



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx ETL 18.0007X

Issue No: 0

Certificate history:

[Issue No. 0 \(2018-05-04\)](#)

Status: **Current**

Page 1 of 4

Date of Issue: **2018-05-04**

Applicant: **Alabama Specialty Products**  
152 Metal Samples Rd, Munford, AL 36268  
**United States of America**

Equipment: **Models MS4500E and MS4500E-HC High Resolution ER Data Logger**  
*Optional accessory:*

Type of Protection: **Intrinsic Safety 'ia'**

Marking:  
Ex ia [ia] IIC T4 Ga  
-25°C ≤ Ta ≤ +60°C – for use with MS4500E  
-40°C ≤ Ta ≤ +70°C – for use with MS4500E-HC  
IECEX ETL 18.0007X

*Approved for issue on behalf of the IECEx  
Certification Body:*

Kevin J. Wolf

*Position:*

Certification officer

*Signature:  
(for printed version)*

*Date:*

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](#).

Certificate issued by:

**Intertek**  
3933 US Route 11 South  
Cortland NY 13045-2995  
United States of America





# IECEX Certificate of Conformity

Certificate No: IECEX ETL 18.0007X Issue No: 0

Date of Issue: **2018-05-04** Page 2 of 4

Manufacturer: **Alabama Specialty Products**  
152 Metal Samples Rd, Munford, AL 36268, USA  
**United States of America**

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

## STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

**IEC 60079-0 : 2011** Explosive atmospheres - Part 0: General requirements  
Edition:6.0

**IEC 60079-11 : 2011** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

## TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

Test Report:

[US/ETL/ExTR17.0070/00](#)

Quality Assessment Report:

[GB/ITS/QAR14.0019/02](#)



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Certificate No: IECEx ETL 18.0007X

Issue No: 0

Date of Issue: 2018-05-04

Page 3 of 4

## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The model MS4500E and MS4500E-HC is a portable monitoring equipment which measures the corrosion rate of metallic pipe through a resistive probe. The equipment utilises a rectangular cuboidal non-metallic enclosure with approximate dimensions 9" x 5" x 3" which is housed within a rubber boot to provide additional impact resistance. The equipment fascia incorporates an LCD display and a pushbutton keypad. Batteries may be interchanged in the equipment in the non-hazardous area via a screw secured compartment located on the rear of the enclosure. The enclosure has been tested to degree of protection IP44 in accordance with IEC 60529. The ambient temperature range in which the equipment may be installed is dependent upon the cells used.

Ambient Temperature Range	Model	Cells
-25°C ≤ Tamb ≤ +60°C	MS4500E	Duracell PC1500 (or Duracell MN1500)
-40°C ≤ Tamb ≤ +70°C	MS4500E-HC	Xeno Energy XL-145F or Tadiran TL4920

The equipment must be removed from the hazardous area, or the area confirmed to be non-hazardous prior to changing cells.

Connection to the equipment is made through connectors on the side wall of the enclosure. The equipment has the facilities for connection to an external corrosion measurement probe, a USB stick for data storage and transfer and a USB port for connection to a USB isolator for communications in the non-hazardous area. Further detail on each connection is given below.

#### Measurement probe

The equipment has been designed to connect to a simple resistive probe through the 6 pin connector external to the equipment. This probe shall be a simple resistive device with no discrete sources of resistance, inductance or capacitance. The probe connection has the following associated entity parameters.

Uo: 4.94V  
Io: 0.332A  
Po: 0.410W  
Ci: 0µF  
Li: 0µH  
Co: 1µF  
Lo: 100µH

#### Model ET1650 USB Data Storage Device

A USB port is provided for downloading data in the hazardous area. This port has been assessed for connection to the ET1650 USB storage device manufactured by Metal Samples Company (Alabama Speciality Products). The USB stick has been assessed for connection to a maximum Um of 6V. Connection of an unassessed USB stick to this port whilst the equipment is located in the hazardous area is not permitted. Connection of an alternative certified USB storage device is permitted providing the following parameters are satisfied.

Uo: 4.94V  
Io: 747.5mA  
Po: 923.1mW  
Ci: 39.394µF  
Li: 1.8µH  
Co: 12.71µF  
Lo: 0.37µH

#### USB Barrier

The equipment has been assessed for connection to the model ET1867 USB barrier manufactured whilst both the barrier and the MS4500E or MS4500E-HC are located in the non-hazardous area. This USB barrier has been assessed for a maximum input voltage of 6V. Connection



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Certificate No: IECEx ETL 18.0007X

Issue No: 0

Date of Issue: **2018-05-04**

Page 4 of 4

of an alternative certified USB barrier is permitted providing the following parameters are satisfied.

U<sub>o</sub>: 4.94V  
I<sub>o</sub>: 0.215A (per channel)  
P<sub>o</sub>: 0.322W (per channel)

Connection shall only be made whilst both pieces of equipment are located in the non-hazardous area.

**SPECIFIC CONDITIONS OF USE: YES as shown below:**

Refer to the Certificate Appendix for a list of the special conditions for safe use.

