DANS01

IP65 Dynamic Ambient Noise Sensor

Installation Guide

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Issue: 02 complete, approved - Date: 28/10/09
Part Number: M0511_34

This equipment is designed and manufactured to conform to the following EC standards:

EMC EN55103-1/E1:1996, EN55103-2/E5:1996, EN50121-4:2006, ENV50204:1995

Safety EN60065:2002

Failure to use the equipment in the manner described in the product literature will invalidate the warranty.

A 'Declaration of Conformity' statement to the above standards, and a list of auxiliary equipment used for compliance verification, is available on request.

This product must be disposed of in accordance with the WEEE directive.

Contents

Additional User Documentation:

1. Additional reference information is available from the ASL website: www.asl-control.co.uk

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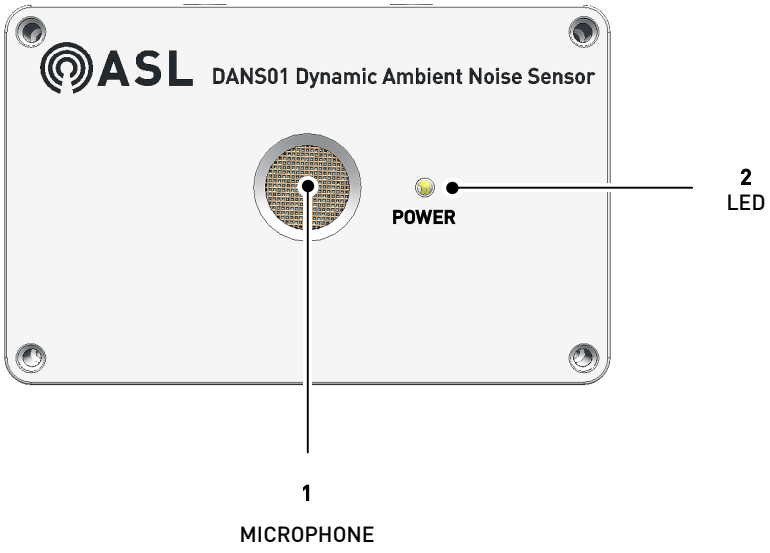
QUALITY ASSURED FIRM
CERTIFICATE NUMBER 96-LON-AQ-041

1 Installation

Technical Specification Summary

Supply Voltage Range	18 – 40 V DC
Current Consumption	90 mA @ 24 V DC supply
Output	0 dBu balanced audio (nominal) / 66 Ω
Ambient Noise Measurement Range	55 – 95 dBA
Enclosure	die-cast aluminium
Finish	Grey NCS S1002-B 20% GLOSS LSOH Low Smoke and Fume, Zero Halogen
Temperature (storage and operating)	–10 °C to +50 °C (±3 dB accuracy)
Humidity Range / Ingress Protection	0% to 93% Non-condensing / IP65
Dimensions (H x W x D) / Weight	160 mm x 100 mm x 81 mm / 980 g
Gland / Conduit Hole	20 mm

Front Panel



1 Microphone

Built-in microphone detects the ambient noise.

2 POWER LED

Green LED illuminates to indicate that the DANS01 is powered.

Equipment and Tool Requirements

- The DANS01 unit.
- A small flat bladed screwdriver.
- A large Phillips screwdriver (No. 2).
- A large Allen key (10 mm).
- A large nut spanner (M20).
- Suitable wire cutters and strippers.
- Suitable fixings and tools for wall mounting.

  It is suggested that the fixings are pozipan head screws, with a thread length of the required fixing length plus 9 mm, as the length of the screw inside the DANS01 back box will be 9 mm.

  The screw heads must not be of a diameter greater than 7.5 mm, and their shafts need to be able to be passed through the holes provided for them in the DANS01 back box. Therefore their shafts must not be of a diameter greater than 4.4 mm.
- Suitable cable glands or conduit.

  Gland/conduit holes provided are 20 mm diameter.

