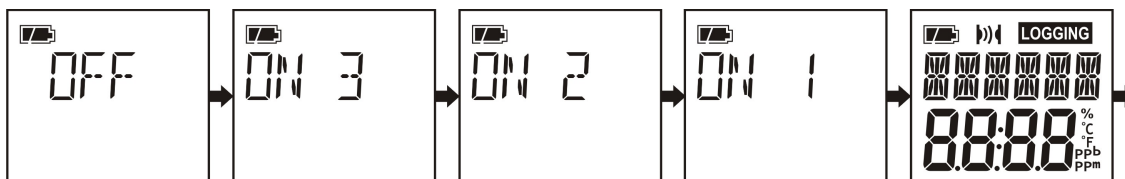
Model	Gas		Range	Resolution	Accuracy (Full Scale)	Accuracy (@ 20ppm gas, STP)
Long term Logger (LL)	H2S	Hydrogen Sulphide	0-1000 ppm	1 ppm	1% Full Scale	± 2ppm
Standard Logger (SL)			0-200 ppm	0.1 ppm	1% Full Scale	
			0-2000 ppm	1 ppm	2% Full Scale	
			0-1000 ppm	1 ppm	1% Full Scale	
			0-200 ppm	0.1 ppm	1% Full Scale	
			0-50 ppm	0.1 ppm	4% Full Scale	
SL	CO	Carbon Monoxide	0-1000 ppm	1 ppm	2% Full Scale	
SL	SO2	Sulphur Dioxide	0-20 ppm	0.5 ppm	10% Full Scale	
SL	NO	Nitric Oxide	0-100 ppm	1 ppm	2% Full Scale	
SL	NO2	Nitrogen Dioxide	0-50 ppm	0.1ppm	4% Full Scale	
SL	CL2	Chlorine	0-20 ppm	0.1 ppm	10% Full Scale	
SL	HCN	Hydrogen Cyanide	0-30 ppm	0.2 ppm	6% Full Scale	
SL	NH3	Ammonia	0-100 ppm	1 ppm	10% Full Scale	
NOTE: STP = <i>Standard Temperature and Pressure</i> : 20 °C (68 °F) @ absolute pressure 101.3 kPa (14.7 psi).						

5 QUICK OPERATIONAL GUIDE

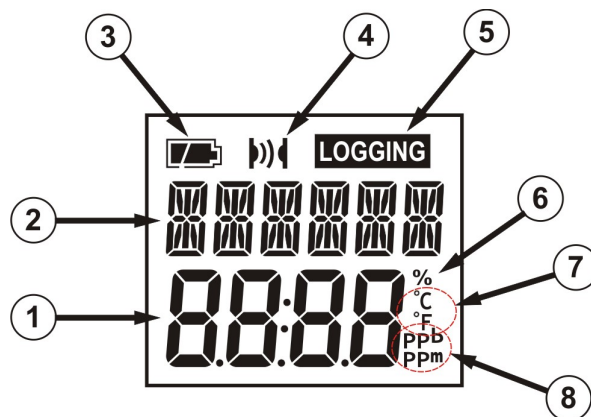
This section describes a brief operating procedure for the OdaLog® instrument, covering the basics of all major functionality. For more detail, refer to corresponding information in Section 6.

5.1 Switch On

Press & hold button down, “ON” will count down ON 3-2-1, release the button when the ‘test’ screen appears (all segments visible/black as shown). The unit will progress through “STATUS” screens then display the “INST” (Instantaneous reading) screen. (See Section 6.1)



5.2 LCD Layout Overview



1. **Lower 7-segment characters** – Displays gas readings and status values – usually numerical digits, some supplemental menu headings and prompts.
2. **Upper 14-segment characters** – Displays menu headings, prompts and other visual feedback – usually alphabetic characters, some numerical values displayed on some screens
3. **Battery Level Indicator** – Displays the battery levels (4 stage depletion, see Section 6.12)
4. **Communications Symbol** – Indicates if the instrument is successfully connected and transferring data (i.e. for downloading log and changing parameters and settings in the OdaStat-G™ software package).
5. **Logging Symbol** – This symbol flashing indicates that the instrument is Logging – Note: flashing interval does not indicate logging interval (See Section 6.5 for more information on logging)
6. **%** - This symbol is used to show any units or screens that display units as a percentage (e.g. Memory usage, some gas types are displayed % Volume).
7. **Temperature units** – when displaying the temperature readings on screen in degrees Centigrade or Fahrenheit, depending on the setting chosen in the OdaStat-G™ software package [Default = °C]
8. **Gas Reading units** – Indicates if gas readings shown are in ‘parts per million’ or ‘parts per billion’ [‘ppb’ disabled in OdaLog® Logger Type L2 series instruments].

5.3 Null (zero)

With unit in fresh air press & hold button down until “NULL” is displayed and then release. Move magnet over wording “NULL” on LHS of LCD screen – “DONE” should appear briefly when completed. (See Section 9.5)

5.4 Pre-Use Span Check

Apply a known level of gas over sensor (using supplied calibration fitting, [Part No. 11-0001]) at the flow rate and for the flow time as detailed in Table 5 (or until reading stabilises) and record “Start Level” result (See Section 9.8.1).

5.5 Start Logging (*Manual Logging setting only)

Press & hold button down until “START LOG” is displayed and then release (logging is confirmed by *LOGGING* symbol flashing on screen and flashing LED’s). (See Section 6.5)

5.6 Stop Logging (*Manual Logging setting only)

Press & hold button down until “STOP LOG” is displayed and then release. (See Section 6.6)

5.7 Post-Use Span Check

Flow a known level of gas over sensor (using supplied calibration fitting, [Part No. 11-0001]) at the flow rate and for the flow time as detailed in Table 5 (or until reading stabilises) and record “End Level” result when reading stabilises. (See Section 9.8.2)

5.8 Download Data

5.8.1 Use IrDA

Stop logging as above then press & hold button down until “IrDA” is displayed then release. Use Infra Red Data Communications link [Part No. 12-0002] and follow the *OdaStat-G™* software package instructions for communicating with the OdaLog® instrument. (Refer to Section 6.8 for more information on communication setup and download of data)

5.8.2 Use Bluetooth

Stop logging as above then press & hold button down until “BT” is displayed then release. Use Bluetooth Data Communications link and follow the *OdaStat-G™* software package instructions for communicating with the OdaLog® instrument.

5.9 Switch Off

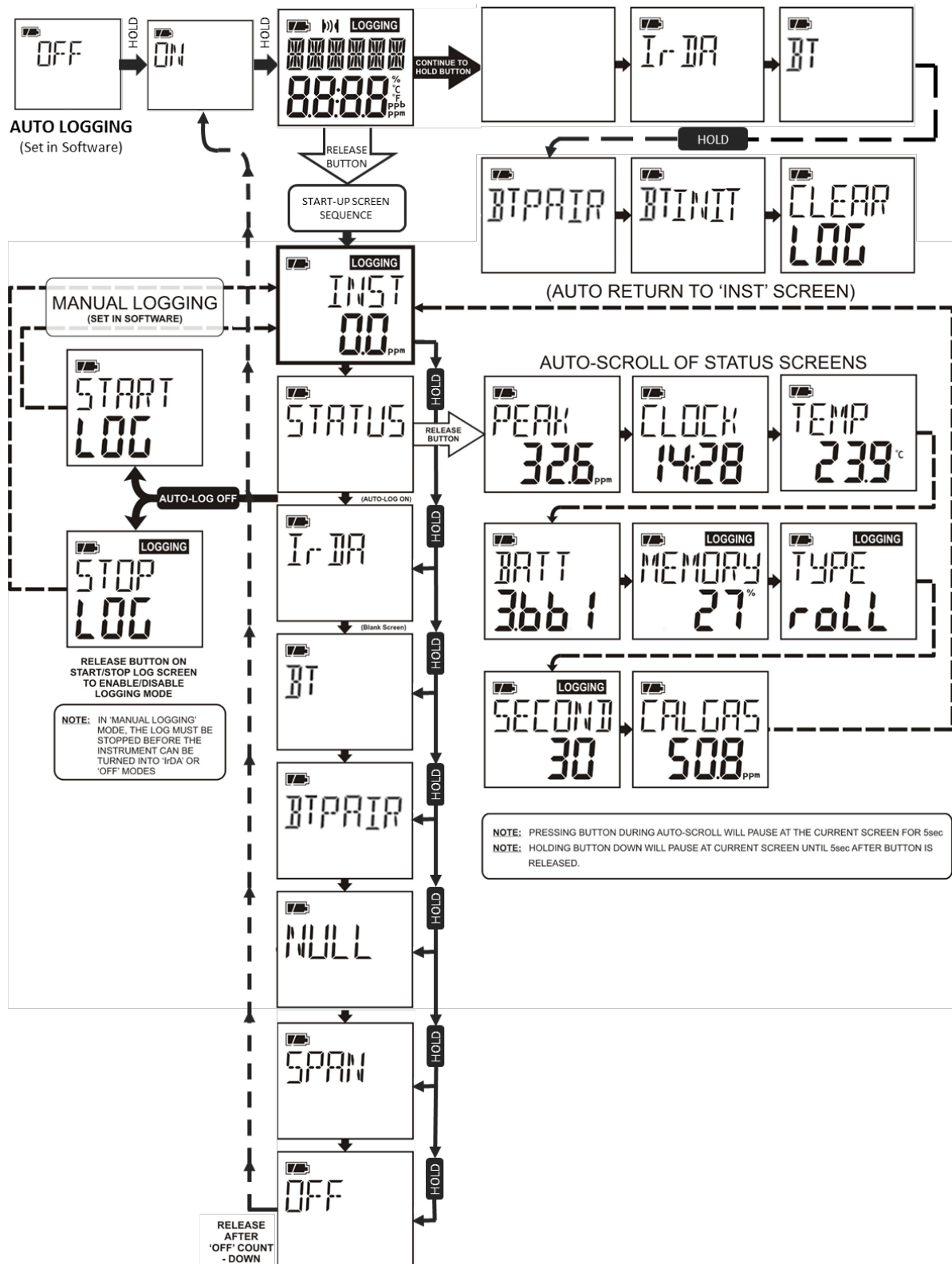
Press & hold button down until “OFF” is displayed. Continue holding button as it counts down OFF-2-1 then release. (See Section 6.10)

5.10 Training

To locate your nearest Thermo Fisher Scientific training centre please contact us at the address shown on the back of this manual or refer to our web site www.odalog.com

6 OPERATION

6.1 Operation Overview



6.2 Switching on

Press & hold button down for three seconds (“On” will count down from 3) then release.

The LCD display will show (In Order):

- Test Screen – All segments visible/black
- “CLOCK...not Set” (See Note 3)
- Installed OdaLog® Firmware Version
- Days Since Last Calibrated
- “STATUS” which displays in order;
 - ◆ “PEAK” gas level since switch on or log start
 - ◆ “CLOCK” (Shown in 24-hour time. If clock not set (See Section 6.3), this value may be incorrect on screen and in instrument log – This must be set in the *OdaStat-G™ Software* – refer to the *OdaStat-G™ Quick User Guide* or ‘Help’ section in the software manual)
 - ◆ Temperature
 - ◆ “BATT” (Battery), battery volts
 - ◆ Logging “MEMORY”- % of memory used
 - ◆ “TYPE” of logging - “roLL” (if continuous logging selected), “oncE” (if Stop log when full is selected).
 - ◆ Logging interval – time between gas readings displayed as “SECONDS” (set in the *OdaStat-G™* software)
 - ◆ “CALGAS”, Shows Calibration Gas Level in ppm as set via the *OdaStat-G™* software package.
- “CLOCK not Set” (see note 3 & Section 6.3)
- “LOG FULL” (see note 4 & section 6.7)

The display will then revert to display instantaneous gas readings in ppm.

