

6. SPECIFICATIONS

Connections	
Inputs	Searchpoint Optima Searchpoint Optima Plus Searchline Excel Searchline Excel Cross-Duct Field wiring.
Outputs	IS protected Honeywell SHC1 Handheld Interrogator communications (RS485) 4-20mA (Non-isolated).
Power Supply	18-32VDC.
Environmental	
Operating temperature	UL -25°C to 40°C (-13°F to 104°F) CSA -55°C to 40°C (-67°F to 104°F).
Enclosure	
Entry Socket	One IS protected Communications Link Entry Socket for connecting the Honeywell SHC1 Handheld interrogator.
Cable/Conduit Entries	Three 3/4 NPT entries (one each side and one in the bottom) to accept gas detector and field cabling or 3/4" conduit.
Size	212mm (8.35in.) wide x 152.4mm (6in.) high x 117.5mm (4.625in.) deep. Add approximately 60mm (2.36in.) to the height for the Communications Link Entry Socket.
Weight	2.5kg.
Material	Aluminium.
Ingress Protection	IP66 to BS EN 60529, Degrees of protection provided by enclosures (IP code).
Certification	UL Class I, Div 1, Groups B, C, D CSA Class I, Div 1, Groups B, C, D (see Certification for details)
Digital Interface	Use the Modbus® RTU communications protocol
Field Wiring	from 22-12 AWG (0.326 to 3.31mm ²), 105C

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6. CERTIFICATION

This section specifies UL and CSA certification information for the DX100 (M) Termination Unit. It includes relevant Control Drawings.

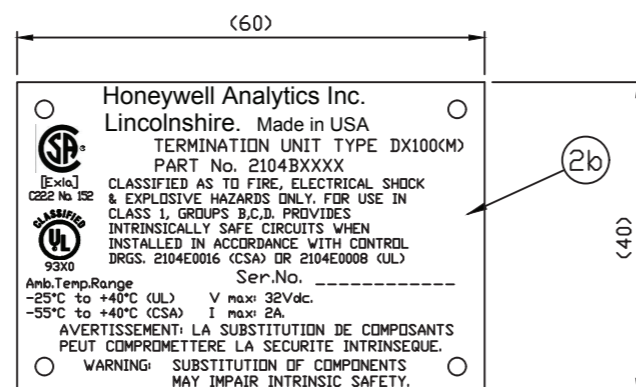
A Honeywell Analytics certification label is located on the right-hand side of the DX100 (M) Termination Unit.

The label contains all the relevant information regarding the product's identification and certification state.

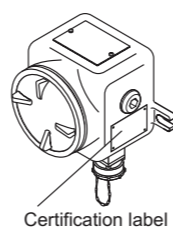
The following diagram shows the UL/CSA Certification Label.

The part number for the DX100 (M) Termination Unit is 2104B2382.

UL/CSA Certification Label



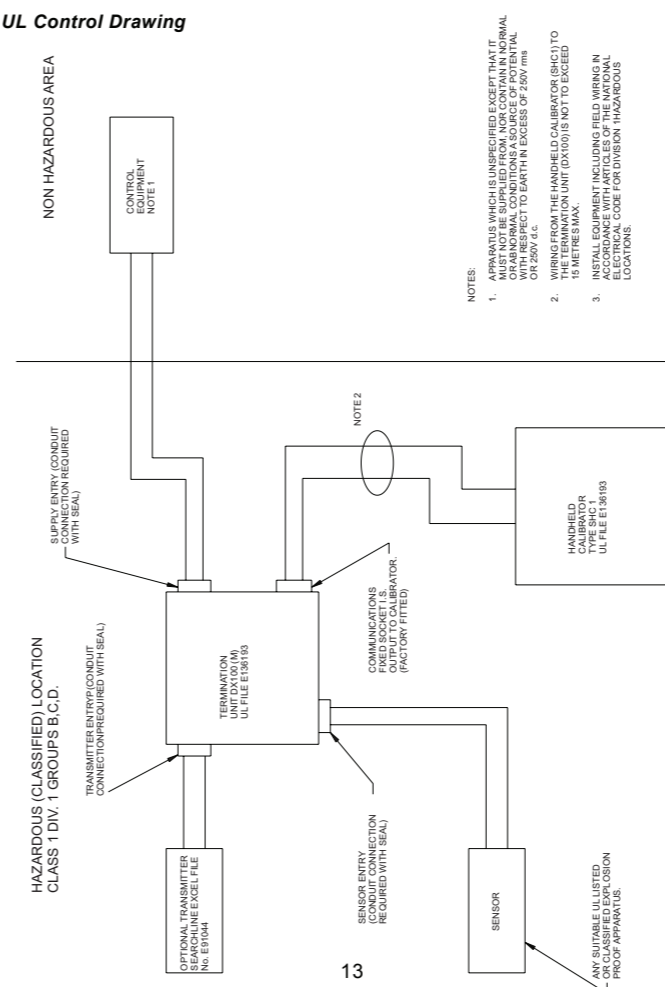
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Certification label