External Cabling Requirements

Signals	Cable Description	Suggested Type
Audio and power	2 pair, overall screened, twisted	LSF sheath, foil screened. Fire rated type: MICC, Pirelli FP200 or similar may be used.

1) Standard overall screened CAT5 can be used in non-safety applications.
2) System specifications may require fire rated cable even though the system will "fail safe" to the maximum broadcast volume if the DANS sensor cabling fails.
3) Refer to BS7671:2008 (Requirements for Electrical Installations) or other appropriate local standards for guidelines on maximum potential cable lengths given the actual installation parameters.

For EMC compliance:

- Screened cables must be used where specified.
- The cable screen should be terminated to the screw terminal provided on the back box.
- All screen tails must be <3 cm.

DANS Sensor Positioning

1) The DANS sensor should be directed towards likely sources of ambient noise e.g. areas where people congregate.
2) It should not be placed to localised sources of noise that would be unrepresentative of the area of coverage.
3) Large areas may require multiple sensors.
   Up to two DANS sensors can be used to control a single PA zone.

Recommended Installation Procedure

> ⚠ Please read and observe the instructions and guidelines in Section "4 Safety and Precautions" (page 11) prior to installation. Failure to follow these instructions and guidelines may cause damage to the equipment.

1. Ensure that the power supply to the DANS01 is disconnected at the central equipment rack.

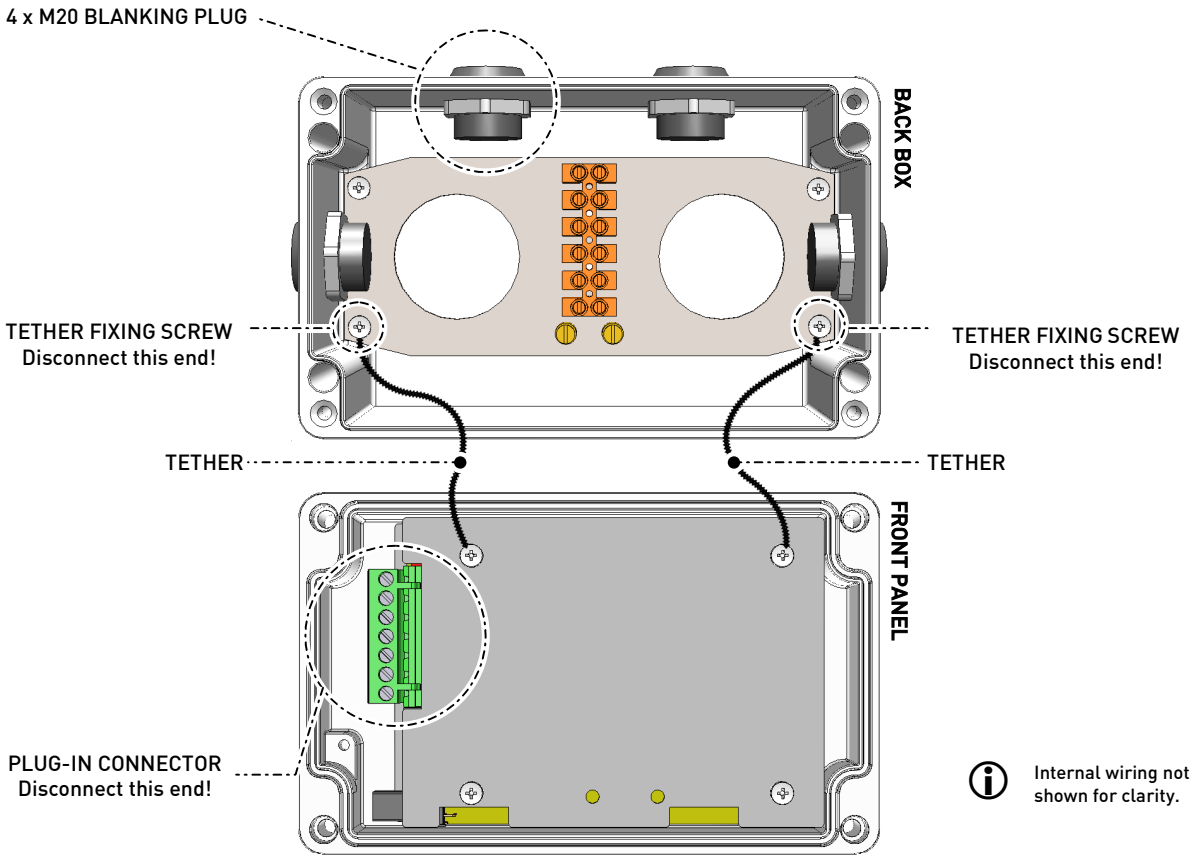
2. Remove DANS01 front panel by unscrewing the four corner fixings (4 x Philips screws).

