

SCH55 USER GUIDE

ATEX / UKEX APPROVED CONNECTION HEAD

Important - Please read this document before installing, in particular the ATEX / UKEX information when applicable to the application.

Every effort has been taken to ensure the accuracy of this document; however, we do not accept responsibility for damage, injury, loss or expense resulting from errors and omissions, and we reserve the right of amendment without notice.

Applies to Exd and Exia - Safety Conditions

The apparatus must be installed and maintained by competent technicians familiar with the relevant requirements for installation of equipment in potentially explosive atmospheres e.g. EN60079-14, plus any local codes of practice.



Important – Read this document before installing.

Applies to Exd and Exia

Safety Conditions.	
1	Please firstly inspect the packaging and instrument thoroughly for any signs of transit damage. If the instrument has been damaged, please notify your supplier immediately.
2	The product contains no serviceable parts, or internal adjustments. No attempt must be made to repair this product. Faulty devices must be returned to the supplier for repair.
3	The SCH55 series heads have been designed in such a way as to avoid physical harm or injury, which might be caused by direct or indirect contact.
4	The electrical equipment encased in the housing will not increase the surface temperature by more than 30 °C.
5	Electrical devices enclosed in these housings must have built in overload protection.
6	The cap must not be removed when the equipment is energised or in an explosive atmosphere.
7	The retaining grub screw must be tightened when installation is finished.
8	O Ring must be used to seal the cap to the body; this is supplied
9	Copies of certificates and manuals are available upon request or to download at www.status.co.uk

Applies to Exd and Exia

General Conditions for Use.	
1	Equipment must be installed such that risk of impact or abrasion of the metal enclosure is avoided. User must regularly check for signs of damage to the exterior finish and replace the equipment should signs of damage be apparent.
2	When installing equipment, any threaded components must be a minimum length of 16 mm.
3	When installing a transmitter, a transmitter display, a terminal block or a combination, the conditions of those devices must be adhered to by the installer. Conditions are listed in the relevant device manual or certificates.
4	For Exd or Exia Approval the below applies.
Termination options <i>Only to be used with below</i> Flying leads (Tails) Terminal Blocks Temperature Transmitter Temperature Display <i>Or a combination of above</i>	
Sensor Types <i>Only to be used with below</i> RTDs Thermocouples Thermistors Temperature Switches Temperature Fuses Reed switches <i>Or a combination of above</i>	
Maximum Sheath Lengths (ML) Fabricated Wall Thickness 0.25 mm. ML = 3000 mm Fabricated Wall Thickness 1 mm & Over. ML = 6000 mm MI Cable. ML = 120000 mm	

Applies to Exd and Exia

Electrical	
1	Before attempting any electrical connection work, please ensure all supplies are switched off.
2	Internal and external M5 earth lugs as specified for use in hazardous areas are provided.
3	Electrical components or assemblies capable of dissipating greater than 14 W must not be assembled in this enclosure.
4	If electrical devices are fitted, then reference to the appropriate literature supplied with the device must be made.

Applies to Exd and Exia

Materials	
Main Body	Cast aluminium alloy (LM6M or equivalent) or 316 stainless steel.
Cap window	If fitted, is manufactured of toughened soda lime glass to BS 3463.
O ring seal	Manufactured of HNBR.
Cable Glands Exd	Only ATEX/IECEx Exd/Ex tb (as applicable) approved cable glands for the appropriate size of cable shall be used. These shall be suitable for low ambient and 15°C above upper ambient. If the cable gland entry is not used, then an ATEX Exd approved blanking plug shall be used.
Cable Glands Exia	The appropriate cable gland or plug to maintain the IP rating is required. Refer to certificates for fitted devices or client requirements if a higher rating.

Conformances

IEC/EN IEC 60079-0 Ed 7, EN/IEC 60079-1 Ed 7, EN/IEC 60079-11 Ed 6, EN/IEC 60079-31 Ed 2 and BS EN equivalent standards.

