f. The earth bonding arrangement must ensure that the maximum peak voltage between the unit case earth and any field cable conductors is less than 350V. Voltages in excess of this can cause permanent damage to the unit's RFI protection filters.
g. The use of a single, screened cable for each gas detector ensures maximum screening and minimum crosstalk. Cabling arrangements which use a single cable for connecting a number of field devices compromise screening, increase the potential for crosstalk and prevent implementation of true star earthing.
h. Any electrical interference induced onto the 4 - 20mA loop conductors by the installation must be kept below the levels necessary to comply with the general requirements of EN 60079-29-1 & IEC 60079-29-1. In practice, this means that peak noise currents induced on the current loop should be no greater than +0.25mA.
i. The 0V rail of the control card/control system is directly connected to one side of the 4 - 20mA current sensing resistor. Electrical noise on this rail is therefore directly connected to the 4 - 20mA input. In order to avoid additional noise being induced on the 0V rail, it should not be connected to the safety earth/ground, which frequently carries a high level of electrical noise.
j. All electrical equipment connected to the gas detector should comply with EN61000-6-3 and EN61000-6-2.
k. The 0V rail of the control card/control system is directly connected to one side of the 4 - 20mA current sensing resistor. Electrical noise on this rail is therefore directly connected to the 4 - 20mA input. In order to avoid additional noise being induced on the 0V rail, it should not be connected to the safety earth/ground, which frequently carries a high level of electrical noise.

4.3.2 Electrical Installation

1. Isolate all associated power supplies and ensure that they remain OFF during this procedure.
2. If the units are to be installed with junction boxes other than OELD or DX100(M) junction boxes, ensure that the boxes:
   - have M20 cable gland entries for ATEX / IECEx units, or 3/4 NPT for UL and CSA.
   - have terminals for 5 wires and an earth.
3. Remove the M20 blanking plugs (if fitted) and attach the Excel transmitter and receiver cables to their junction box. Fit the locking rings (if supplied) before terminating the cables in the junction box.
4. Fit approved cable glands to the junction box cable entries, using sealing washers where necessary to maintain the ingress protection rating.
5. Fit approved blanking plugs to all unused cable entries.

4.3.3 Receiver Connections via OELD

- The earth bonding arrangement (lead sleeve) for each cable must ensure that any voltage induced is less than 350V. Voltages in excess of this can cause permanent damage to the unit's RFI protection filters.
- ... 

4.3.4 Receiver Connections via DX100(M)

- The earth bonding arrangement (lead sleeve) for each cable must ensure that any voltage induced is less than 350V. Voltages in excess of this can cause permanent damage to the unit's RFI protection filters.
- ... 

4.3.5 Transmitter Connections

- The earth bonding arrangement (lead sleeve) for each cable must ensure that any voltage induced is less than 350V. Voltages in excess of this can cause permanent damage to the unit's RFI protection filters.
- ... 

4.3.6 Remote Installation Receiver Connections

- The earth bonding arrangement (lead sleeve) for each cable must ensure that any voltage induced is less than 350V. Voltages in excess of this can cause permanent damage to the unit's RFI protection filters.
- ... 

4.3.7 Transmitter Connections - Turbo Heating Disabled

- The earth bonding arrangement (lead sleeve) for each cable must ensure that any voltage induced is less than 350V. Voltages in excess of this can cause permanent damage to the unit's RFI protection filters.
- ... 

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2. SAFETY

Ensure that you read and understand these instructions BEFORE handling or operating the equipment. Please pay particular attention to the Safety Warnings.