**Annex:**

[Annex to IECEx ETL 18.0007X Issue 0.pdf](#)



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<b>Certificate No:</b>	<b>IECEX ETL 18.0007X</b>	<b>Issue No. 0</b>
<b>Annex No. 1</b>		

**The following drawing list relates to IECEx ETL 18.0007X**

Drawing Name	Drawing Number	Rev	Sheets	Date
BILL OF MATERIALS – MS4500E - XX DATA LOGGER HOST BOARD TYPE-II	EXBOM-000032	0	5	2/10/2018
BILL OF MATERIALS – MS4500E DATA LOGGER MEASUREMENT BOARD	EXBOM-000015	A	2	2/14/2018
BILL OF MATERIALS – MS4500E-XX DATA LOGGER DIODE SHUNT BOARD	EXBOM-000016	A	1	2/8/2018
Circuit Diagram – MS4500 -II Data Logger Host Board	EXCDB-000032	0	2	08/15/2017
Circuit Diagram – MS4500E Data Logger Measurement Board	EXCDB-000015	0	1	10/16/14
Circuit Diagram – MS4500 Data Logger Diode Shunt Board	EXCDB-000016	0	1	10/16/14
Assembly Drawing – MS4500 -II Data Logger Host Board	EXET1890	0	2	08/15/2017
Assembly Drawing – MS4500 Data Logger Measurement Board	EXET1477	D	1	04/12/2018
Assembly Drawing – MS4500 Data Logger Diode Shunt Board	EXET1478	A	1	2/8/2018
PCB Fabrication Drawing – MS4500 -II Data Logger Host Board	EXPCB-000032	0	14	08/15/2017
PCB Fabrication Drawing – MS4500 Data Logger Measurement Board	EXMDB-010562	D	8	4/12/2018
PCB Fabrication Drawing – MS4500 Data Logger Diode Shunt Board	EXMDB-010563	0	11	12/01/2014
DATA LOGGER ASSEMBLY - MS4500HC HANDHELD DATA LOGGER	EXMDB-010894	0	1	2018/02/09
MS4500HC HANDHELD DATA LOGGER ASSEMBLY	EXMDB-010966	0	1	Feb-12-18
TPE Protective Boot for 2" Deep Enclosure MS4500 Handheld Data Logger	EXET1509	0	1	04/20/2015
LCD AND DIODE BOARDS ASSEMBLY WITH POTTING MOULDS FOR MS4500	EXET1510	0	1	04/16/2015
TPE Protective Boot w/Front Cut-out for 2" Deep Enclosure MS4500 Handheld Data Logger	EXET1511	0	1	04/20/2015
MS4500E Data Logger Battery Cable assembly	EXET1528	A	1	04/04/18
MS4500E Data Logger Hazardous Area Label	EXET2080	C	1	03/26/18
MS4500E-HC DATA LOGGER HAZARDOUS AREA LABEL	EXET1958	0	1	02/08/2018
DATA LOGGER ENCLOSURE ASSEMBLY IP CERTIFIED MS4500 SERIES HANDHELD DATA LOGGER	EXET1900	0	2	02/07/2018
Control Drawing MS4500E Hand Held Data Logger	EXWDB-000085	E	1	04/05/18
Control Drawing MS4500E HC Hand Held Data Logger	EXWDB-000123	A	1	4/3/2018
MS4500X-XX HAZARDOUS AREA CERTIFICATION – INTRINSIC SAFETY DETAILS	EXDOC-000014	D	2	4/27/2018
BILL OF MATERIALS – USB FLASH DRIVE	EXBOM-000028	0	2	6/26/2017

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<b>Annex No. 1</b>		

Circuit Diagram - USB Drive	EXCDB-000028	0	1	04/03/17
Assembly Drawing - USB Drive	EXET-1649	0	2	04/25/17
PCB Fabrication Drawing - USB Drive	EXPCB-000028	0	12	4/25/2017
HAZARDOUS AREA LABEL USB MEMORY STORAGE UNIT	EXET1651	A	1	02/02/18
LABEL - USB STORAGE DEVICE	EXET1861	A	1	04/04/2018
BILL OF MATERIALS - USB BARRIER	EXBOM-000022	0	1	2/8/2018
Circuit Diagram - USB Barrier	EXCDB-000022	0	1	12/01/2016
Assembly Drawing - USB Barrier	EXET-1669	0	2	11/29/16
PCB Fabrication Drawing - USB Barrier	EXPCB-000022	0	10	11/29/16
HAZARDOUS LABEL - USB BARRIER	EXET1670	0	1	02/08/2018
MANUFACTURER'S LABEL - USB BARRIER	EXET1871	0	1	02/08/2019
USB BARRIER ASSEMBLY INTRINSICALLY SAFE CERTIFIED	EXET1867	0	1	05/10/2017

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**The following special conditions for safe use apply to certificate IECEX ETL 18.0007X**

- Connection of the equipment to the ET1867 USB barrier may only be made whilst both the barrier and the equipment are located in the non-hazardous area.
- External non-metallic materials utilize a conductive coating to prevent the risk of electrostatic charging. The equipment shall be removed from service if damage to this coating is observed. Refer to the manufacturer's instruction manual for further information on the durability and any chemical vulnerability of this coating.

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