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Cat 1 Electrode Holders

Conforming to ATEX Directive 2014/34/EU & IECEx certification scheme.

Certificate No:
IECEx SIR 17.0066X
Sira 17ATEX2271X

This short form manual gives information for the use of Hawker Electrode Holders in Cat 1 (Zone 0) hazardous areas. Comprehensive information including connection for alarm and control, connection to the P8/IS controller, system requirements and wiring etc. can be found in the P8/IS controller manual, both manuals should be read by the user prior to installation or commissioning. The products contain NO USER SERVICEABLE PARTS

1.0 SYSTEM OVERVIEW

Use of approved Hawker holders and P8/IS controller form an INTRINSICALLY SAFE level alarm or control system. The controller is situated in the safe area and the electrodes in the hazardous Area. If the approved holders are used with the P8/IS controller and installed and connected as shown on the system drawing 3454 and documentation then a system declaration of conformity is available.

2.0 GENERAL

This product has been designed and complies with the relevant standards as listed in its IECEx Certificate of Conformity / EU Type Examination Certificate.

The installer/user must ensure system compliance.

The crossed-out bin symbol, placed on the product, reminds you of the need to dispose of the product correctly at the end of its life

3.0 ELECTRODE HOLDERS

1. The equipment has not been assessed as a safety-related device (as referred to by Directive 2014/34/EU Annex II, clause 1.5).

2. Installation of this equipment shall be carried out by suitably trained personnel in accordance with the applicable code of practice.

3. Repair of this equipment shall only be carried out by the manufacturer or in accordance with the applicable code of practice.

4. If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised.

"Aggressive substances"	e.g. acidic liquids or gases that may attack metals, or solvents that may affect polymeric materials.
"Suitable precautions"	e.g. regular checks as part of routine inspections or establishing from the material's data sheet that it is resistant to specific chemicals.

The user must ensure the holder and installation is suitable for the application. The details on the product label will indicate its compliance parameters. If the sign 'X' is placed after the certification number, it indicates that the equipment is subject to special conditions for safe use as specified in the EC Type Examination Certificate & IECEx Certificate of Conformity and in this manual.

4.0 CAT 1 (Zone 0) ELECTRODE HOLDERS

4.1 Type identification

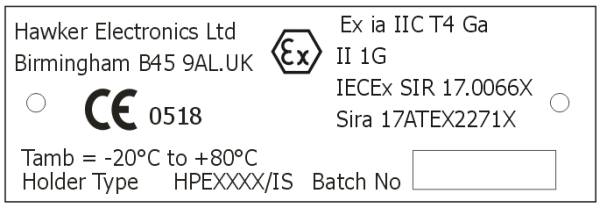
All CAT 1 and Equipment Protection Level (EPL) Ga certified Electrode Holders are identifiable by the following codes. All are suffixed **IS** e.g. HPE8/P/IS

Type's HPE5, HPE7, HPE7/P/F, HPE7/P, HPE7/PA, HPE8, HPE8/P, HPE12/P, HPE13A, HPE13A/P, HPE14/X, HPE22, HPE22/P/Fa, HPE22/P, HPE22/PA, HPE23, HPE23/P

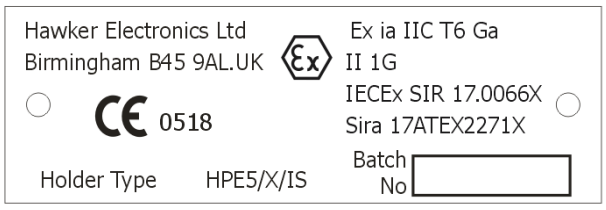
4.2 Certification markings

Each Holder has a label affixed to its body that states its certification parameters, these are:

Type's, HPE7, HPE7/P/F, HPE7/P, HPE7/PA, HPE8, HPE8/P, HPE12/P, HPE13A, HPE13A/P, HPE14/X, HPE22, HPE22/P/Fa, HPE22/P, HPE22/PA, HPE23, HPE23P



Type HPE5



4.3 Conditions of use

1. The Electrode Holder Type's HPE7, HPE7/P/F, HPE7/P, HPE7/PA, HPE8, HPE8/P, HPE12/P, HPE13A, HPE13A/P, HPE14/X, HPE22, HPE22/P/Fa, HPE22/P, HPE22/PA, HPE23, HPE23P.
(Certificate No: IECEx SIR 17.0066X, Sira 17ATEX2271X) may be used in zones 0, 1 and 2 with flammable gases and vapours with apparatus groups IIA, IIB & IIC and with temperature classes T1, T2, T3 and T4. The ambient temperature operating range is –20 to +80°C, and should not be used outside this range.