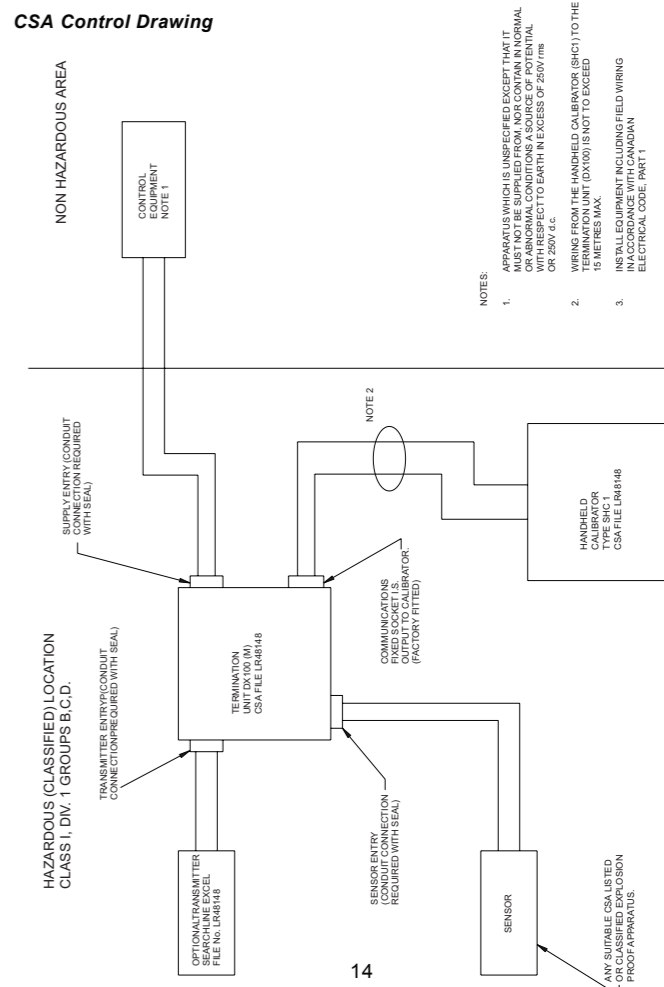
CERTIFICATION

UL Control Drawing



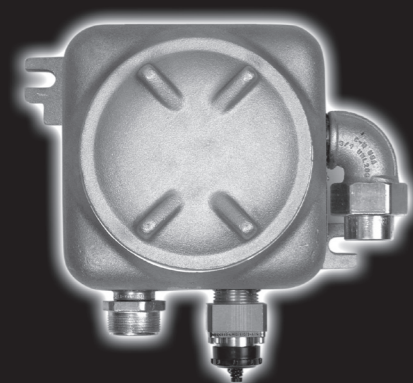
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CSA Control Drawing



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Quick Start Guide



DX100 (M) Termination Unit

1. INTRODUCTION

The DX100 (M) Termination Unit is an explosion proof active junction box that provides a signal connection point for the Searchpoint Optima and Searchline Excel range of gas detectors and the associated field wiring, and a mounting point for the Searchpoint Optima and Optima Plus detectors. The unit is certified to UL and CSA standards and is intended for use in hazardous environments.

The Termination Unit also provides a digital interface between the attached gas detector and an RS485 link to the network controller.

Note: Gas detector digital address configuration information is not provided here but in the DX100 Series Termination Units Technical Handbook.