IP66/IP68

Product and Certificate Label

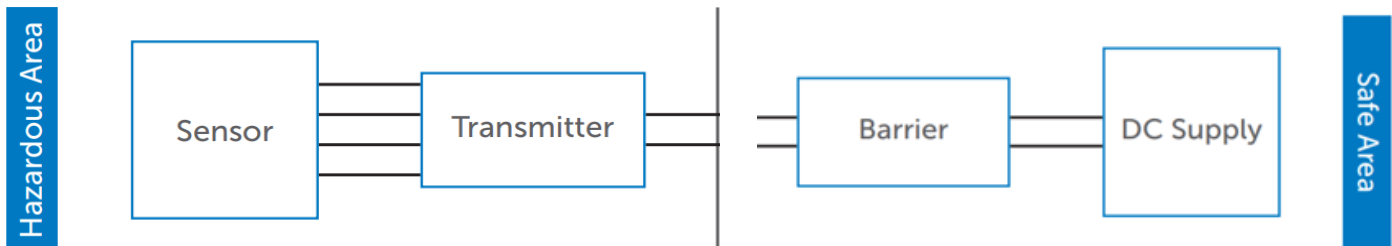
Exia

Exd

Applies to Exd and Exia

General Conditions for Use in Ex ia Environments.	
1	The equipment may be installed in conjunction with an RTD or Thermocouple transmitter device and supplied from a suitably certified Zener barrier or galvanic isolator, providing the safe conditions of the separately certified devices are adhered to.
2	The Capacitance and Inductance or Inductance/Resistance (L/R) ratio of the Hazardous Area Cables must not exceed the values calculated from the C, L and L/R values permitted by the barrier minus any Ci and Li of the Hazardous Area Equipment.
3	The relevant transmitter certificate will be supplied with the connection head. For Li and Ci Parameters, refer to supplied transmitter certificate.

Connection Schematic



Calculations for Ex ia Environments

It is the installer's responsibility to calculate the Maximum Ci (Capacitance Input) and Maximum Li (Internal Inductance) of the system to ensure a suitable certified Zener barrier or galvanic isolator is selected.

Provided below is generic information to work out the maximum values for the circuit.

The SCH55 head/enclosure is approved for T4 temperature class Ex ia environments where the ambient is a maximum of 85 °C, permitting a max Pi (Power Input) of 900 mw per terminal.

Single thermocouple circuit		2 or more thermocouple circuits (Max. 3 W combined)	
Ui =	30 Vdc	Ui =	30 Vdc
li =	140 mA	li =	140 mA
Pi =	900 mw	Pi =	900 mw
Ci =	2 nF/m x length of sensor	Ci =	2 nF/m x length of sensor + 0.2 nF x length of wire
Li =	20 μH/m x length of sensor	Li =	20 μH/m x length of sensor + 0.1 μH/m x length of wire
Uo =	1.2 V	Uo =	1.2 V
Io =	50 mA	Io =	50 mA
Po =	25 mW	Po =	25 mW

Single resistance thermometer circuit		2 or more resistance thermometer circuits	
Ui =	30 Vdc	Ui =	30 Vdc
li =	140 mA	li =	140 mA
Pi =	900 mw	Pi =	900 mw
Ci =	2 nF/m x length of sensor	Ci =	2nF/m x length of sensor + 0.2 nF x length of wire
Li =	20 μH/m x length of sensor	Li =	20 μH/m x length of sensor + 0.1 μH/m x length of wire

- Ex db IIC Gb Tamb -40°C to + 65°C
- Ex tb IIIC T85°C Db Tamb -40°C to + 65°C
- Ex db IIC T5 Gb Tamb -40°C to + 80°C
- Ex tb IIIC T100°C Db Tamb -40°C to + 80°C
- Ex db IIC T4 Gb Tamb -40°C to + 85°C
- Ex tb IIIC T135°C Db Tamb -40°C to + 85°C

In conjunction with the circuit calculations above, the fitted transmitter/ display parameters need to be considered. Please refer to the manual/ certificates of those individual devices. They are available upon request or online at www.status.co.uk.