3. Two plastic coated steel tethers are provided to hold the front panel when the DANS01 is opened, and to provide strain relief to the wiring connecting the PCB to the terminal block on the back box. This allows the front panel to be opened for maintenance purposes without disconnecting the wiring. The tethers are connected to the back box by the screws used to secure the terminal plate to the back box. These screws should be the bottom two fixings; see Figure 1.

4. If it is desired to install the back box with the electronics assembly temporally removed for safekeeping, first disconnect the plug-in connector from the PCB, and also disconnect both of the tethers securing the front panel to the back box; see Figure 1.

   In order to disconnect the tethers unscrew the appropriate screws. Re-fit these screws after disconnecting the tethers.

Figure 1 DANS01 wiring, front panel tethers, and blanking plugs

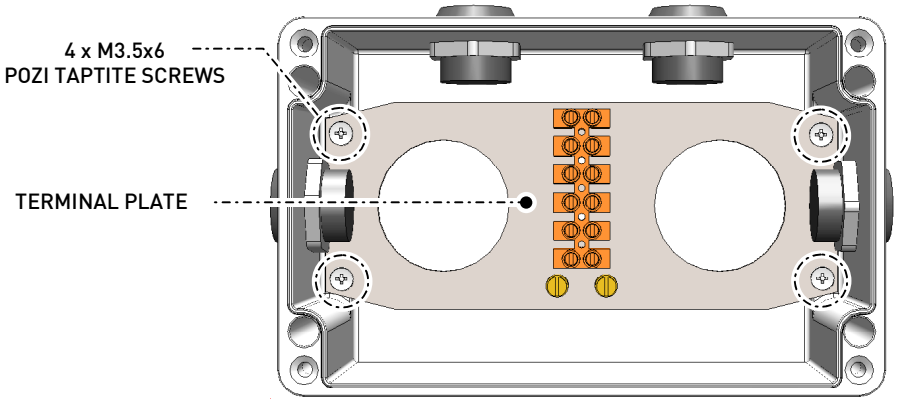


5. Choose the required cable entry point or points, and remove the M20 blanking plug(s) at the chosen position(s); see Figure 1.

