

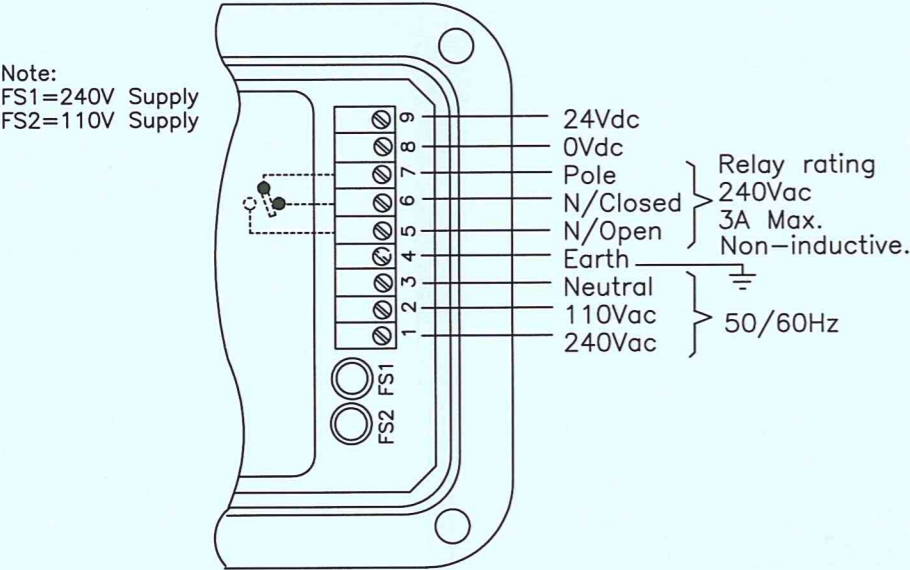
Introduction

The DIGISET is a fixed point Level Controller operating on the Digital Calibration System (D.C.S.).

The unit is designed to operate in the majority of conductive and non-conductive liquids and solids. Two sensitivity ranges are provided to accommodate both dense and light material. The probe may be a solid rod, wire rope or metal plate. A power shield is incorporated to virtually eliminate the effects of sticky material clinging to the probe.

The DIGISET can be supplied either as a fully self-contained unit or as a separate probe/electronics system (DSL3/REM). In this form, a number of different probe heads are available to suit application needs. The DIGISET is suitable for either top or side entry into hoppers, silo's and other container vessels.

Connections-DSL3 (fig 1)



Installation & Commissioning

The self contained DIGISET is normally supplied with a loose probe, available as a stainless steel rod in standard lengths of 200 mm, 1 metre, 2 metre or as a 10 metre wire rope suspension probe and weight. The probe should be screwed to the DIGISET. Prior to attachment, the probe can be reduced or increased, if desired, but see notes 1 & 2 regarding minimum surface area.

A thread locking compound is already applied to the probe fixing stud of the DIGISET. This will prevent the probe rod from vibrating loose, once fitted. The compound is fully hardened 20 minutes after fitting rod.

DIGISET will operate on 110V/240V ac 50/60 Hz or 24V dc supplies. The unit may be wired in ordinary un-screened cable of any length and need not be seperated from other cables.

A SUPPLY EARTH IS ESSENTIAL!

When mounting DIGISET, care must be taken to ensure that the exposed end of the power shield protrudes into the container. See fig. 2. Mount unit securely to minimise vibration.

Connect in accordance with fig. 1, ensure that cable gland and back cover are fully tightened when finished. Self contained DIGISET has two 20mm cable entries, one of which is blank, the blank may be drilled out if required; it must not be knocked out. The unit must be wired and earthed in accordance with appropriate Electrical Regulations.