Note 1: *Releasing the button during the countdown routine will cause exit to “OFF” screen.*

Note 2: *‘Peak’ is constantly updated when OdaLog® is in use. The Peak value is reset at switch on and at the start of each logging session.*

Note 3: *If the clock has not been set “CLOCK not SEt” will be displayed. The message will remain on the display until the button is pressed to continue. (See Section 6.3)*

Note 4: *If the Logger memory is full and you have “Auto Log Start” & “Stop log when full” active, (Refer to the “Instrument Parameters” section in the *OdaStat-G™* software package) the unit will not start logging and the display will show “LOG” “FULL” and the LED’s will illuminate at the same time. The message will remain on the display until the button is pressed to continue.*

6.3 “CLOCK not SEt” Message

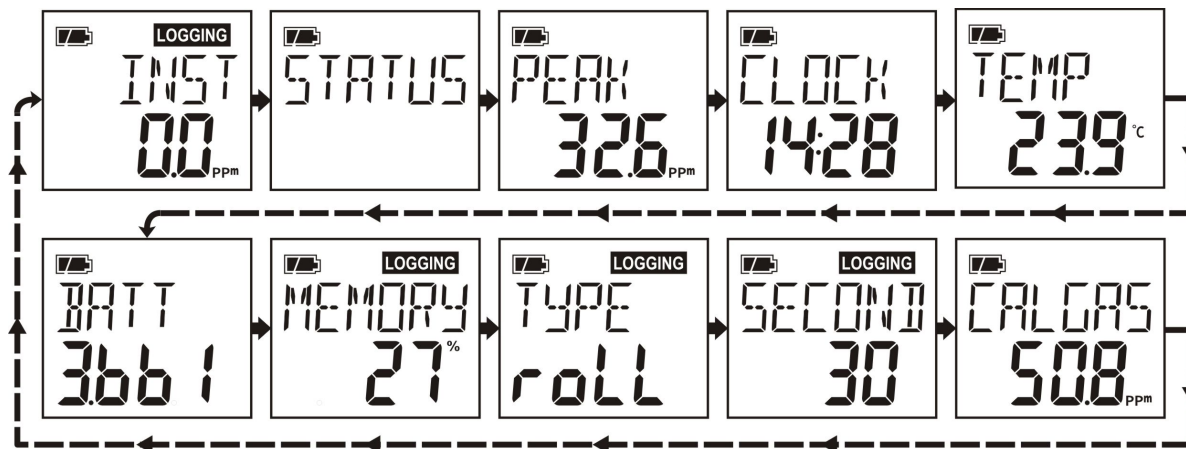


If the clock has not been set since the last battery change, “CLOCK not...SEt” will be displayed upon start-up and when starting log function. This message will be displayed until the button is pressed. Logging will start normally, however the time and date will be incorrect.

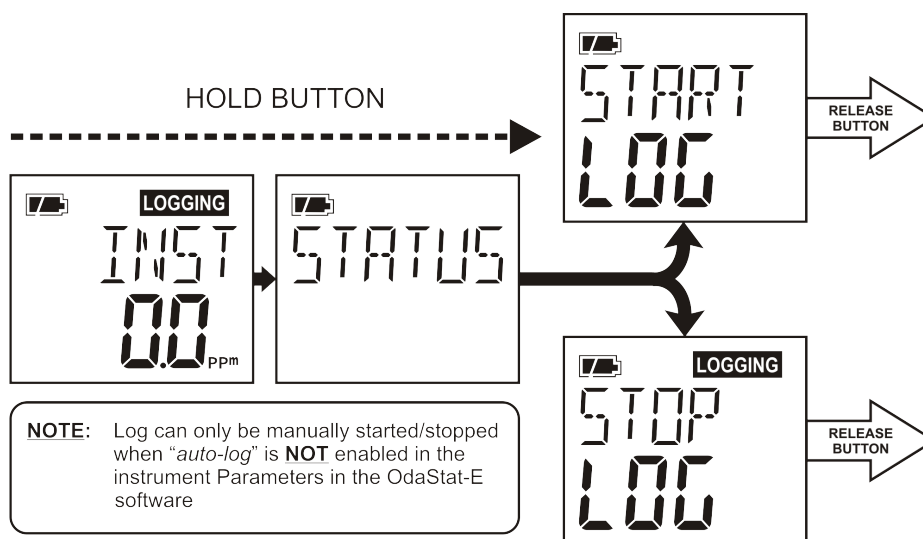
To set the correct time and date, stop logging function (only necessary if the instrument is in *Manual Logging mode* - See Section 6.6) place the Instrument into *IrDA mode* (See Section 6.8.1), and set clock via the *OdaStat-G™* software package – for more information, refer to the ‘*OdaStat-G Quick User Guide*’, or the Help function in the software.

6.4 Displaying current status on the LCD

Press & hold button until “STATUS” is displayed then release button. The display will cycle through “STATUS” screens as shown.



6.5 Start Logging Function (*Manual Logging Mode only, [Default = Enabled])



Press & hold button down and continue holding as screen displays “STATUS”, then release button when “START LOG” is displayed. See note 2 below if “CLOCK not SET” is displayed when button released.

The OdaLog® is now logging as confirmed by the flashing “LOGGING” symbol on the display and the LED’s on either side of the display flashing once every 10 seconds (Default: Enabled - can be changed in the OdaStat-G™ software).

- Note 1:** If the Logger memory is full and you have “Stop log when full” active, (Refer to the “Instrument Parameters” section in the OdaStat-G™ software package) the unit will not start logging, the display will show “LOG” “FULL” and the LED’s will illuminate at the same time. The message will remain on the display until the button is pressed to continue.
- Note 2:** If the clock has not been set “CLOCK not SET” will be displayed. The message will remain on the display until the button is pressed to continue. (See Section 6.3)

6.6 Stop Logging Function (*Manual Logging Mode only, [Default = Enabled])

Press & hold button down until “STOP LOG” is displayed then release button.

6.7 Auto Log Start Function [Default = Disabled]

This function is activated via the *OdaStat-G™* software package as per the “Instrument Parameters” section, by selecting the “Auto Log Start” option. Once active, logging will automatically start and stop every time the OdaLog® instrument is switched on or off. Logging will also stop and start every time the instrument is entered into or exited from “IrDA” mode.

Note 1: If the Logger memory is full and you have “Auto Log Start” & “Stop log when full” active, (*Refer to the “Instrument Parameters” section in the OdaStat-G™ software package*) the unit will not start logging, the display will show “MEMORY FULL” and the LED’s will illuminate at the same time. The message will remain on the display until the button is pressed to continue.

Note 2: *If the clock has not been set “CLOCK not SEt” will be displayed. The message will remain on the display until the button is pressed to continue. (See Section 6.3)*

6.8 IrDA (Infra Red Data Communication Mode)

6.8.1 Enter “IrDA” mode (Infra Red Data Communication Mode)

From ON Mode: From the ‘INST’ screen, press & hold button down until “IrDA” is displayed then release button (*IrDA* will appear on screen after ‘STATUS’, see diagram in Section 6.1).

From OFF Mode: From the ‘OFF’ screen, press & hold button down until “IrDA” is displayed then release button (*IrDA* will appear on screen after the “ON” countdown and the test screen/s, see diagram in Section 6.11).

Note 1: *This can only be done when logging is stopped, unless Auto Log Start is active. (See Section 6.7)*

Note 2: *The magnetic switches can be tested with magnet in IrDA mode, LED will illuminate to indicate they are functioning correctly.*

6.8.2 Exit “IrDA” mode (Infra Red Data Communication Mode)

Pressing the button when in “IrDA” mode or waiting 75 seconds for unit to “time out” will cause the instrument to exit communication mode.

6.8.3 Precautions required when using OdaLog® I.R communication

The Infra Red communications system used by the OdaLog® to communicate and transfer data to a computer has been designed as a fast and convenient method to download information. Like all communication systems, the Infra Red system has some vulnerabilities that can interfere with normal communications, as more portable devices are utilising this technology. As a result, the possibility for interference between devices is increasing, and precautions should be taken to ensure that communications between the OdaLog and PC are reliable and trouble-free.

Conditions that have the potential to disrupt OdaLog® to computer communications are:

- Infra Red ports built-in to the PC/Laptop or connected to any nearby computers should disabled.
- Infra Red ports on organisers, phones, modems etc. that have been activated or are in use.
- Infra Red ports on printers.
- Strong light sources near the OdaLog during communications
- Infra Red remote control devices from TV’s, air conditioners etc.

Note: *The OdaLog® is only susceptible to communication interference when it has been placed into “IrDA” mode. It is not possible for any other device or source of Infra Red interference to affect the OdaLog® if the user has not placed the OdaLog® into the “IrDA” mode.*

6.8.4 Steps to ensure reliable I.R communication

- Position the OdaLog® correctly with respect to the supplied Infrared Data Communication Link as shown in Figure 1.
- If you are using a computer with an Infra Red port attached (other than the Infrared Data Communication Link supplied with the OdaLog®), disable this port to prevent any Infra Red transmissions from it.

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- Ensure that other devices with Infra Red ports (phones, other computers, organisers etc) that are within about 10 metres of the OdaLog® do not have their Infra Red ports activated.
- Ensure that strong light sources are not directed onto the OdaLog® while the instrument is in “IrDA” mode.
- When changing the configuration of the OdaLog® using the *OdaStat-G™* software package, always read back the settings from the OdaLog® after they have been changed to ensure that they have been received correctly.

Note: *In severe cases of Infra Red interference, the OdaLog® may stop responding. If this occurs, contact your nearest OdaLog® distributor or service centre for advice on restoring normal operation to the OdaLog®.*

USING INBUILT INFRARED DEVICES:

While some infrared ports (laptops mainly) are compatible with the OdaLog, due to the variation in manufacturers, drivers and communication protocols, users often experience issues connecting and/or downloading reliably. For this reason, Thermo Fisher Scientific strongly recommends that users only attempt to connect to the OdaLog via the IR device supplied with the purchase of the OdaLog instrument. Only advanced users should attempt to use inbuilt IR ports. If difficulties arise, ensure the inbuilt IR adapter is disabled, and revert to using the provided adapter.

6.8.5 Communications Set-up

- If using a *USB-based* IR adapter, ensure the drivers are installed *BEFORE* connecting the device
- Connect I.R device to your PC and install the *OdaStat-G™* software package.
- Open the *OdaStat-G™* software package on your PC, and ensure communication setting are configured correctly to communicate with your OdaLog® instrument (refer to *OdaStat-G™* software package *Help*)
- Place OdaLog® into *IrDA* Mode
- Position I.R device between 25-150mm (1-6”) from the OdaLog® Instrument, ensuring line-of-sight between I.R device and the I.R module on the OdaLog®, as shown in Figure 1.
- Disconnect instrument when finished.