6. If rear entry is preferred, the installer may drill holes in the rear of the back box as described below.

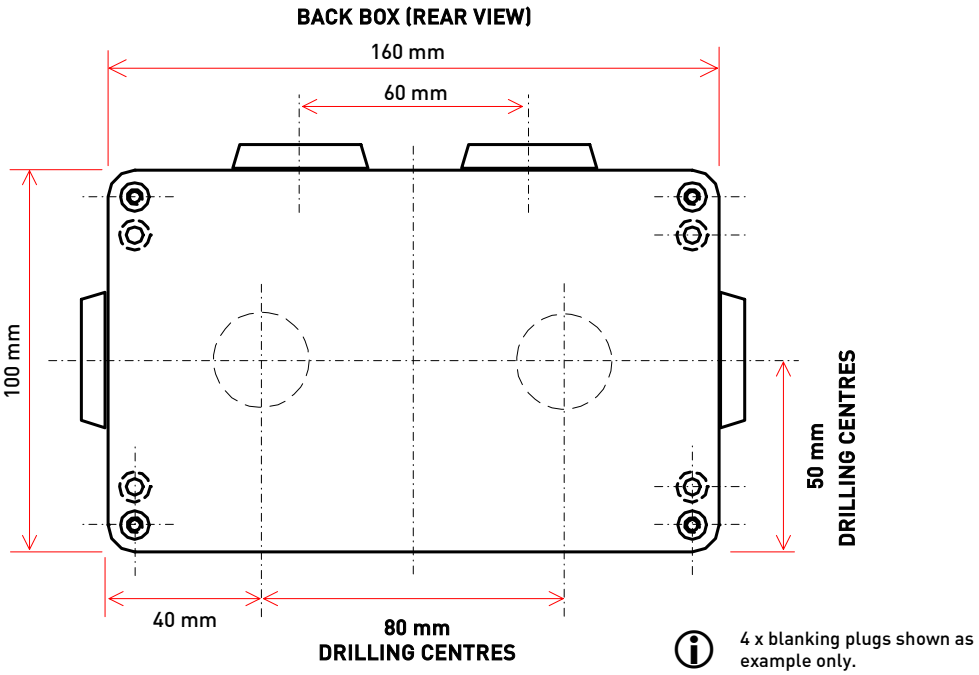
   a. Remove the terminal plate by unscrewing the four corner fixings shown in Figure 2.

Figure 2 DANS01 terminal plate



   b. Drill a hole or holes in the back box for the cable gland or conduit entry. These should be in the positions shown in Figure 3.

Figure 3 Rear cable entry drilling centres



   c. Deburr the newly drilled holes.

   d. Re-fit the terminal plate; see Figure 2.

7. Ensure that all unused cable entry holes are fitted with blanking plugs.

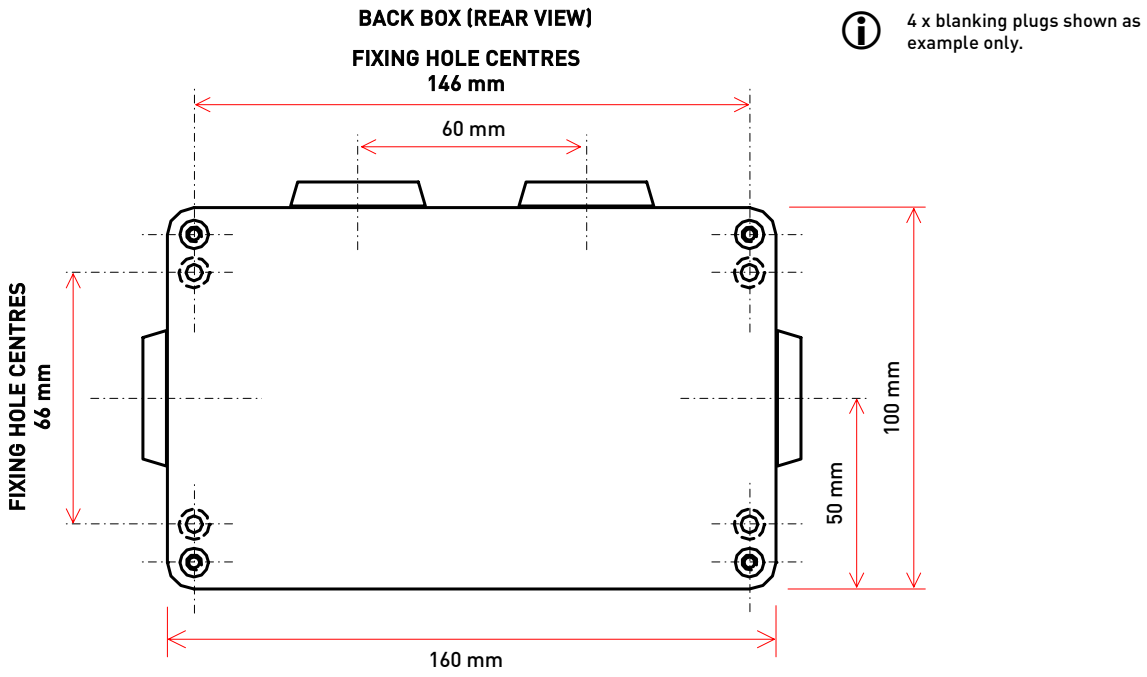
> Blanking plugs must be tightly fitted to preserve the unit's IP rating.