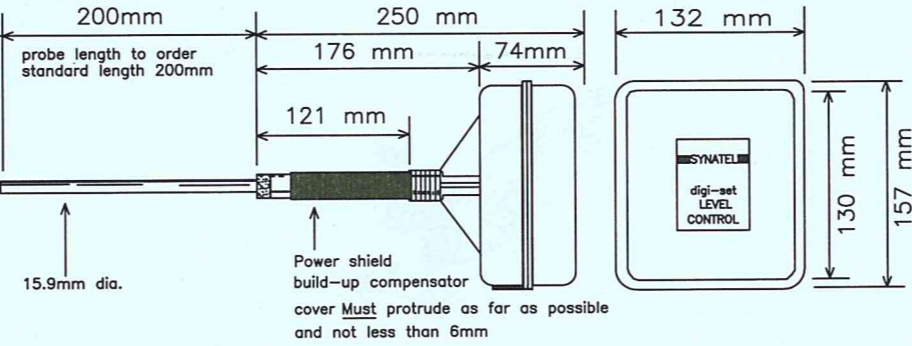
On metal containers, unit earth MUST be bonded to container. If the container is non-metalic, metal flanges or couplings used to mount probe should be bonded to earth. This also applies to probes mounted in wooden or plastic tops of metal bins.

Commissioning

- 1) Ensure that the unit has been installed and wired correctly.
- 2) Ensure that the probe is clear of all material (Bin empty).
- 3) Set the calibration switches S1,S2,S3 to 999. (fig. 4).
- 4) Set sensitivity switch S5 (fig. 4) (accessible under black cover) to low or high depending upon density of material. Eg. Grass, grain etc.-Low. Sand, aggregate etc-High. (Factory set at Low for DSL3.) (Always set High for DSL3/REM due to increased standing capacitance of probe cable).
- 5) Select required fail safe setting, using High/Low switch S4. (fig. 4) (See note 4).
- 6) Rotate left switch (S1) slowly anticlockwise until probe covered light just illuminates. Rotate switch slowly clockwise until light extinguishes. Repeat for centre switch (S2) and right switch (S3). Note reading obtained. (If the Probe Covered light is not illuminated when zero is reached, leave at zero).
- 7) If material is available, fill container to cover probe.
- 8) Repeat steps 3) and 6) above and note reading.
- 9) Set switches S1,S2 & S3 mid-way between readings obtained for full and empty settings.
- 10) Record reading. Probe is now calibrated.
- 11) Note: If material is not available:-
Add one of the following numbers to the empty settings obtained in 3) and 6). Either record setting or re-calibrate when material is available and then record setting.

Material	Add
Light Density (grass, grain etc.)	50
Medium Density (flour, oil etc.)	100
High Density (sand, aggregate etc.)	150

Dimensions-DSL3 (fig 2)



Overall Specification-DSL3

Protection: IP65

Material (enclosure): Modified Polyamide 66

Mounting Thread: 1" BSP Taper.

Voltage: 110v/240v ac 50/60 Hz or 24v dc (+7.5%. -15%).

Rating: 6VA

Operating Temperature: -10 to +50°C.

Humidity: 90%RH.

Output: S.P.C.O. contacts rated at 3A 240V non-inductive.

Time Delay: 0 - 5 seconds variable. (Prevents false signaling from splashing). Located under black cover.

Probe Length: 200mm, 1 metre, 2 metre or 10 metre wire rope.

To Order: Specify **DIGISET DSL3** + length of probe required.

Notes:-

- 1) Prior to fitting to the probe head, the DIGISET rod may be drilled, tapped, sawn or welded without affecting it's performance. The standard probe rod should not normally be reduced below 200mm unless it's surface area is increased pro-rata.
- 2) The DIGISET sensitivity is proportional to the surface area of the probe. The standard 200mm x 16mm dia. is ideal for the majority of materials and should be treated as the minimum if possible. If the probe length needs to be reduced to less than 200mm, the surface area should be maintained. This can be achieved by by increasing the diameter, by fitting a metal tube over the probe, or by bending the probe rod. In certain high density materials it may be possible to reduce the length without compensation.
- 3) Synatel offer a free product test service. To use this service, supply 1Cu. ft. of product in a sealed container (to prevent ingress or loss of moisture), the product will be tested and the correct Setting supplied. If the product presents a health hazard, give full details of precautions to be taken.
- 4) The "High/Low" switch (S4) sets the fail safe mode. In the "High" position, the relay is de-energised with material present. In the "Low" position, the relay is energised with material present. Normally, the "High" position is used for high level probes and the "Low" for low level probes. Intermediate probe settings depend upon individual requirements.