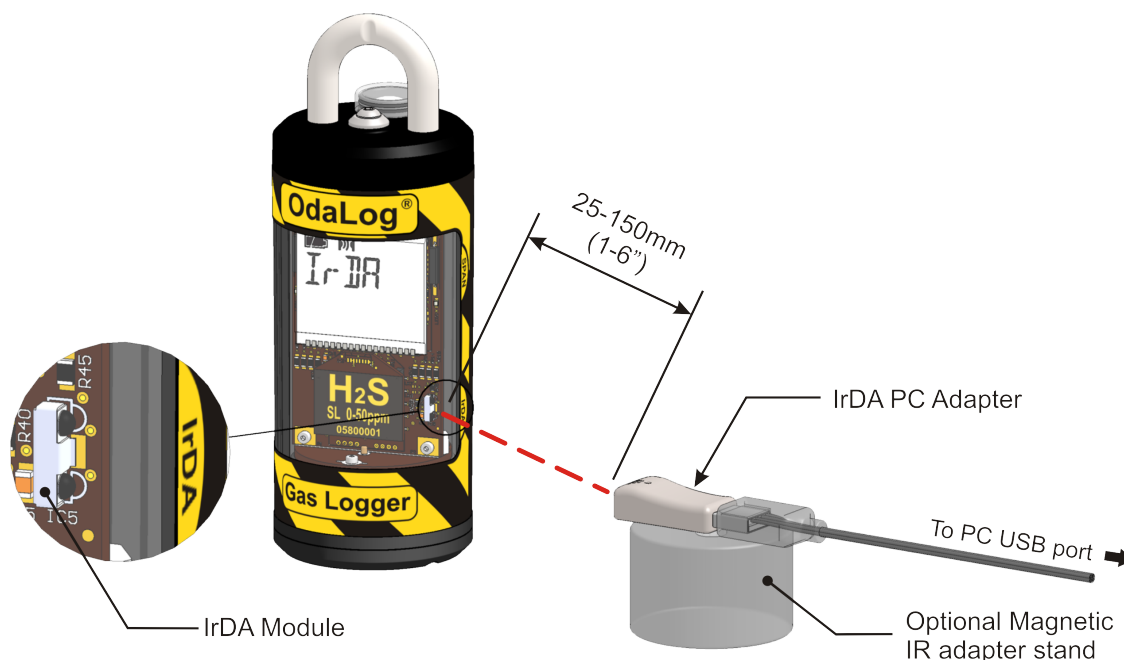


Figure 1 - I.R Communications Set-Up

6.9 BT (Bluetooth Data Communication Mode)

6.9.1 Enter “BT” mode (Bluetooth Data Communication Mode)

From ON Mode: From the ‘INST’ screen, press & hold button down until “BT” is displayed then release button (BT will appear on screen after ‘irDA’, see diagram in Section 6.1).

From OFF Mode: From the ‘OFF’ screen, press & hold button down until “BT” is displayed then release button (BT will appear on screen after the “ON” countdown and the test screen/s and “irDA”, see diagram in Section 6.11).

Note 1: This can only be done when logging is stopped, unless Auto Log Start is active. (See Section 6.7)

6.9.2 Exit “BT” mode (Bluetooth Data Communication Mode)

Pressing the button when in “BT” mode or waiting 75 seconds for unit to “time out” will cause the instrument to exit communication mode.

6.9.3 Pairing Instrument with PC

The OdaLog instrument must be paired with the PC before the communication can be established. Pairing procedures:

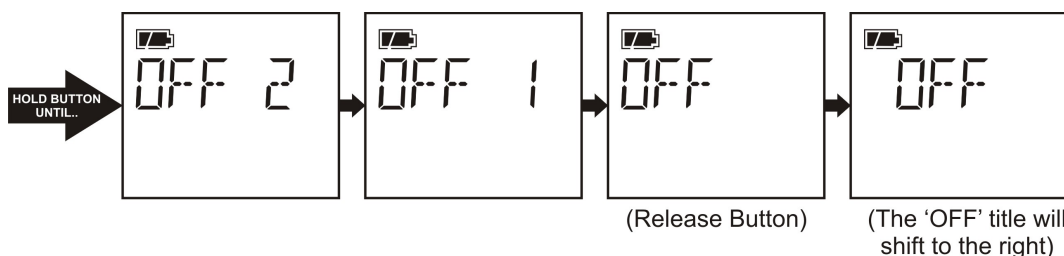
- Enter “BTPAIR” mode on the instrument LCD, following the same procedures given in 6.9.1
- Pairing with Windows 7
 - Enter Devices and Printers
 - Click Added a Device
- Pairing with Windows 10
 - Enter Devices and Printers
 - Select Bluetooth
 - Click Added a Device
 - Click Pair

6.9.4 Communications Set-up

- If using a USB-based Bluetooth adapter, ensure the drivers are installed *BEFORE* connecting the device
- Connect Bluetooth device to your PC and install the *OdaStat-G™* software package.
- Open the *OdaStat-G™* software package on your PC, and ensure communication setting are configured correctly to communicate with your OdaLog® instrument (refer to *OdaStat-G™* software package *Help*)
- Place OdaLog® into *Bluetooth* Mode
- Position the OdaLog instrument within 10 meters from the PC
- Disconnect instrument when finished and remove the instrument from the device list on the PC



6.10 Switching off



Press & hold button down and wait for display to cycle through screens until “OFF2” is displayed. Keep button depressed until the display counts down from “OFF2” to “OFF” then release button.

When the button is correctly released to turn the instrument off, the OFF title will shift 1 character to the right to confirm that the instrument is now in the off state.

Note 1: This can only be done when logging is stopped unless Auto Log Start is active. (See Section 6.7)

Note 2: Releasing the button during the countdown routine will cause exit to instantaneous screen.

6.11 Clear Logged Data

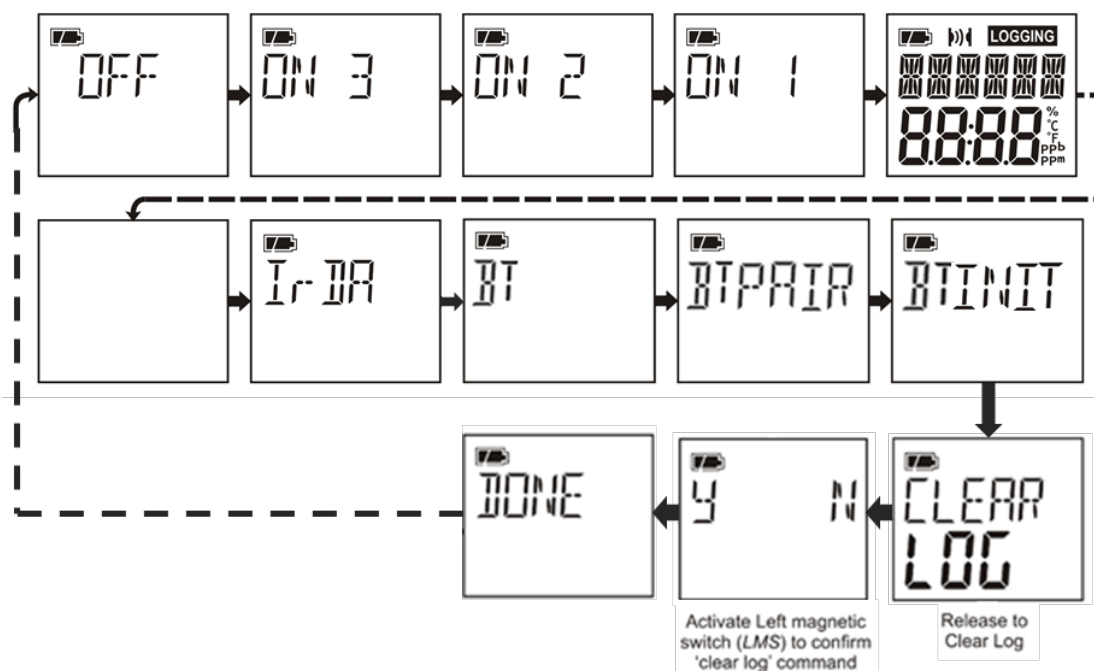
WARNING:

All logged data will be lost when the log is cleared, be sure to download any data that you wish to keep **before** clearing the log.

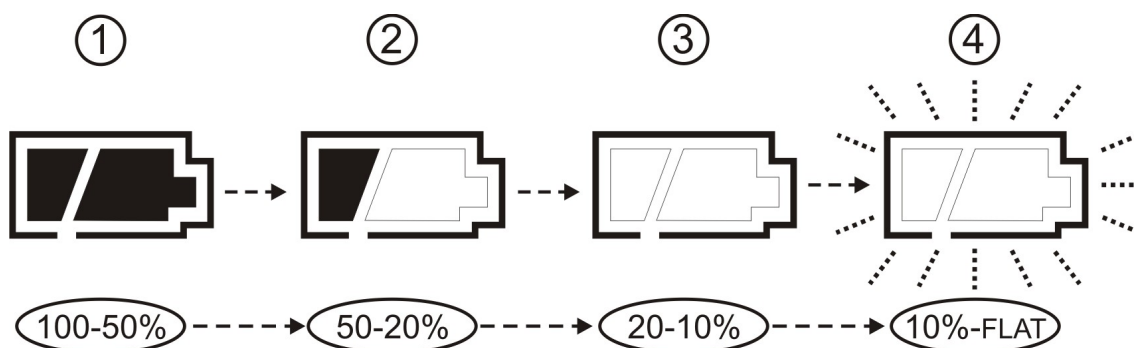
Switch instrument “OFF”. Press & hold button whilst “On” counts down from 3 and **continue holding** until “CLEAR LOG” appears on screen, then release button.

“Y” and “N” will appear on the display. With the magnetic base of the Allen Tool provided select “Y” to clear the log memory, “DONE” should appear briefly on the screen before returning to the “OFF” state.

Selecting “N” will return to the “OFF” state without clearing the log memory.



6.12 Low Battery Indication & Control



Battery power levels are indicated on-screen by means of the multi-segment battery symbol, as shown above with the transitions with remaining life expectancy. When the battery is above 50% capacity all segments of the will be displayed, as in stage 1 shown above. Similarly, stage 2 shown above indicates acceptable battery levels down to 20% battery life.