> Spare blanking plugs can be ordered from ASL quoting 208112.

8. Secure the back box; see fixing hole positions in Figure 4.

> The DANS01 should be directed towards likely sources of ambient noise e.g. areas where people congregate.
>
> It should not be placed to localised sources of noise that would be unrepresentative of the area of coverage.

Figure 4 Fixing hole centres (rear view)



9. Fit gland or conduit.

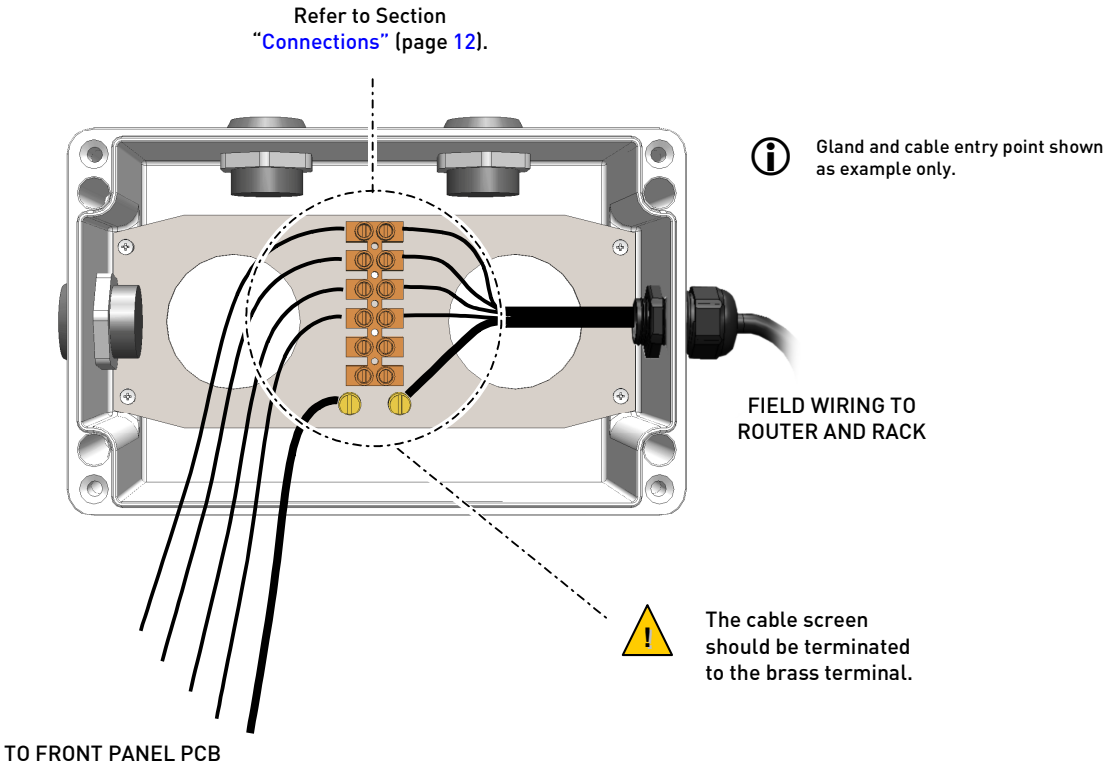
10. Ensure all swarf is removed from the enclosure.

11. Seal all entry points.

> Ensure all entry points are adequately sealed to preserve the unit's IP rating.

12. Connect the field wiring; see Figure 5.

Figure 5 DANS01 field wiring connection



13. Reconnect any disconnected wiring and front panel tethers.

    Refer to step 4 and Figure 1 (page 5) for disconnected wiring and tethers.