The DX100 (M) provides:

- terminals for connecting the gas detector and the field cabling
- an Intrinsically Safe (IS) connection point for the Hand Held Interrogator (SHC1)
- a local mounting point for the Searchpoint Optima or Optima Plus gas detector

The unit features three 3/4" NPT cable/conduit entries, two terminal blocks and a voltage clamp with a communications link entry socket

When used with an Optima or Optima Plus, one of the unit's three cable/conduit entries (usually the left-hand one) is used to mount the gas detector directly to the box. The gas detectors output a 4-20mA signal that is sent via the Termination Unit and field wiring back to the system controller.

The voltage clamp and the external socket provide the IS connection to the Handheld Interrogator (SHC1) which allows operator interaction with the attached gas detector to commission, calibrate or diagnose the system. Full details about the gas detectors can be found in their respective technical documents, which include operation of the SHC1.

Caution: Only the SHC1 Handheld Interrogator should be connected to the DX100 (M) communication link entry socket.

This guide covers the basic on-site mechanical and electrical installation of the unit. Refer to the DX100 Series Termination Units Technical Handbook (Part No: 2104M0701) for more detailed information about the DX100 (M).

Information notices

The types of information notices used throughout this document are as follows:

WARNINGS

Indicates hazardous or unsafe practice that could result in severe injury or death to personnel.

Caution: Indicates hazardous or unsafe practice which could result in minor injury to personnel, or product or property damage.

Note: Provides useful/helpful/additional information.

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CERTIFICATION

2. SAFETY

Ensure that you read and understand this document **BEFORE** installing/operating the equipment. Pay particular attention to the Safety Warnings.

WARNINGS

1. The DX100 (M) Termination Unit is certified for and intended for use in potentially hazardous areas. Install and use the DX100 (M) Termination Unit in accordance with the latest regulations. No modifications to the unit is permitted without reference to the relevant certifying authority
2. Install UL approved and certified equipment including field wiring in strict accordance with the articles of the National Electrical Code for Division 1 Hazardous Locations (NFPA 70).
3. Install CSA approved and certified equipment including field wiring in strict accordance with Canadian Electrical Code, Part 1.
4. For installations elsewhere, the appropriate local or national regulations should be used.
5. The Code of Practice regarding Selection, Installation, Use And Maintenance Of Apparatus For The Detection Of Combustible Gases (Other Than For Mining Applications Or Explosive Processing And Manufacture) must be complied with.
6. The DX100 (M) Termination Unit must be properly earthed to protect against electrical shock, minimise electrical interference and comply with IS Safety Requirements.
7. Dismantling or repair of equipment should be carried out in the safe area only.
8. Do not drill holes in the housing as this will invalidate the explosion protection.
9. In order to maintain electrical safety, the unit must not be operated in atmospheres with more than 21% oxygen.
10. Do not open the enclosure in the presence of an explosive atmosphere.

CAUTIONS

Only the Handheld Interrogator (SHC1) must be connected to the Termination Unit's communication link entry socket.

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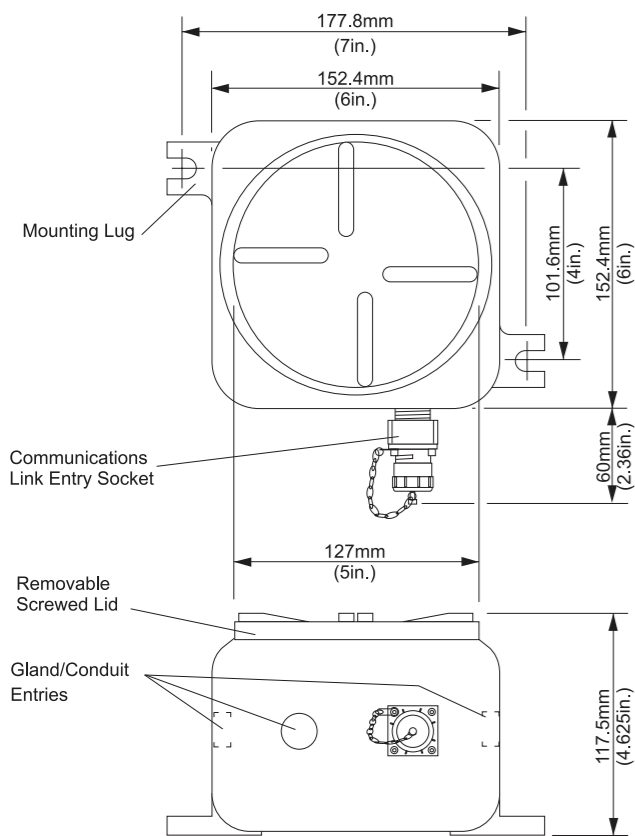
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3. MAIN FEATURES

This section shows the main features of the Termination Unit and also details important dimensions for the unit when installing.