Fault Diagnosis:-

Symptom	Problem	Action
Switches rotate to any setting & light remains illuminated.	Standing capacitance too high.	Check for short or foreign body between probe or power shield & earth. Check power shield insulation.
Relay chatter occurs as material approaches and leaves probe.	Spurious tripping as material approaches & leaves probe. (Splashing).	Simple timer is fitted, access by removing black cover. Clockwise rotation increases time.

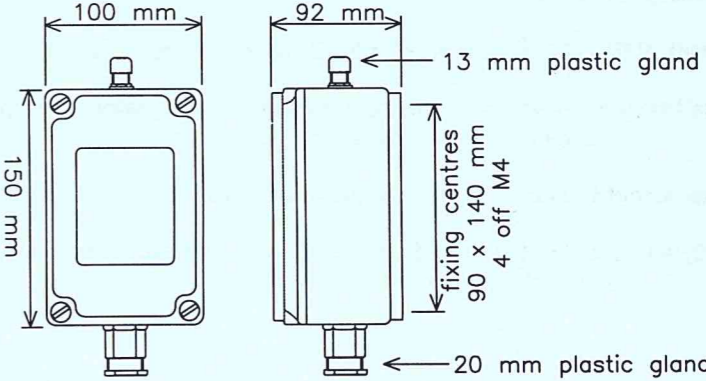
DSL3/REM-Introduction

The power shield circuitry used in the DIGISET allows for satisfactory operation of the electronics mounted up to 8 metres from the probe head itself.

A special version of the DIGISET circuit is used, housed in an acrylic, hoseproof enclosure. (See fig. 3). Connections between the control box and the probe head are made via double screened cable. (fig. 4).

Various probe head assemblies are available, some with power shield. In all cases, the probe head contains no electrical components.

Dimensions-DSL3/REM enclosure (fig 3)



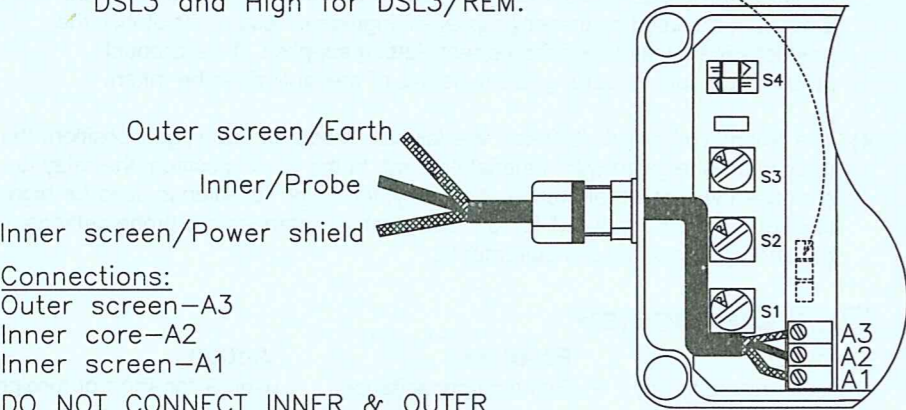
Installation & Commissioning

Mount the DIGISET DSL3/REM enclosure securely to withstand vibration and within 8 metres from probe head being used. Connect in accordance with fig. 4. Commission the unit as detailed for self contained DIGISET.

Connections-DSL3/REM (fig 4)

Probe Head Connections:-
Probe:- Connect to the probe rod terminal.
Power Shield:- The inner screen should be connected to the power shield terminal, if the probe has no power shield, cut the power shield screen in the housing & insulate. DO NOT CONNECT TO EARTH OR OUTER SCREEN.
Probe Earth:- The outer screen should be connected to the probe earth terminal or probe casing. Unearthed mounting flanges should be bonded to earth. In the case of non-metalic probe heads & containers, the earth screen should be cut and insulated within the terminal chamber. DO NOT CONNECT TO INNER SCREEN.