    Refer to Section "Connections" (page 9 for connection details, if required.

14. Power the DANS01 on from the central equipment rack.

    The LED on the front panel illuminates to indicate that the unit is powered.

15. Secure the front panel by screwing it tight to provide an IP65 seal, but not excessively tight so that any of the fixing threads are stressed, as this may cause them to weaken and shear.

16. The installation is complete.

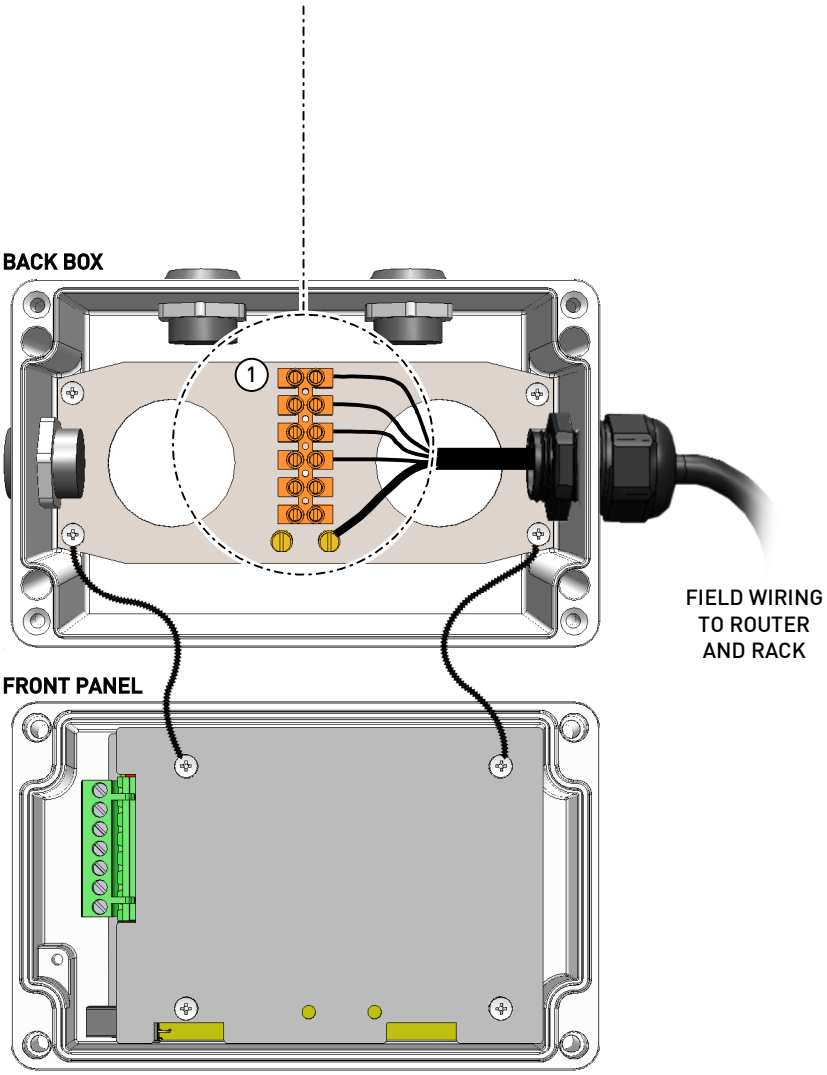
17. Commission the DANS01.

2 Connections

Terminal	Signal	I/O	Description	Connect
1	AUDIO+	O/P	Balanced audio output (+VE) 0 dBu (nominal) / 66 Ω	To Router
2	AUDIO-	O/P	As above, but -VE	
3	0V Power	I/P	0 V supply from system	To power supply from rack
4	+24V Power	I/P	+V supply (18 V – 40 V)	
BRASS TERMINALS	-	-	Earth terminal	Cable screen

ⓘ For cabling requirements, see Section "External Cabling Requirements".

⚠ 1) The cable screen should be terminated to the earth terminal provided on the back box.
2) All screen tails must be <3 cm.