4. INSTALLATION

It is important before starting these procedures that the detailed information provided in the DX100 Series Termination Units Technical Handbook about DX100 (M) installation has been carefully considered at the planning stage.

General Installation Guidelines

1. Read the Warnings and Cautions at the beginning of this document and all the relevant instructions before starting any of the installation procedures.
2. Identify external cable requirements and the necessary cable entry ports to be used on the Termination Unit.
3. Refer to the documentation for the associated control system for details about external network connection information, field wiring, interconnections, etc.
4. Refer to the relevant handbooks for details about the gas detectors.
5. Isolate all associated power supplies and ensure that they remain **OFF** during the procedures. Ensure a gas-free atmosphere.

MECHANICAL INSTALLATION PROCEDURES

Mechanical Installation Guidelines

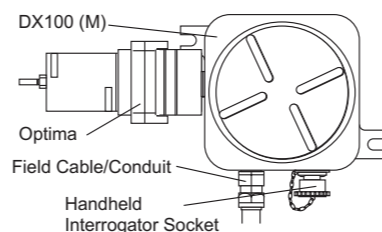
1. Identify a suitable location where the Termination Unit can be mounted. The Termination Unit should be fitted to a flat surface.
2. When fitting a Termination Unit consideration should be made regarding the probability of mechanical impacts and interference from other equipment and apparatus.
3. The mounting plates for the Searchline Excel gas detectors, and to which the DX100 (M) unit is attached, have fixing holes that are unthreaded. Unit and gas detector system component mounting holes are threaded. For the identity of other plate holes refer to the Searchline Excel Technical Handbook.

With Searchpoint Optima

This procedure describes how the DX100 (M) is installed at the mounting location and then the Optima gas detector is fitted to the Termination Unit.

- (1) Securely fit the Termination Unit at the required monitoring point.

Use the two Termination Unit mounting lugs. Ensure the communications link entry socket connector is located at the bottom. This fulfils the requirement to position the Optima sensor horizontally so that the risk of fouling the gas detector's optical surfaces is reduced.



INSTALLATION

- (2) Remove the Termination Unit lid.
Use the lugs on the lid to unscrew it anticlockwise from the Termination Unit base.
- (3) Fit the Optima detector to the left-hand entry.
First remove the 3/4 NPT approved blanking plug.
- (4) Fit approved certified 3/4 NPT cable glands or conduit fittings to the Termination Unit cable/conduit entries as required.
- (5) Fit the external field wiring through the cable/conduit fittings and secure.
- (6) Terminate the gas detector and field wiring.
Refer to **Electrical Installation**.

With Searchline Excel Open-Path

The DX100 (M) is fitted to the Excel receiver's mounting plate and then the units are wired.

- (1) Securely fit the Termination Unit to the mounting plate so that the communications link entry socket connector is located at the bottom.

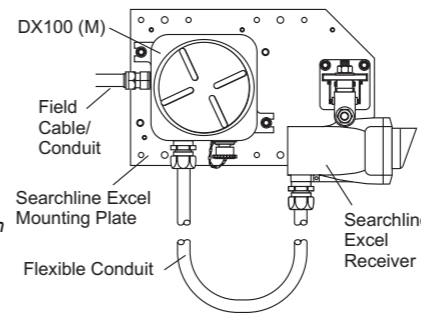
Use the Termination Unit mounting holes marked G on the diagram below. The box uses two of the four holes depending on the plate's horizontal orientation.

- (2) Remove the Termination Unit lid.
Use the lugs on the lid to unscrew it anticlockwise from the Termination Unit base.

- (3) Attach the Searchline Excel gas detector's cable to the Termination Unit.

Fit to the bottom left entry after removing the 3/4 NPT blanking plug.

- (4) Fit approved certified 3/4 NPT cable glands or conduit fittings to the Termination Unit cable/conduit entries as necessary.



INSTALLATION

- (5) Fit the external field wiring through the cable/conduit fittings and secure.
- (6) Terminate the gas detector and field wiring.
Refer to **Electrical Installation**.

With Searchline Excel Cross-Duct

The DX100 (M) is fitted to the Cross-Duct mounting plate and then the units are wired.