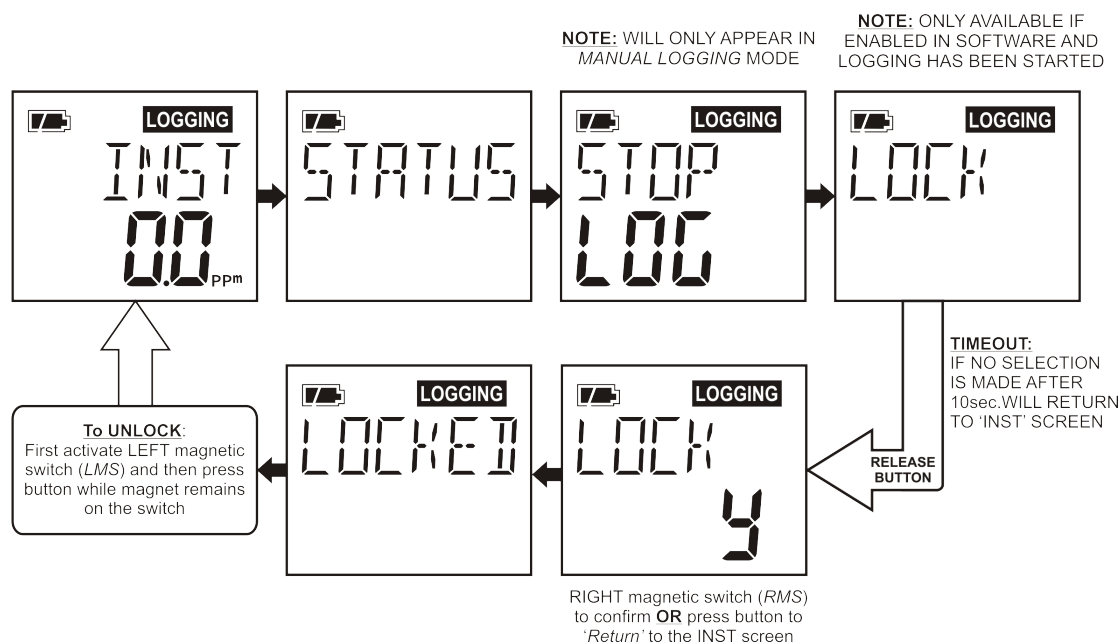
At low voltage the battery symbol will be displayed as ‘empty’, i.e. without any segments visible, as shown at stage 3 above. Then, as the battery capacity decreases to a flat (non-operational, stage 4) state, the OdaLog® instrument will stop the active logging session and switch the instrument off displaying the word “FLAT” continuously on the display with the Battery Warning symbol flashing.

Note: The instrument cannot be turned back on until the battery has been replaced. Refer Section 8.1.1 for battery replacement.

6.13 Key Lock (Default = Disabled)

Key Lock (when enabled in the *OdaStat-G™* software): this feature enables the user to ‘lock’ the top button and disable the “INST” display while in logging mode. This feature works as follows:

1. The Key Lock option requires enabling from the *OdaStat-G™* software package, as per the “Instrument Parameters” section.



2. To Lock the OdaLog® instrument.

Once a logging session is started, the user can then select from the menu the option called “LOCK”. With “LOCK” displayed, release the button to lock prompt confirmation. Swipe the magnetic base of the Allen Tool provided past the right-hand side of the LCD display near the “Y” on screen. The LCD will display “LOCKED”, as well as the “LOGGING” symbol flashing. The instrument and button operation is now locked.

3. To Un-Lock the OdaLog® instrument:

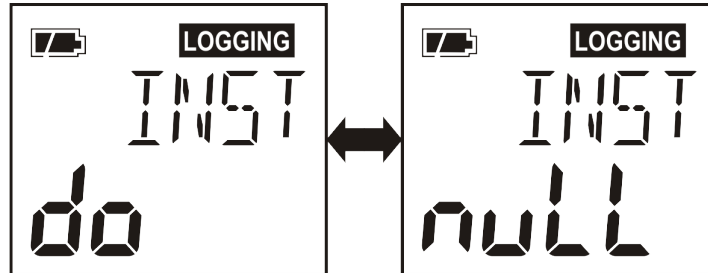
Place the magnetic base of Allen Tool provided on the left-hand side of the LCD display. Press the top button and the display will return to “INST” reading screen. The instrument is now unlocked.

6.14 Negative Suppress Function (Default = Enabled)

This function is activated via the *OdaStat-G™* software package, “Instrument Parameters” section, by selecting the “Suppress Negative Reading” option.

Once active, the instrument suppresses all negative readings to the display and the logging memory.

If the instrument drifts negative by more than 2.5% of full scale or less as per factory configuration, the instrument will display the message “do null”. This indicates that the instrument needs a NULL (Fresh Air Zero) as per Section 9.5. It is essential that the NULL be performed in ‘clean air’.



7 SENSOR OPERATION

The OdaLog® uses an electrochemical sensor to detect levels of a specific gas in ppm (parts per million).

The sensor consists of electrolyte and electrodes packaged in a small container with a diffusion barrier which the gas passes through.

A subsequent chemical reaction causes current flow within the sensor to change in relation to the level of gas passing through the diffusion barrier.

This current output is then interpreted within the OdaLog®, displayed on the LCD (in ppm) and recorded in the OdaLog®'s data-logging chip.

Whilst the sensors are designed to react to their specific gas type, there are other gases that will also cause chemical reactions within the sensor and some of these are listed in (See Section 7.1).

7.1 Sensor Cross-Sensitivity

The presence of other gases can affect the readings of the electrochemical OdaLog® sensors. The chart below shows how sensors listed are likely to respond to 100 ppm of various interfering gases. There may be gases not on this chart, which also interfere with OdaLog® sensors.

Table 4 Sensor Cross-Sensitivity

		Approximate response to Interfering Gas at 100 ppm unless noted.														
		H ₂ S	CO	SO ₂	NO	NO ₂	HCN	HCL	NH ₃	O ₃	CL ₂	H ₂	C ₂ H ₄ O	C ₂ H ₄	CH ₄	CO ₂
OdaLog [®] Sensors	H ₂ S	100	≤ 2	< 20	< 6	- 20	0	0	0	N/D	- 20	<1	N/D	0	0	0
	CO	5	100	0	< 30	- 20	< 20	0	0	N/D	0	< 60	N/D	< 100	0	0
	SO ₂	130	< 2	100	0	- 120	< 50	0	0	N/D	- 50	0	N/D	0	0	0
	NO	30	0	0	100	< 30	0	< 20	0	N/D	0	0	N/D	0	0	0
	NO ₂	- 10	0	- 1	0	100	0	0	0	N/D	100	0	N/D	0	0	0
	HCN	350	< 1	160	- 10	- 10	100	N/D	0	N/D	- 50	0	N/D	≤ 1	0	0
	NH ₃	100	0	60	20	0	N/D	0	100	N/D	- 50	0	N/D	0	0	0
	CL ₂	- 25	0	- 1	0	100	0	0	0	N/D	100	0	N/D	0	0	0
N/D: No Data																

7.2 Effects of Environmental Changes on OdaLog® Sensors

7.2.1 Temperature

The operating temperature range of OdaLog® sensors is -10°C to +40°C (14°F to 104°F) and within this range the sensors are temperature compensated, although extreme temperature swings may cause sensor drift until the temperature sensor stabilises.

Due to the temperature sensor being located within the OdaLog® body, there is a stabilisation time of up to an hour when significant temperature changes occur.

7.2.2 Humidity

IMPORTANT NOTE ON HUMIDITY:

The Sensor fitted to the OdaLog Instrument is susceptible to reduced response in continuous high-humidity environments. With the wastewater industry being a common application for the OdaLog, it is IMPORTANT that users understand the effect humidity has on the sensor. The OdaLog and that it can not operate continuously in a 'wet' (above 80% RH) environment without an ongoing operating and service plan to ensure the accuracy of logged data.

The sensors fitted to the OdaLog® Logger can be used continuously in atmospheres of 20% to 80% relative humidity (RH), and can be used intermittently between 0 to 20% and 80 to 99% RH. If used for extended periods of time at low humidity, the sensor may dry out. Conversely at high humidity it may take up water and leak acid.

In high RH environments (over 90%), a time-in / time-out ratio of two days "in" and two days "out" is recommended. This allows the sensor adequate time in a 'normal air' environment to 'dry out' and return to its normal operational state.

Under these conditions, regular physical checks and calibration of the sensor is essential and an after use "span check" is recommended for such environments (See Section 9.8).

7.2.3 Pressure

Sensors may exhibit effects to changes in pressure. For example, an increase in pressure may result in an increase in gas reading. For this reason, we do not recommend this sensor for use in pressurised applications.

7.3 Long Term Exposure to High Gas Levels

It is possible for some electrochemical sensors to "drop off" in reading when exposed to high levels of gas for extended periods. Therefore, a "pre-use" and "post-use" span check may need to be carried out as described in Section 9.8.

8 MAINTENANCE

Routine maintenance of the OdaLog® instrument is an extremely important factor affecting the reliability of the instrument. Optimum instrument performance and reliable operation will only be achieved if a dedicated maintenance programme is followed (Refer to Section 7 for sensor limitations).

To ensure reliable measurements, the OdaLog® should be checked at regular intervals with test gas as described in the Calibration Section of the user manual.

Before you use the OdaLog®, inspect the instrument for signs of misuse or damage, as well as cracks or missing parts. Do not use the OdaLog® instrument if it is damaged. Please contact your closest authorised Thermo Fisher Scientific service centre if the instrument is damaged or missing parts.

To ensure that *Ex* certifications and performance approvals are not invalidated, any service, repair or overhaul should only be performed by accredited workshops with full instructions and drawings from the certificate holder. To ensure that any service, repairs or overhaul are carried out in such a manner it is preferable that the OdaLog® instrument be sent to the closest authorised Thermo Fisher Scientific service centre.

Do not attempt to disassemble or carry out maintenance on the OdaLog® unless instructions for that live maintenance procedure are contained in the manual and the part is listed as a replacement part. Only use Thermo Fisher Scientific replacement parts.

The OdaLog® should be switched off when not in use and stored in a clean and dry environment as usually found in a normal office.

Ensure the OdaLog® exterior is kept clean with a soft damp cloth. Do not use solvents, soaps or polishes.

It is recommended that OdaLog® instruments are returned to an authorised Thermo Fisher Scientific service centre every 6 months for calibration and service.

8.1 Live Maintenance Procedures

8.1.1 Battery Replacement

CAUTION

Ensure the following procedure is only carried out in a non-hazardous area and performed by an accredited workshop within an authorised Thermo Fisher Scientific service centre.

Ensure the OdaLog® is off

- Using Hex screwdriver remove the retaining screw from the top cap (See Figure 2A)
- Grasp OdaLog® body in one hand. Firmly and carefully pull the stainless steel fitting until the top cap is removed from the body (See Figure 2B)

NOTE: Be careful not to damage cable connector when removing top cap

- Gently pull the plug lead to unplug the top cap connector from the internal printed circuit board and place top cap to one side
- Remove and retain Dry Pack (moisture absorption pack) [Part No. 12-0129]
- Invert the OdaLog® and grasping the body, firmly push down on the central boss on a solid flat surface until the circuit board and sensor housing release from the body. (This is easiest when the o-ring is still fitted to the central mount, to prevent slipping) – (See Figure 2C)
- Slide the circuit board (still connected to bottom cap) completely out of the body (See Figure 2D)