ⓘ Internal wiring not shown for clarity.
Gland and cable entry point shown as example only.

⚠ In order to deploy DANS sensors the system should meet the following design requirements:

1) The DANS sensors require VAR12 or VAR20 Routers with MKII hardware.

   Refer to ASL for details of VAR software versions supporting the DANS System.

2) Each DANS sensor requires one microphone input on an Expand Unit:
   - Inputs 5 to 12 on VAR12
   - Inputs 5 to 20 on VAR20

3) The DANS sensor must be connected to a microphone input located on the same Expand Unit as the output(s) that it controls.

4) Each DANS sensor also requires an output on that Expand Unit to be unused.

5) Up to three DANS sensors can be connected to each Expand Unit.

6) The Expand Units with DANS sensor(s) do not support DVAs.

7) DANS sensors cannot be combined with normal ANS sensors on any zone or group of zones.

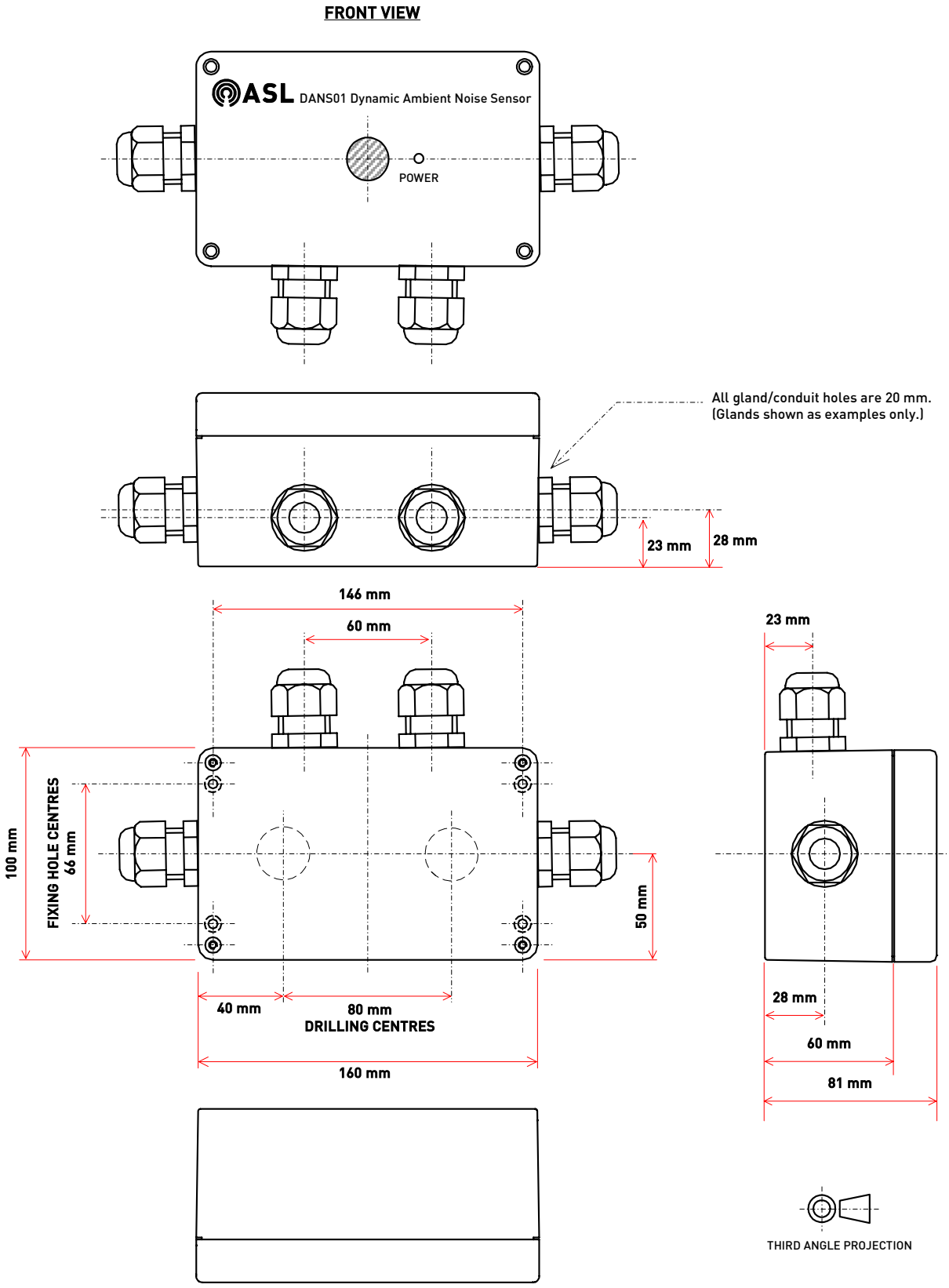
8) Up to two DANS sensors can be used to control the same output(s).