- (1) Securely fit the Termination Unit to the mounting plate so that the communications link entry socket connector is located at the bottom.

Use the mounting holes marked G on the diagram below.

- (2) Remove the Termination Unit lid.

Use the lugs on the lid to unscrew it anticlockwise from the Termination Unit base.

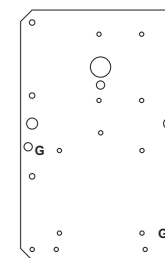
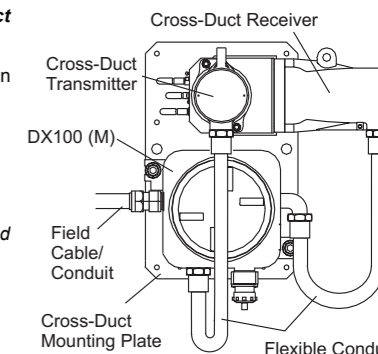
- (3) Attach the two cables from the Searchline Excel Cross-Duct gas detector to the Termination Unit.

Fit the transmitter's cable to the bottom left entry after removing the 3/4 NPT blanking plug. Fit the receiver's cable to the right-hand entry after removing the 3/4 NPT blanking plug (see the diagram). Use suitably approved certified glands/adaptors.

- (4) Fit an approved certified 3/4 NPT cable gland or conduit fitting to the Termination Unit cable/conduit entry as necessary.
- (5) Fit the external field wiring through the cable/conduit fitting and secure.

- (6) Terminate the gas detector and field wiring.

Refer to **Electrical Installation**.

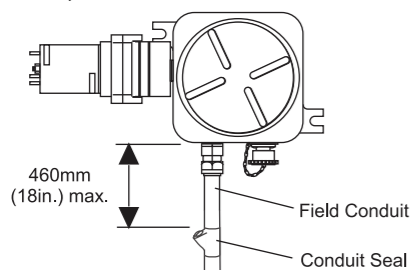


INSTALLATION

ELECTRICAL INSTALLATION

Electrical Installation Guidelines

1. Isolate all associated power supplies and ensure that they remain **OFF** during the procedures. Ensure a gas-free atmosphere.
2. Ensure that approved and certified cable glands have been fitted to the Termination Unit cable entries where used for field wiring, with sealing washers where necessary to maintain the ingress protection rating.
3. Ensure that any cable gland/conduit locking rings are fitted before terminating the cables.
4. Make sure that a conduit sealing fitting is installed within 460mm (18in.) of the Termination Unit on all conduit runs. The following diagram shows a vertical conduit seal fixed in the conduit run close to a Termination Unit fitted with an Optima unit. Excel Open-Path and Cross-Duct installations should be similar.

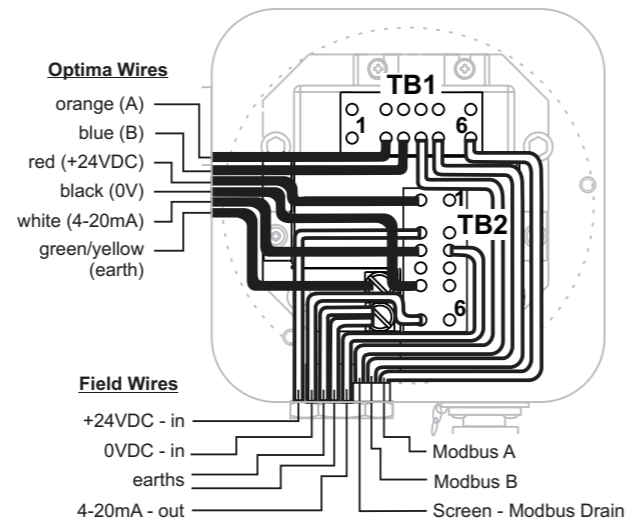


5. Ensure that approved and certified blanking plugs are fitted to all unused Termination Unit cable entries.
6. The Termination Unit mounting plate must be bonded to a protective earth.
7. Suitable crimps and/or ferrules must be fitted when connecting more than one wire to a Termination Unit terminal.
8. The field terminals of the Termination Unit accept single or multi-stranded wire from 22-12 AWG (0.326 to 3.31 mm²), 105C. Cables should be routed carefully to avoid physical and environmental hazards such as mechanical stress and high temperatures.
9. In order to ensure correct operation and to meet requirements for RFI and EMC, it is recommended that all field cables are screened with the cable screen connected at one end only (see the Technical Handbook).