NOTE: Be careful not to scratch the clear plastic body

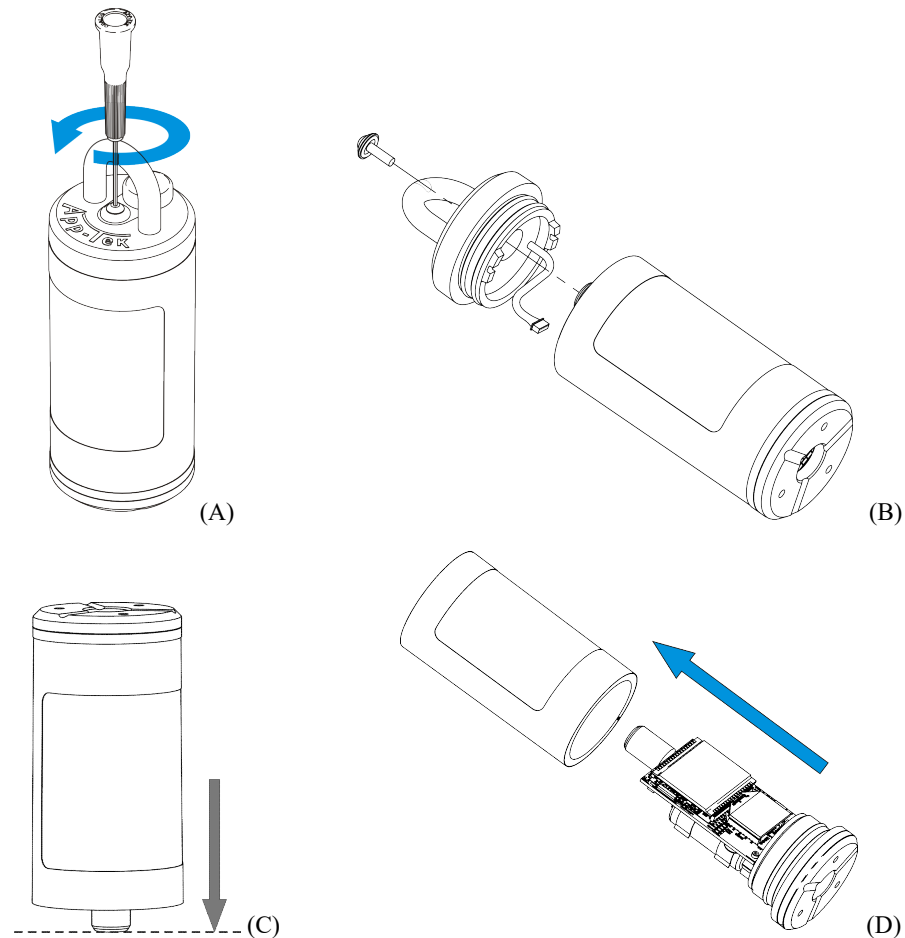


Figure 2 - Remove Top Cap Screw, remove Top Cap and Removing Body

- Remove and replace battery, observing correct polarity (see Figure 3 below). Take care when inserting the new battery that the positive terminal insulator is not damaged – this insulator may cause the battery to break contact if the insulator tab damaged.

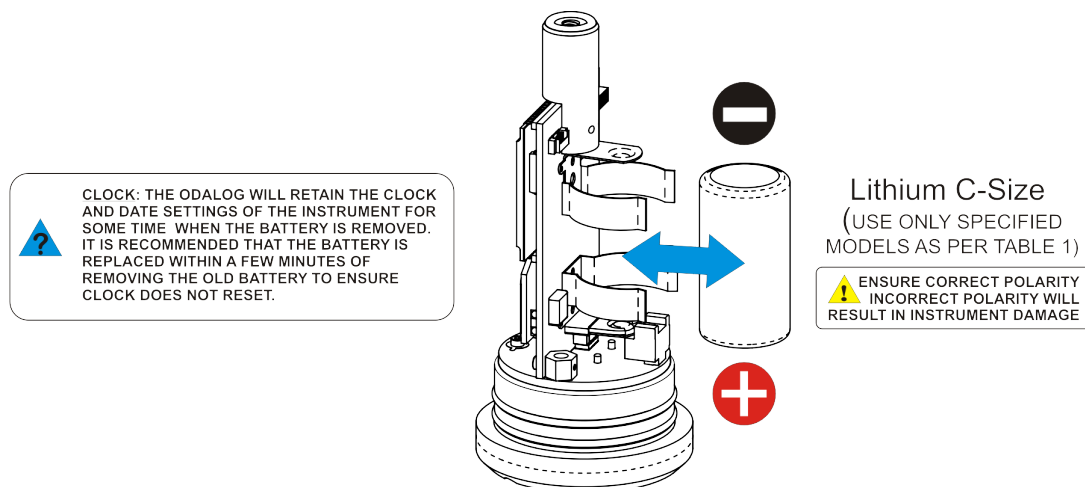


Figure 3 - Removing Battery and Replacing Battery

- Smear a thin film of grease [Part No. 12-0001] on O-rings on top and bottom end caps (if req.)
- Wipe off any excess grease with a lint free cloth
- Carefully slide circuit board assembly and end cap back into the body, aligning the top cap and body correctly (see Figure 4)

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- Place Dry Pack (moisture absorption pack) [Part No. 12-0129] on top of -ve battery clip
- Plug top cap back into circuit board and insert top cap (carefully aligning the Top Cap and the body)

NOTE: Ensure the Top Cap is aligned correctly - See Figure 4

- If prompted reset OdaLog® Date and Time (Refer to the “Setting the OdaLog’s Date and Time” section in the *OdaStat-G™* software package)

****Note: Some sensors will require up to 24hrs to ‘settle’ after battery replacement.****

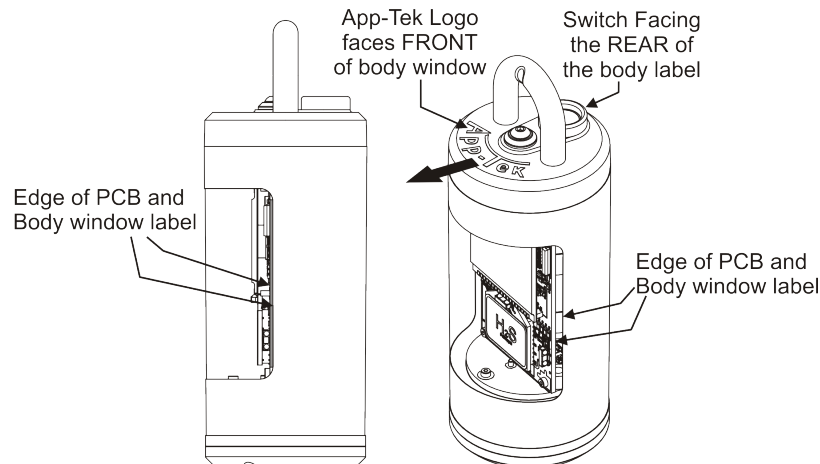


Figure 4 - Top Cap Alignment

8.1.2 Filter Replacement

CAUTION

Ensure the following procedure is only carried out in a non-hazardous, dirt and grease free area.

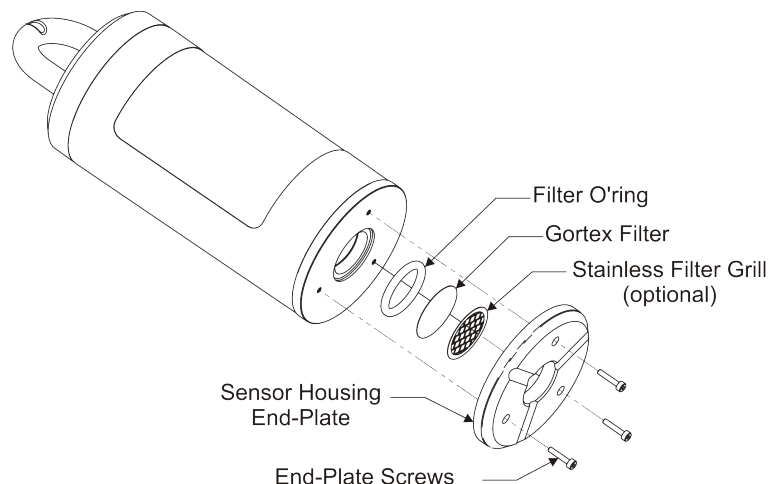


Figure 5 - Filter Replacement

- Ensure OdaLog® is off
- Using the Allen Tool [Part No. 11-0000] remove the three retaining screws from the filter housing assembly (See Figure 5)
- Carefully remove filter housing assembly
- Remove and retain o-ring

NOTE: Ensure hands are free of dirt and grease prior to handling new filter

- Remove filter
- Remove, clean and replace stainless filter grill (if fitted)
- Replace filter with 'shiny' side facing outwards
- Replace o-ring. DO NOT GREASE O-RING
- Replace filter housing assembly on OdaLog® body (aligning screw holes)
- Replace three end cap-retaining screws. DO NOT OVERTIGHTEN

Note 1: *Filter orientation is important. Ensure that the replacement filter is correctly placed with the 'shiny' side facing outward.*

Note 2: *Some sensor filters are fitted with stainless wire gauze protection. If fitted, this should be cleaned and dried prior to fitting of new filter.*

8.2 Service

To locate your nearest Thermo Fisher Scientific service centre please contact us or refer to our web site:
www.odalog.com

9 CALIBRATING THE OdaLog®

CAUTION

OdaLog Instruments should be calibrated by authorised, competent personnel using the correct equipment. If unsure, or the correct equipment is not available, then return the instrument to Thermo Fisher Scientific or an authorised distributor / technical workshop for calibration.

9.1 Preparation for Calibration

Calibration of an OdaLog® must take place in a known clean, fresh air environment at an ambient temperature of between 20°C and 25°C.



A clean, fresh air environment is one that is free of flammable gases and interfering or contaminating substances (hereafter known as 'Clean Air').

Cigarette smoking, the use of butane lighters or solvents nearby, industrial fumes, or vehicle exhaust can cause an incorrect, and hence potentially inaccurate, calibration.

Ensure the OdaLog® has sufficient battery life and that filters are uncontaminated and undamaged.

CAUTION

Ensure calibration is undertaken in a well ventilated area or fume cupboard. Seek advice from calibration mixture supplier in relation to handling calibration gases.

9.2 Adsorption of Calibration Mixture

Care should be taken when selecting the regulator material, tubing type and length used for calibration. For certain calibration mixtures, instead of the gas passing freely through the gas regulator & tubing, molecules of test gas can attach themselves to the regulator & tubing walls, thus reducing the concentration of calibration mixture that reaches the instrument sensor. This effect is known as adsorption and is more noticeable with certain calibration mixtures than others, particularly hydrogen sulphide.

Advice in relation to suitability of regulators & tubing should be sought from the calibration mixture supplier.

9.3 Tools and Test Equipment

The following equipment is required to perform a calibration on an OdaLog® instrument:

- *Calibration mixture:* To suit sensor type (refer: Table 5). Calibration mixture should be equivalent to 25-50 percent of full-scale concentration, ideally near mid-scale. However, lower concentrations are recommended for toxic gases in the interest of safety. Calibration mixture should be certified or analysed to be accurate to at least ± 5 percent of the actual labelled concentration.
- *Gas bottle regulator:* To suit gas type & flow rate (refer: Table 5)
- *Calibration fitting/adaptor:* Complete with tubing of suitable type, size & length. [Part Number 11-0001]
- *Magnetic ended Allen Tool:* [Part Number: 11-0000]
- *Calibration procedure document:* Section 9 of this manual.