Note: Sensitivity switch S5 located under black cover. Factory preset at low for DSL3 and High for DSL3/REM.



All other connections are as self contained DIGISET.

Overall Specification-DSL3/REM

Protection: Remote electronics: IP66. Probe head: dependant upon type.

Material: Enclosure: Acrylic. Probe head: dependent upon type.

Mounting: Enclosure: 4 holes 4mm dia. Probe head: (normally) 1 inch B.S.P.

Voltage: Enclosure only:110v/240v 50/60 Hz or 24v dc (+7.5%. -15%).

Rating: Enclosure only: 6VA

Operating Temperature: Enclosure: -10 to +50°C.
Probe head: Dependant upon type.

Humidity: 90% RH.

Output: S.P.C.O. contacts rated at 3A 240v ac non-inductive.

Time Delay: 0 - 5 seconds variable. (Prevents false signaling from splashing).
Located under black cover.

Probe Length: 200mm, 1 metre, 2 metre or 10 metre wire rope.

To Order: Specify **DIGISET DSL3/REM** plus probe head (refer to sales office if in doubt) plus length of probe required.

Guarantee

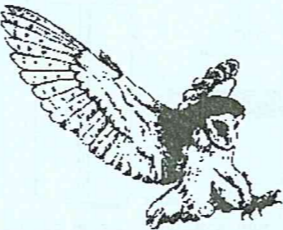
The equipment is covered by a 12 months guarantee from the date of shipment. Any faults arising due to faulty materials or workmanship, within the guarantee period, will be corrected free of charge providing the equipment is returned to us carriage paid.

Certificate of Conformity

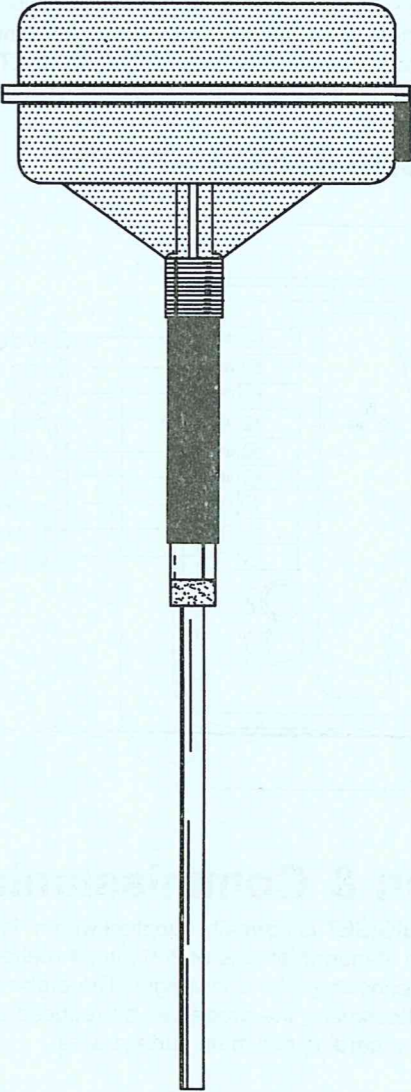
The equipment covered by these instructions has been manufactured and tested in accordance with our quality assurance procedures and conforms fully with our published specifications.

Health and Safety

Provided that the equipment covered by these instructions is installed and operated as directed, it presents no hazard and conforms fully to health and safety regulations.

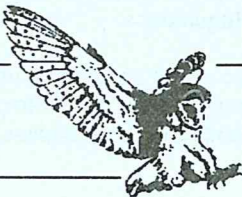


DETECTION AND CONTROL
IN ACTION



DIGISET
DSL3 & DSL3/REM

OPERATING
INSTRUCTIONS



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