**WARRIORS**

1. The Searchline Excel gas detector is calibrated for and intended for use in potentially hazardous areas. Install and use the Searchline Excel gas detector in accordance with the relevant national Codes of Practice.
2. For installations in the UK, the Code of Practice SECTIONS 3, INSTALLATION AND MAINTENANCE OF ELECTRICAL APPARATUS FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES, are applicable. Other countries have different regulations which are similar to IEC 50079-20 or in the UK the relevant national or international regulations.
3. For installations in North America, the national Electrical Code (NEPA NF) or later issues should be strictly observed.
4. Elsewhere, the appropriate local or national regulations should be used.
5. The Searchline Excel gas detector must be properly earthed to protect against electrical shock and minimise electrical interference.
6. Operators must be fully aware of the action to be taken if the gas concentration exceeds the alarm level.
7. Dismantling or repair of equipment should be carried out in the safe area only.
8. In order to maintain electrical safety, the unit must not be operated in atmospheres with more than 21% oxygen.
9. Ensure that the receiver's flameproof enclosures are fully tightened. The securing bolts are marked from a specific grade of steel. The bolts supplied by Honeywell Analytics should be fitted for this purpose.
10. Do not open the enclosure in the presence of an explosive atmosphere.
11. The transmitter unit contains high voltages when operational. These are discharged when the unit is removed from its enclosure.
12. The adjustable parts of the equipment must be adjusted according to the instructions in this document, contact Honeywell Analytics Limited or one of their agents.

Honeywell Analytics Limited reserve the right to change or revise the information supplied in this document without notice and without obligation to notify any person or organisation of such revision or change. If further details are required that do not appear in this document, contact Honeywell Analytics Limited or one of their agents.

3. MECHANICAL ASSEMBLY

### INSTALLATION

**3.1 GENERAL**

This section details the mechanical assembly information and important dimensions necessary for installing the system units. Adjustable parts which form part of the mounting assemblies are also shown.

**3.2 TRANSMITTER**

**3.3 RECEIVER**

**3.4 ADJUSTABLE MOUNTINGS**

**4. INSTALLATION**

### 4.1 GENERAL

Searchline Excel is designed to allow installation to be performed by a single operator. The installation procedure is split into mechanical installation and electrical installation. Each unit needs to be mounted to a supporting structure before making the electrical connections. The diagrams show different ways of orientation for the mountings.

**4.2 MECHANICAL INSTALLATION**

This mechanical installation procedure applies to both the receiver and the transmitter.

1. Ensure that the equipment to be installed is correct for the type of installation required (i.e. short/medium/long range).
2. Fit the mounting bracket to the mounting plate for the unit, as shown.
3. Fit the mounting plate to the supporting structure in one of the following ways:
   - by through bolts directly to a flat surface.
   - by U-bolts (2 off) to a single 150mm diameter pipe/pole.
   - by U-bolts (4 off) to two 55mm diameter pipes/poles, 166mm apart.

Identify the mounting holes using the following diagram and the accompanying table. The subsequent diagrams show the different types of mountings.

#### INSTALLATION

### 4.3 ELECTRICAL INSTALLATION

**4.3.1 Electrical Connections**

All ranges of Searchline Excel comply with the EMC requirements EN60723. In order to maintain compliance with these standards it is essential that the electrical installation of Excel is engineered correctly.

Electrical installation standards vary for different countries, companies and applications and it is the responsibility of the installation designer to determine the applicable standards and ensure compliance with them. When designing electrical installations for Excel, Honeywell Analytics Limited recommend that the installation design authorities consider the following:

a. The unit cases should not, if possible, be connected to electrically noisy (dirty) metalwork or conductors. Preferably, the case (internally connected to the green/yellow GND wire) should be connected to a low noise instrument (clean) earth. See also para e. below.

b. To facilitate electrical isolation of the Searchline Excel from a noisy earth an isolation kit is supplied. This kit should be fitted as standard unless local regulations forbid this.

c. The entire length of the field cabling connected to each unit should be fully shielded. This should be connected to a low noise (clean) earth.

d. The low noise instrument (clean) earth system should only be connected to safety earth (usually dirty) at a single point on the entire site/installation. This connection should be made in such a manner that it does not introduce noise onto the low noise instrument earth. E.g. earthing arrangements minimise earth current crosstalk.

e. The shielding of the field cabling should not be connected to earth loop ports that are used as safety earth (see para d. above). The current in an earth loop produces an inductive field which will result in the shielding carrying large currents from heavy plant equipment.

f. Ideally, the field cable shield should be connected to the unit's green/yellow GND wire, providing a single, continuous earth shield. This connection must not be allowed to complete an earth loop.