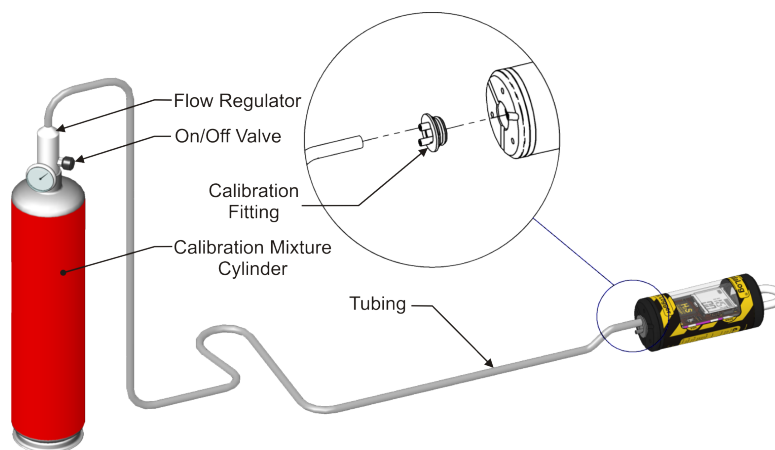


Figure 6 - Calibration Mixture Connections

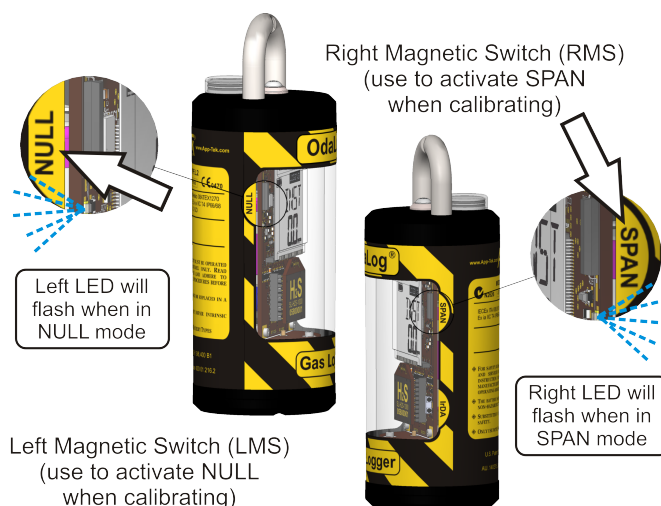


Figure 7 - Magnetic switches (RMS/LMS, SPAN/ NULL)

9.4 Calibration Mixture Application Times & Rates

This table shows the minimum calibration mixture flow time & rate necessary for calibration. Be sure that the correct flow rate and time is used.

Table 5 Cal Gas Times & Rates

Calibration Mixture kind	Recommended Gas Level	Sensor Type	Minimum Flow Rate (ml/min)	Gas flow time
Hydrogen sulphide	50 ppm	H ₂ S	250-500	5 Minutes
		H ₂ S*	250-500	15 Minutes
Carbon monoxide	500 ppm	CO	250 – 500	3 Minutes
Sulphur dioxide	20 ppm	SO ₂	500	5 Minutes
Nitric oxide	50 ppm	NO	250 – 500	10 Minutes
Nitrogen dioxide	10 ppm	NO ₂	500	10 Minutes
Hydrogen cyanide	10 ppm	HCN	500	10 Minutes
Ammonia	50 ppm	NH ₃	250 – 500	10 Minutes
Ozone	1 ppm	O ₃	1000	10 Minutes
Chlorine	5 ppm	CL ₂	1000	10 Minutes
Nitrogen	0.0 %VOL	O ₂	250 – 500	3 Minutes

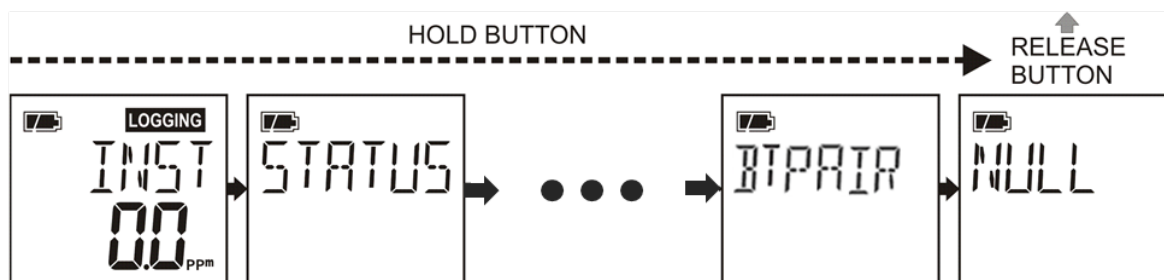
H₂S* - LONG TERM LOGGER (LL MODEL) & 0-2000PPM STANDARD (SL) LOGGER

N.B. Seek advice from calibration mixture supplier as to safe storage and handling procedures for calibration mixtures.

9.5 NULL (Fresh Air Zero)

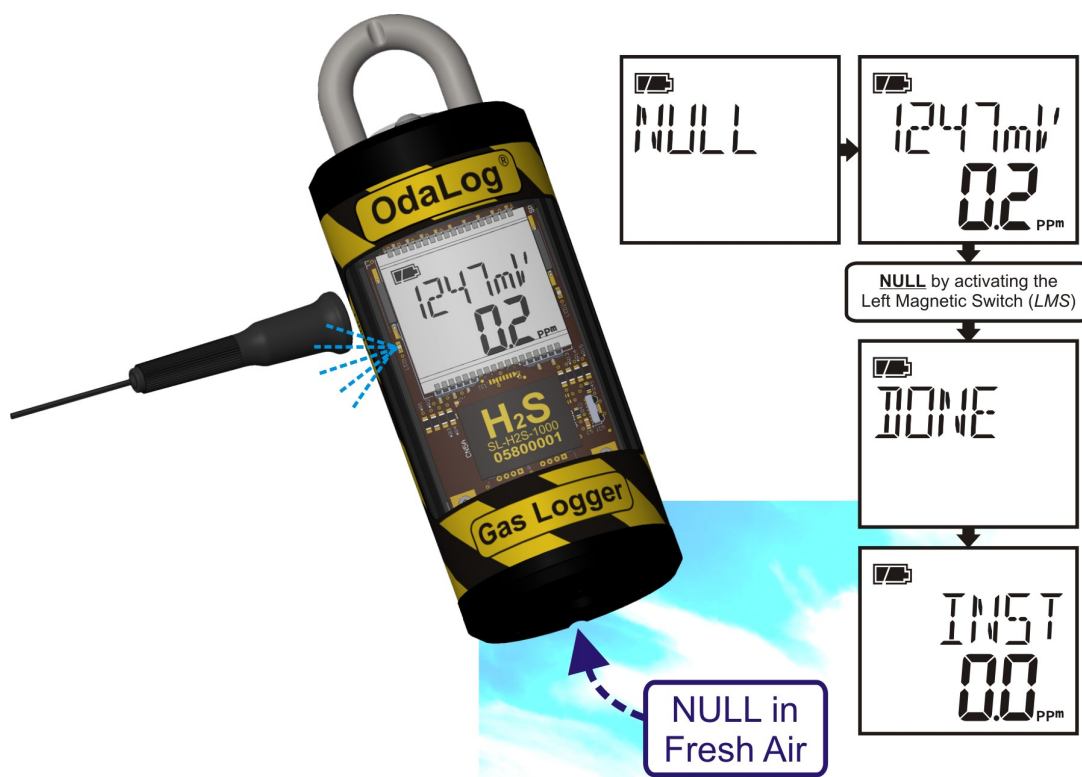
NOTE

It is recommended that logging sessions are stopped prior to a calibration



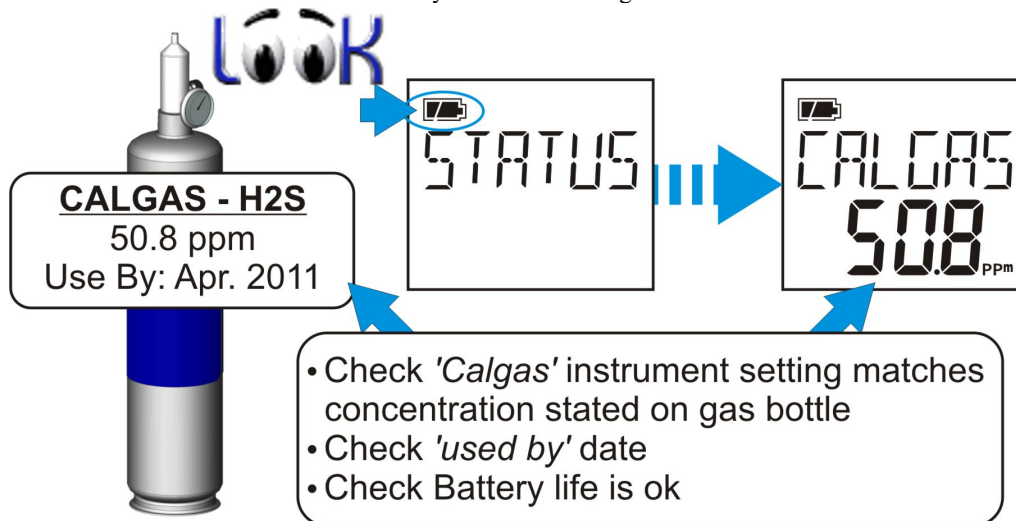
- Ensuring the OdaLog® is in Clean Air, press & hold down button until display progresses until “NULL” appears on screen, then release button. Left LED will flash to indicate the instrument is in Null mode.
- Place magnetic base of Allen Tool [Part No 11-0000] provided on the left-hand side of the LCD display above the wording “NULL”.
- “DONE” will appear briefly and the LCD will return to the “INST” screen

Note: Magnet must be applied within 30 seconds otherwise the display will revert to “INST”. To abort, press button down at any time and “CANCEL” will display before reverting to “INST” screen)