Connect the gas detector and field wiring to the terminal blocks in the DX100 (M) Termination Unit according to the following wiring diagrams and tables.

INSTALLATION

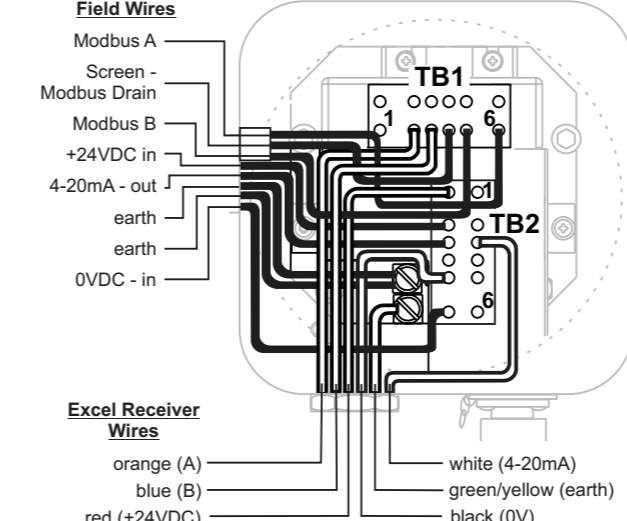
Searchpoint Optima



Terminal/Number	Gas Detector Wiring		Field Wiring
	Function	Colour	
TB1	1	-	-
	2	A	Orange
	3	B	Blue
	4	-	Drain
	5	-	Modbus B
	6	-	Modbus A
TB2	1	+24VDC	Red
	2	-	+24VDC - Supply
	3	4-20mA	White
	4	-	4-20mA - Output
	5	0V	Black
	6	-	0V - Supply
Earth Posts	-	Earth	Green/Yellow
			Earth Barrier Earth

INSTALLATION

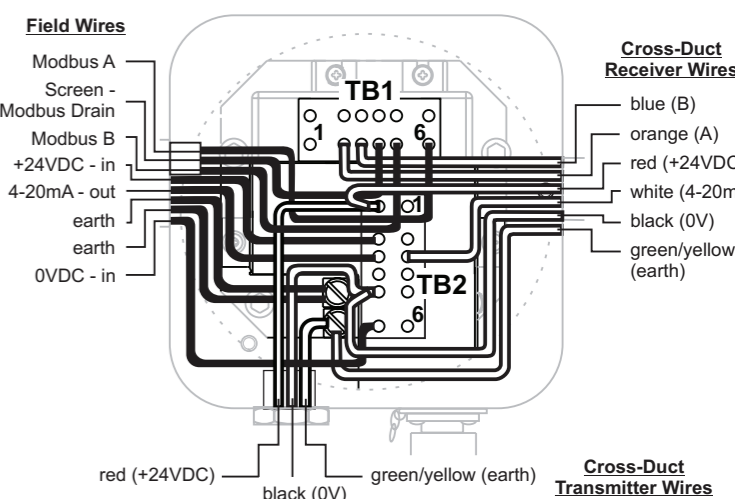
Searchline Excel Open-Path



Terminal/Number	Gas Detector Wiring		Field Wiring
	Function	Colour	
TB1	1	-	-
	2	A	Orange
	3	B	Blue
	4	-	Drain
	5	-	Modbus B
	6	-	Modbus A
TB2	1	+24VDC	Red
	2	-	+24VDC - Supply
	3	4-20mA	White
	4	-	4-20mA - Output
	5	0V	Black
	6	-	0V - Supply
Earth Posts	-	Earth	Green/Yellow
			Earth Barrier Earth

INSTALLATION

Searchline Excel Cross-Duct



Terminal/Number	Gas Detector Wiring			Field Wiring
	Function	Colour	Receiver/Transmitter	
TB1	1	-	-	-
	2	A	Orange	-
	3	B	Blue	-
	4	-	-	Drain
	5	-	-	Modbus B
	6	-	-	Modbus A
TB2	1	+24VDC	Red	Receiver & Transmitter
	2	-	-	+24VDC - Supply
	3	4-20mA	White	Receiver only
	4	-	-	4-20mA - Output
	5	0V	Black	Receiver & Transmitter
	6	-	-	0V - Supply
Earth Posts	-	Earth	Green/Yellow	Receiver & Transmitter
				Earth Barrier Earth