9) DANS sensors can control more than one output (e.g. if a zone is separated into separate sub-zones for other reasons).

10) Ideally if there are two DANS sensors then they should be connected to:
   - Inputs 10 and 11 on VAR12 or VAR20, or
   - Inputs 18 and 19 on VAR20

3 Mechanical Dimensions

Figure 6 Mechanical dimensions



4 Safety and Precautions

Environmental

The temperature and humidity ranges shown in the specifications for this product must not be exceeded.

This equipment must not be installed in an area that is subject to a corrosive atmosphere.

When installed in accordance to the instructions in this document, the unit provides IP65 ingress protection.

ESD Precautions

This product contains static-sensitive devices. Observe ESD precautions when working on the equipment with the cover removed.

Electrical Safety

Always replace blown fuses in the supply to this equipment with the correct type and rating. Ensure power supply cabling is adequately rated.

Unpacking and Handling

The equipment should be unpacked and inspected immediately on receipt. If damage has occurred please advise your carrier or supplier.

> ⚠ This equipment contains electronic devices that are sensitive to electrostatic discharge. Please take precautions to avoid damage to the electronics by static electricity.

It is advisable to retain the original equipment packing in the event that the equipment ever needs returning for service.

Ensure that the name and address of the Authorised Distributor from whom you purchased the unit is recorded on the "Service and Warranty" page of this manual for future reference.

Packing for Return for Repair

> ⚠ All electronics assemblies must be properly packed in ESD protective packing for transport, to prevent physical and ESD damage.

> ⚠ The filler material used for packing for return for repair must be antistatic or static dissipative, as this may come into contact with exposed connectors, wiring, or PCB assemblies. The use of non-conductive filler material may cause damage to the electronic assemblies reducing their operational life, or even destroying them.

Advice on packing the product for return can be provided by ASL.

Service and Warranty

Name and Address of Authorised Distributor:

This product carries a full warranty. For full details of warranty and service agreements, please contact the Authorised Distributor who supplied the product to you.

Exclusions

The warranty does NOT cover:

1. Customer misuse, including incorrect installation.
2. Damage other than manufacturing defects.
3. Transit / Courier damage.
4. Incorrect voltage or power supply used.
5. Incorrect input signal.
6. Abnormal environmental operating conditions.
7. Damage incurred by accident, fire, lightning or other hazard.
8. Modification to the unit or inexpert / attempted repair.
9. No fault found – where no fault can be found after extensive testing, indicating user error or failure in ancillary equipment.
10. Electronic assemblies which are improperly packed when returned for repair or service. All electronics assemblies must be properly packed in ESD protective packing for transport to prevent physical and ESD damage.

Should any of the above apply, Application Solutions (Safety and Security) Limited reserves the right to raise any relevant charges to the customer.

Application Solutions (Safety and Security) Limited shall not be liable for any indirect, special or consequential loss or damage (including without limitation any loss of profits) arising from the use of this product or for any breach of this warranty.

In the interest of continual product development, Application Solutions (Safety and Security) Limited reserves the right to make changes to product specification without notice or liability.

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