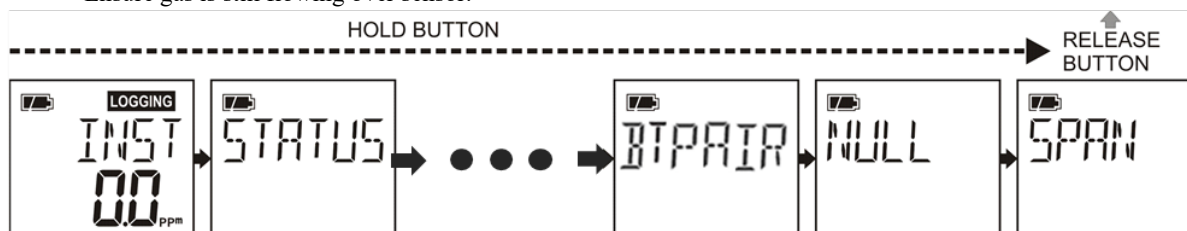


9.6 Span Set

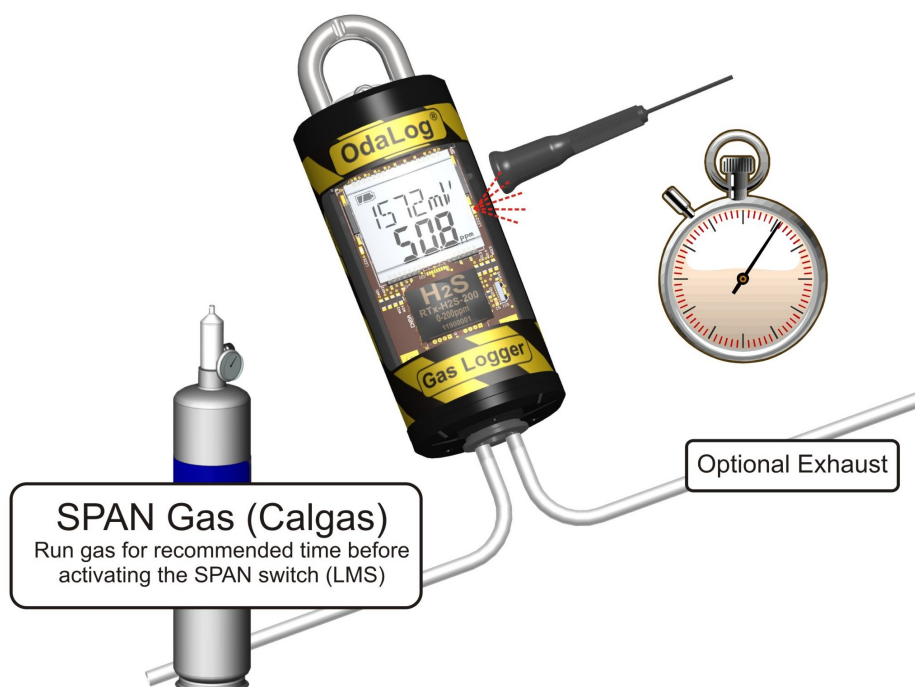
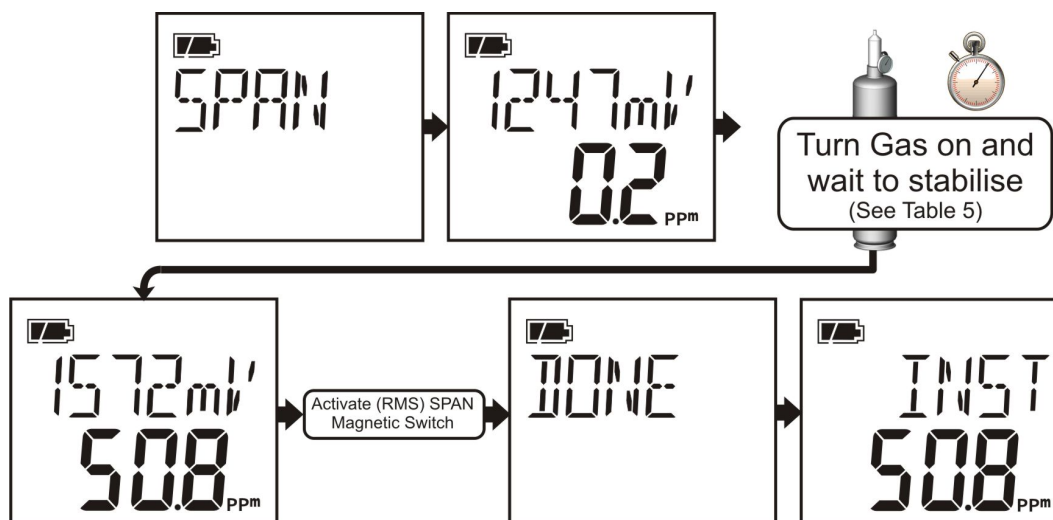
- Set the calibration level via the *OdaStat-G™* software package “Instrument Parameters” section to match the level stated on the calibration mixture cylinder that is being used.



- Insert the calibration fitting [Part No 11-0001] over the sensor in the bottom of the OdaLog®, as shown in Figure 6.
- Attach regulator to gas cylinder and fit plastic tubing over an inlet on the calibration adaptor (Figure 6).
- Open regulator and allow gas to pass over the sensor at the flow rate and for the flow time as detailed in Table 5.
- After waiting for the time shown in Table 5, the gas reading on screen should have stabilised and calibration can be performed as follows:
- Ensure gas is still flowing over sensor.



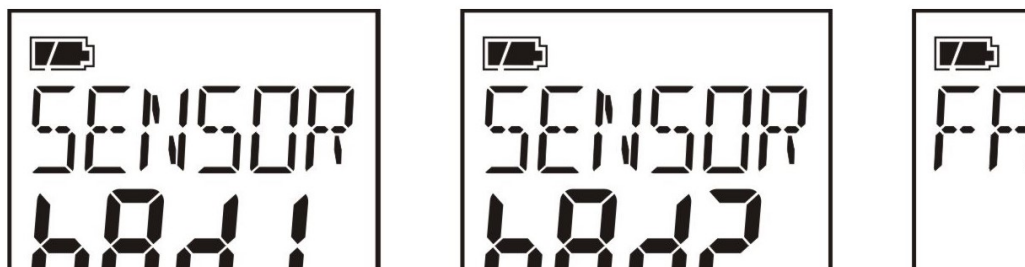
- Press & hold down button until screen progresses past through the menus until “SPAN” appears on screen, then release button. Right LED will flash to indicate the instrument is in Span mode.
- Place magnetic base of Allen Tool provided on the right hand side of the LCD display above the wording “SPAN”.
 - “DONE” will appear briefly and the LCD will return to the “INST” screen, indicating a successful calibration OR,
 - “bAd1” or “bAd2” will appear indicating the span value saved will be inaccurate due to a damaged or faulty sensor (See Section 9.7)
 - “FAILED” calibration (sensor will not save Span value). LCD will return to “INST” screen (See Section 9.7).



- Ensure that instantaneous display reads the same as shown on cylinder before turning off gas regulator and removing calibration fitting.
- Ensure that reading returns to close to zero within 5 minutes in clean air and re-zero if necessary.

Note: The instrument will **TIMEOUT** and return to the 'INST' screen if a SPAN is not done within 10min.

9.7 Calibration Errors



Note: If 'FAILED', "SENSOR bAd1" or "SENSOR bAd2" appears on screen during SPAN operation,

- SENSOR bAd1:** The sensor response/reliability has been calculated to be LOW, recheck the calibration and review Section 7 for sensor information. **Span value WILL still be saved**, however readings may be inaccurate ($> \pm 10\%$).
- SENSOR bAd2:** The sensor response/reliability has been calculated to be VERY LOW, recheck the calibration and review Section 7 for sensor information. **Span value WILL still be saved**, however readings may be inaccurate ($> \pm 10\%$).
- FAILED:** The sensor has FAILED the response/reliability test, the sensor requires urgent replacement before being deployed for use. **Span value WILL NOT be saved**, return to service centre for repair.
- N/A:** If N/A appears on the LCD, there may be a sensor/hardware issue causing readings to fail.

NOTE

It is recommended that the sensor be replaced when sensor has decayed between 'bad1' and 'bad2' fault warnings - to maintain reasonable accuracy of logged data.

If error persists, return for service. (ERROR 3 may also indicate this issue)

When sensor errors occur during calibration, check the following areas:

TROUBLESHOOTING CHECKLIST

- ✓ Calibration level settings in the "Instrument Parameters" section in the software package or the instruments "STATUS" menu section 6.4.
- ✓ Appropriate flow through Calibration Gas regulator.
- ✓ Calibration Gas regulator is turned on.
- ✓ Sensor Filter is free of obstructions and not 'clogged' or covered in any oily residue
- ✓ Calibration fitting correctly inserted.
- ✓ Tubing is leak free and not obstructed.
- ✓ Calibration gas is within "Use-by" date

If "FAILED" continues to appear, a sensor fault may have been detected and the OdaLog® should be returned for testing/repair at an authorised Thermo Fisher Scientific service centre.

9.8 Span Gas Check – Pre-Use and Post-Use (if required)

9.8.1 Span Gas Check – Pre-Use

- Ensure "Use By" date is current on Calibration Mixture Cylinder.
- Immediately before placing OdaLog® in test area, attach calibration adaptor and calibration mixture cylinder. **Do not enter "SPAN" mode.**
- Allow gas to flow at the recommended flow rate and time (or until reading stabilises) as detailed in Table 5.
- Record reading. This will be the "Start Level" (note reading in relation to level stated on calibration mixture cylinder).

9.8.2 Span Gas Check – Post-Use

- Immediately after removing OdaLog® from a test area, attach calibration adaptor and **same** gas cylinder as used in 9.8.1 (above). **Do not enter "SPAN" mode.**
- Allow gas to flow at the recommended flow rate and time as detailed in Table 5.
- Record reading. This will be the "End Level" reading. (Note: reading in relation to level stated on calibration mixture cylinder).

If the OdaLog® has been used in a high gas or high humidity environment, the "Post-Use" calibration span check may indicate the reading has 'dropped off' and is reading low at the end of the test.

If required the logged readings can be adjusted as described in section 9.8.3 (also refer to the "Decay Compensation" section of the *OdaStat-G™* software package), provided that the start level and end level span gas check readings have been recorded.

OdaLog® Gas Logger User Manual

After running in fresh air for around 48 hours, the sensor should recover and again read close to correct level when exposed to calibration mixture, however, if it is not reading accurately it should be re-calibrated prior to the next “logging session”.

When the instrument and sensor has been subject to a high humidity environment, the sensor recovery time can be reduced by the use of an Thermo Fisher Scientific sensor conditioning kit (part no: 25-0390), which will quickly absorb the moisture trapped in the sensor, so it can return to reading gas levels accurately.

9.8.3 Decay Compensation

NOTE

Sensor Decay Compensation will automatically update logged data when entered into the OdaLog software. This feature requires pre/post data values to be recorded.

This graph option allows a constant sensor decay rate to be applied to all gas readings in that session. By recording the ‘pre-use’ and ‘post-use’ span check results (See Section 9.8.1 & 9.8.2), you can apply this information to offset any decay in sensor response during the logging period. For example, an OdaLog® calibrated before a logging period to 50ppm H₂S, may read 30 ppm when exposed to the same calibration gas at the end of a logging period.

N.B. The above decay compensation assumes gas exposure to the sensor has occurred in a uniform way rather than in large bursts. Accordingly, we have used a “straight line” equation as follows:

$$D = \frac{(O - F)}{O} \quad P = \frac{(n - 1)}{(T - 1)}$$

$$A = R \times \left[\left(\left(\frac{1}{(1 - D)} - 1 \right) \times P \right) + 1 \right]$$

D = Sensor Decay Rate
O = Original Span
F = Final Span
P = Proportion along entire logging interval
n = Gas reading number
T = Total number of gas readings
A = Actual value of gas if there was no decay
R = Recorded gas value

- Applying Sensor Decay:

If selected, this allows a constant decay rate to be applied to all gas readings in that session. The application takes the difference between the ‘Start’ (pre-use span check) and ‘End’ Levels and divides this by the number of readings that were taken. This value is then cumulatively adjusted to all gas readings to compensate for any decay in sensor response.

- Start Level:

‘Pre-use’ Span Check result (preferred value) when applying test gas prior to deployment in field (See Section 9.8.1). If this value was not recorded, use the Span level that was set during calibration (cal gas value – as set in the *OdaStat-G™* software).

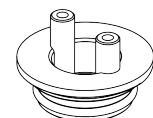
- End Level:

‘Post-Use’ Span Check result that was recorded once logging had finished (See Section 9.8.2).

Tip: Selecting ‘Suppress Negatives’ (See Section 6.14) when applying decay compensation will prevent a false exaggeration of negative readings.