2. The Electrode Holder Type HPE5. (Certificate No: IECEx SIR 17.0066X, Sira 17ATEX2271X) may be used in zones 0, 1 and 2 with flammable gases and vapours with apparatus groups IIA, IIB & IIC and with temperature classes T1, T2, T3, T4, T5 and T6. The ambient temperature operating range is –20 to +40°C, and should not be used outside this range.

The certification of this equipment relies on the following materials used in its construction, and the special conditions for safe use are observed, section 4.4.

Hawker models HPEXXXX**/IS** only –

Holder type		Termination enclosure material	Electrode material
HPE5/X/IS		No termination enclosure, electrode is fitted in a UPVC (plastics) shroud	Low Carbon 316L S/S, Titanium, Hastelloy C, Monel
HPE8/X/IS, HPE8/P/X/IS		Phenolic	Low Carbon 316L S/S, Galvanised mild steel, (optionally polyester coated)
HPE12/P/X/IS		Cap: Di-cast aluminium powder Coated, Body: Phenolic	Low Carbon 316L S/S, (optionally polyester coated)
HPE7/X/IS HPE7/P/X/IS HPE7/PA/X/IS HPE7/P/F/X/IS HPE13A/X/IS HPE13A/P/X/IS HPE14/X/IS	HPE22/X/IS HPE22/P/X/IS HPE22/PA/X/IS HPE22/P/Fa/X/IS HPE23/X/IS HPE23/P/X/IS	All Polypropylene enclosure + HPE13 models uPVC spacers. HPE23 models uPVC, Acetal spacers/disks. HPE14 plastic spacers	Low Carbon 316L S/S, Titanium, Hastelloy C, Monel, (optionally polyester coated)

4.4 Special conditions for safe use

(Denoted by an X after the certificate number)

1. The holders cannot be considered as being capable of withstanding a 500V r.m.s. a.c. voltage test to earth according to Clause 6.3.13 of EN 60079-11:2012. This shall be taken into account in any equipment installation.

2. In any equipment installation, the following shall be provided with protection from impact or installed such that impacts cannot occur:

   - The cap of the Holder Type HPE 12/P/X/IS
   - The electrodes of holders that are fitted with titanium electrodes

3. The Holder Type HPE5/X/IS shall not be directly installed where it might be charged by the rapid flow of a non-conductive medium.

4. The electrodes of holders that have plastic coated electrodes and/or are fitted with plastic spacers between the electrodes, shall not be directly installed where they might be charged by the rapid flow of a non-conductive medium.

5. The holders shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on the surface of the termination enclosures (where fitted). In addition, the termination enclosures shall only be cleaned with a damp cloth.

6. Under certain extreme circumstances, any unearthed metallic parts of the termination enclosures may store an ignition-capable level of electrostatic charge. Therefore, the user/installer shall implement precautions to prevent the build-up of electrostatic charge, e.g. locate the equipment where a charge generating mechanism is unlikely to be present.

7. The user/installer shall ensure that the maximum ambient temperatures of the holders will not be exceeded when the equipment is installed.

5.0 INSTALLATION

Electrodes should preferably be mounted vertically in the vessel. Spacing between the electrodes and their distance from the side of the vessel is dependent on the likelihood of bridging due to floating matter and the degree of turbulence. For clean application the distances can be as low as 5 - 8cm but in the case of raw sewage the recommended distance is 23cm. Using plastic coated electrodes, which are available from stock, can eliminate bridging, always bare at least 50mm of the coating and have the reference 'G' electrode central.

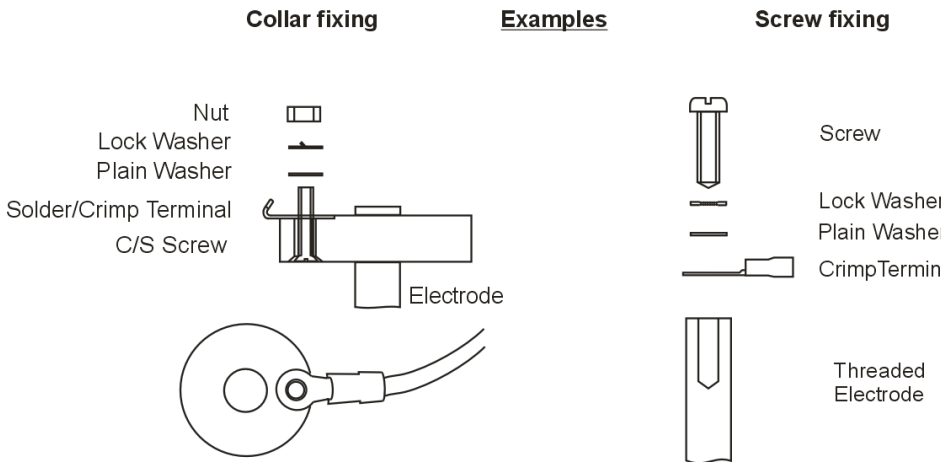
Wall mounted brackets are available for the electrode holders. Where turbulence is expected, electrodes of long length should be fitted with steady brackets. Separators can be used to keep the electrodes apart. Brackets and separators are available from Hawker Electronics Ltd.

Care must be taken when mounting to ensure that the electrode holder insulators protrude through the surrounding material e.g. concrete floors. If only the electrodes protrude they may find a conductive path through the concrete and not the liquid in the vessel.

It is advisable to clean electrode rods and insulators at periodic intervals.

The electrode holders' suitability should be confirmed as being correct for the hazardous location, and must carry the specific certification.
Using a centrally positioned 'G' electrode is recommended for optimum performance. When a 'G' electrode is positioned centrally to the other electrodes it provides the most direct conductive route for the electrical signals. An alternative is to use the tank wall provided it is made out of metal and continuous throughout. Although this does not give optimum performance it is usually sufficient provided the electrodes are reasonably close to the tank wall and not several metres away.

Termination consists of crimp/solder terminals, washers and nut or screw, this may be by collar or direct to the electrode, depending upon holder type. All connecting hardware is provided with the holder. The user should ensure a good connection, which does not interfere, contact or stress any other connection if present. Adequate clearance must be maintained between the terminals if using multi-holders to prevent them from touching one another. When using collars they are placed over the electrode and fixed using the Allen key provided; the terminating cable is then attached, or a screw is used for direct connection.



6.0 CABLE SELECTION AND CONNECTION

See the P8/IS operating and instruction manual for full instructions. The full manual gives examples on cable selection, how to calculate cable capacitance and inductance values, and how to connect single and multiple systems. The manual incorporates certified system drawing 3454 which must be adhered to.

7.0 DECLARATION OF CONFORMITY

EU DECLARATION OF CONFORMITY

Product Model: P8/IS Conductivity Controller and Electrode Holder types -
HPE5/IS, HPE7/IS, HPE7/P/F/IS, HPE7/P/IS, HPE7/PA/IS, HPE8/IS, HPE8/P/IS, HPE12/P/IS, HPE13A/IS, HPE13A/P/IS, HPE14/X/IS, HPE22/IS, HPE22/P/Fa/IS, HPE22/P/IS, HPE22/PA/IS, HPE23/IS, HPE23P/IS

Manufacturer: Hawker Electronics Ltd, 57 The Avenue, Rubery Industrial Estate, Rubery, Birmingham, B45 9AL

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Object of the declaration:

The object of the declaration described above is in conformity with the relevant **Union harmonised legislation:**

- **ATEX Directive** (2014/34/EU)
- **EMC Directive** (2014/30/EU)
- **RoHS Directive** (2011/65/EU)

Reference to the relevant **harmonised standards** used in relation to which conformity is declared:

Certificates:

- **ATEX** **P8/IS Controller**
  Sira 17ATEX2270X, dated 28/01/19, issue 1
  Electrode Holders:
  Sira 17ATEX2271X, dated 01/12/17, issue 0
  Supporting standards - EN 60079-0:2012/A11:2013, EN 60079-11:2012
- **EMC** Overall Specification EN 61000-6-3: 2007 EN 61000-6-2:2005
- **RoHS** EN 50581:2012

Notified Body: For ATEX certification only. NB 0518, CSA Group Unit 6, Hawarden Industrial Park, Hawarden, DEESIDE, CH5 3US.

Additional Information:

- IECEx **P8/IS Controller**
  IECEx SIR 17.0065X, dated 28/01/19, issue 1
  Electrode Holders:
  IECEx SIR 17.0066X, dated 01/12/17, issue 0
  Supporting standards - IEC 60079-0:2011 Ed. 6.0, IEC 60079-11:2011 Ed. 6.0
  IECEx Certification Body, SIRA Certification Service, CSA Group, see 7 above

  Product Conformance Certificate - System, P8/IS Controller & Approved Holders
  Sira Ex 17Y2272, dated 07/12/17, Supporting Standards - IEC/EN 60079-25:2010
  Certification Body: Sira Certification Service, see 7 above.

The product named above complies with the parts of the standards listed. The company operates an internal production control system that ensures compliance between the manufactured products and the technical documentation.

Signed for and on behalf of:
Hawker Electronics Ltd on 08th May 2019

John Slevin (Managing Director)