10 OPTIONAL ACCESSORIES AND SPARES

12-0001, O'ring Grease
(Natural Lanolin)

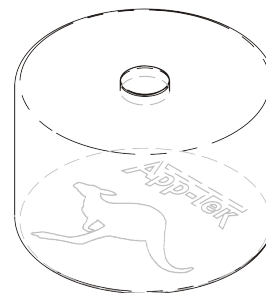


11-0001,
Calibration Fitting



11-0000, 1.5mm Allen Key Tool with magnetic end

12-0003, Magnetic IR Stand



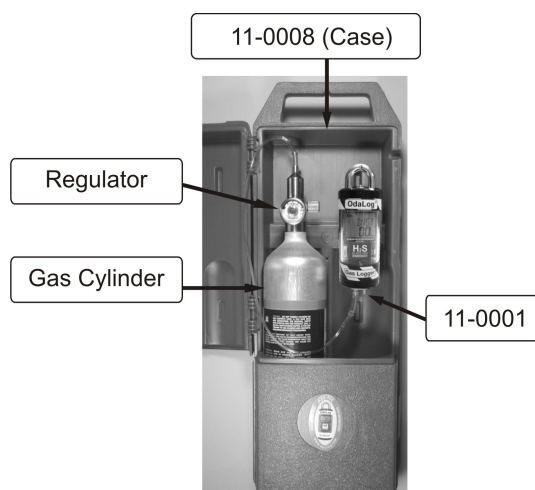
10.1 Accessories

Part Number	Description
11-0000	Allen Tool with Magnetic Base
11-0001	Calibration Fitting
11-0085	OdaLog® Software Kit: <i>OdaStat-G™</i> , IrDA adapter & Manual
11-0008	Plastic Carry Case for Gas
25-0391	Thermo Fisher Scientific Dry Dock (Sensor Conditioning Kit)

10.2 Spare Parts

Part Number	Description
29-1016	<u>12 month Service Kit</u> : Lithium Battery, replacement seals & o'rings, new filter/s & grill, button cover, moisture absorbtion pack/s
29-1017	<u>6 Month Service Kit</u> : Replacement seals & o'rings, new filter/s & grill, button cover, moisture absorbtion pack/s
22-0002	Button Cover, Moulded, Pk.10
02-0136	Lithium Battery (Tadiran TL-5920/S)
02-0137	Lithium Battery (Saft LS26500)
13-0107	23mm Ø Filter Membrane, Pk 10
12-0129	Dry Pack (Moisture Absorption Pack)
19-1000	Stainless Filter Grill
12-0001	O-Ring Grease (Lanolin)
10-1000	User Manual (This Document)
11-0020	Infra Red Data Communication Link (IrDA)
70-0250	Gas Regulator 250 ml/min (Australia only – International customers contact your local OdaLog Distributor for assistance in sourcing Calibration Gas & Regulators)
70-0500	Gas Regulator 500 ml/min (Australia only – International customers contact your local OdaLog Distributor for assistance in sourcing Calibration Gas & Regulators)
12-0003	Stand for Infra Red Data Communication Link

10.3 Gas Test Kits



Gas Type	Gas Concentration
All gas Test Kits Include Test Gas, Regulator, Calibration Fitting, Plastic Carry Case & Tubing	
Hydrogen sulphide	50ppm
Hydrogen sulphide	25ppm
Carbon monoxide	500ppm
Sulphur dioxide	20ppm
Nitric oxide	50ppm
Nitrogen dioxide	10ppm
Hydrogen cyanide	10ppm
Hydrogen chloride	10ppm
Ammonia	50ppm
Chlorine	5ppm
Hydrogen	200ppm
Ethylene Oxide	5ppm
Nitrogen	100 %VOL
Oxygen in Nitrogen	20.9 %VOL

10.4 Replacement Test Gas Cylinders

Gas Type	Gas Concentration
Hydrogen sulphide	50ppm
Hydrogen sulphide	25ppm
Carbon monoxide	500ppm
Sulphur dioxide	20ppm
Nitric oxide	50ppm
Nitrogen dioxide	10ppm
Hydrogen cyanide	10ppm
Hydrogen chloride	10ppm
Ammonia	50ppm
Chlorine	5ppm
Hydrogen	200ppm
Ethylene Oxide	5ppm
Nitrogen	100 %VOL
Oxygen in Nitrogen	20.9 %VOL

11 WARRANTY

11.1 Warranty

Thermo Fisher Scientific Australia Pty. Ltd. warrants, for a period of 12 months from the date of despatch from Thermo Fisher Scientific's premises, that the OdaLog® Gas Logger instrument including sensors and all internal components, supplied to you will be free from defects arising in the manufacture.

11.2 What the warranty does not cover

This warranty does not extend to fair, wear and tear or any damage, defects or failures with the product which directly or indirectly arise from or are due to:

- Failure by you to follow the instructions for use set out in this Manual or any other technical notes or instructions issued by Thermo Fisher Scientific either directly or through its authorised distributors.
- Any modifications or repairs not carried out by Thermo Fisher Scientific or its authorised distributors.
- Inappropriate use of the product or any other causes specified in this Manual as being excluded from this warranty. This includes sensor malfunction or damage due to extended operation in unsuitable environments, as detailed in Section 7 of this manual.

11.3 What Thermo Fisher Scientific will do

In the event of a claim and Thermo Fisher Scientific being satisfied that there is a manufacturing defect in the product, Thermo Fisher Scientific, at its option, will either repair the product, including any defective sensors or provide replacement product. This warranty does not cover:

- Any shipping or delivery costs;
- Calibration costs; or
- Associated costs, including without limitation costs incurred in replacing filters or gaskets.

This warranty is subject to Thermo Fisher Scientific's terms and conditions of sale.

11.4 Limitations

The obligations of Thermo Fisher Scientific under this warranty are limited to those set out and this warranty expressly instead of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular purpose and notwithstanding any course of dealing between the parties and usage in the trade to the contrary.

Thermo Fisher Scientific will not be liable for consequential loss or damage whatsoever and however arising out of or in connection with the supply, performance or removal of the product, including (but not limited to) any indirect or consequential loss (including without limitation, loss of profit, loss of revenue, loss of contract, loss of goodwill or increased cost of workings), even if due to negligence of Thermo Fisher Scientific or any of its approved distributors, employees or agents.

11.5 Validity

This warranty becomes valid only when Thermo Fisher Scientific has been paid in full for the product.

12 Patents, Trade Marks and Registered Designs

The following Authorities have granted Patent, Registered Design and Trade Mark certification to the OdaLog®.

Britain and Northern Ireland	Registered Trade Mark	2203862
Britain and Northern Ireland	Registered Design	2089795
Commonwealth of Australia	Registered Trade Mark	785920
Commonwealth of Australia	Registered Design	140375
European Community	Registered Trade Mark	001330356
Germany (Deutschland)	Registered Design	4 00 01 216.2
New Zealand	Registered Trade Mark	313661
United States of America	Patent	Des.432,037
United States of America	Patent	US 6,198,400

13 Appendix A - GLOSSARY OF TERMS AND ABBREVIATIONS

The following abbreviations and terminology are used in this manual and / or appear on the OdaLog® display screen, label and software.

-OF- / -OS- / OFL	Over display range – Measurement outside the instruments displayable range
BATT	Battery Volts
BATT FIAt	Indicates flat battery, with battery symbol flashing. Active logging will cease.
	Battery Level Symbol
CANCEL	Process cancelled by user before completion
BT	Bluetooth
BTPAIR	Bluetooth Pairing
BTINIT	Bluetooth Initialisation
CE	Europe EMC compliance marking
CLOCK	Time of day
CLOCK not SEt	Clock is not set. Press the button to continue. (See Section 6.3)
CLEAR LOG	Clear logged data
C-Tick	Australian EMC compliance marking.
DONE	Selected process completed
do nuLL	Indicates Instrument requires a NULL in clean air (See Section 9.5)
EMC	Electromagnetic compatibility
ESD	Electrostatic discharge
FAILED	Sensor failure during Span operation
INST	Instantaneous measurement
IrDA	Infra Red Data Communication Mode
MEMORY	% Logging memory used (Status Menu), Start logging (Main Menu)
MEMORY FULL	Data log memory full
LOCK	Locks the top button and disables the “INST” display. (See Section 6.13)
LOCKED	Instrument in LOCKED mode. (See Section 6.13)
LED	Light emitting diode
LCD	Liquid crystal display
LHS	Left Hand Side
LMS	Left Magnetic Switch
NULL	Fresh air zero
oda	OdaLog® raw data file name extension
OFF	Displayed when switching unit off & while unit is off
ON	Displayed when switching unit on
oncE	Stop log when memory full
PEAK	Peak gas level for logging session. (lowest level for oxygen model)
RMS	Right Magnetic Switch
roLL	Continuous logging, over write oldest data
SPAN	Span set
START LOG	Start logging
STATUS	Status – scrolls through overview of instrument data
STOP LOG	Stop logging
STP	Standard Temperature and Pressure: 20 °C (68 °F) @ 101.3 kPa (14.7 psi)
%VOL	Gas concentration expressed as percentage by Volume in atmosphere
%LEL	Gas concentration expressed as percentage of Lower Explosive Limit
PPM	Gas concentration expressed as Parts Per Million in atmosphere

14 Appendix B - CERTIFICATES

		IECEX Certificate of Conformity	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres for rules and details of the IECEx Scheme visit www.iecex.com			
Certificate No.:	IECEX ITA 08.0010X	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 2	Issue 1 (2019-09-23) Issue 0 (2008-08-19)
Date of Issue:	2019-12-06		
Applicant:	Thermo Fisher Scientific Australia Pty Ltd 5 Caribbean Drive Scoresby, VIC 3179 Australia		
Equipment:	OdaLog® Type L2 Gas Sensing Instrument		
Optional accessory:			
Type of Protection:	Intrinsic Safety 'i'		
Marking:	Ex ia IIC T4 Ga IP66/68 (2m/24hrs) -20°C ≤ Ta ≤ +50°C		
Approved for issue on behalf of the IECEx Certification Body:		David Price	
Position:		Certification Authority	
Signature: (for printed version)			
Date:		2019-12-06	
1. This certificate and schedule may only be reproduced in full. 2. This certificate is not transferable and remains the property of the issuing body. 3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.			
Certificate issued by: Ex Testing and Certification Pty Ltd 1/30 Kennington Drive Tomago NSW 2322 Australia		 TESTING & CERTIFICATION	

EU-TYPE EXAMINATION CERTIFICATE

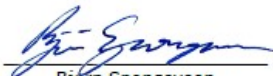
- [2] EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 2014/34/EU
- [3] EU-Type Examination Certificate Number: **Presafe 19 ATEX 09596X** **Issue 1**
- [4] Product: **OdaLog® Type L2 Gas Sensing Instrument**
- [5] Manufacturer: **Thermo Fisher Scientific Australia Pty Ltd**
- [6] Address: **5 Caribbean Drive
Scoresby VIC 3179
Australia.**
- [7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] DNV GL Presafe AS, notified body number 2460, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
- The examination and test results are recorded in confidential reports listed in section 16.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2012/A11:2013, EN 60079-0:2018 and EN 60079-11:2012
- [10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.
- [11] This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- [12] The marking of the product shall include the following:

 **II 1 G Ex ia IIC T4 Ga, Tamb -20°C to +50°C**



Date of issue:
2019-12-20




Bjørn Spongsveen
For DNV GL Presafe AS
The Certificate has been digitally signed.
See www.dnvgl.com/digitalsignatures for info

This certificate may only be reproduced in its entirety and without any change, schedule included.

DNV GL Presafe AS, Veritasveien 3, 1363 Høvik, Norway, Tel +47 67 57 88 00, www.dnvgl.com