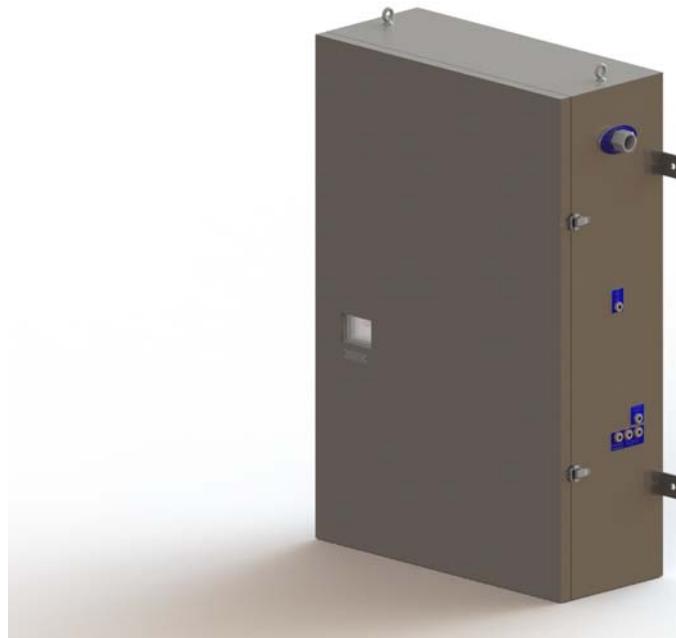


D860-ES MiniPurge®

Manual

ML 589_ES



Important Note:

It is essential for safety that the installer and user of the Expo system follow these instructions.

Please refer to the standard for principles and definition.

These instructions apply only to the pressurizing system. It is the responsibility of the manufacturer of the pressurized enclosure to provide instructions for the enclosure.

Expo Technologies reserves the right to replace any component, with one of the equivalent functionality.

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Section 1: System Specification

7 X LC / ss / ES / OV / PA / PC / LT

Size

7 = MiniPurge®
7000 - 14000 NL/min

Approval / Certification

ATEX Certificate:
Sira 01ATEX1295X

 2813 Ex II 2(2) G
Ex [pxb] db e ia IIC T4 Gb
T_{amb} -60°C to +55°C

IECEx Certificate:
IECEx SIR07.0027X
Ex [pxb] db e ia IIC T4 Gb
T_{amb} -60°C to +55°C

CCC Certificate:
2020312304000830
Ex [px] d e ia IIC T4 Gb
T_{amb} -60°C to +55°C

UKEX Certificate:
CSAE 21UKEX1067X
 2813 Ex II 2(2) G
Ex [pxb] db e ia IIC T4 Gb
T_{amb} -60°C to +55°C

LT = Low Temperature

PC = Pressurized Control. Automatic leakage compensation (CLAPS)

PA = Power and Alarm Switches.
Integral /PA Terminal Box

OV = Purge Outlet Valve is pneumatically operated

Timing Method

ES = Electronic Timer powered by an EPPS (Electro-Pneumatic Power Supply)

MiniPurge® Housing

ss = Stainless Steel 316L

Pressurization Method

LC = Leakage Compensation

EAC Certificate:

EAЭC RU C-GB.AЖ58.B.00906/20
1Ex [px] d e mb ia IIC T4 Gb
(-60°C ≤ T_{amb} ≤ +55°C)

Conditions of Safe Operation

The D860 design permits system operation in external ambient temperatures down to -60°C. Installation & safe use requires the internal heater to be connected to maintain both the internal ambient temperature and the temperature of the logic air supply above -20°C. Temperature sensors are provided for user connection, and it is the users responsibility to not initiate purge unless these temperature conditions are met.

Temperature sensors (PT100 RTDs) are provided for user monitoring of internal ambient temperature and logic air supply temperature. The individual sensors are each 4-wire devices with all 4 wires brought to terminals in the system junction box. The RTDs are to be treated as 'simple apparatus' intrinsically safe components - see EXPO 20MDOC1403X as attached. Users may decide to connect RTD monitoring circuits as 2-, 3- or 4-wire circuits as preferred. The temperature monitoring circuits themselves are provided by others.

If the logic air supply temperature falls below -10°C, this should be investigated and rectified. If the logic air supply falls below -20°C, the purge system will be operating outside of its certification parameters and should be stopped. The purge system can only be re-initiated when the logic air supply is above -20°C.

If the internal ambient temperature falls below -20°C, this should be investigated and rectified.

MiniPurge® Control Unit Data

| | |
|-------------------------------|---|
| Action on Pressure Failure: | Alarm and Trip (isolate power to pressurized enclosure), user adjustable Alarm Only. |
| Type of Operation: | Automatic leakage compensation using the Closed Loop Automatic Pressurization System (CLAPS System). |
| Leakage Compensation Capacity | 5100 NL/min maximum. |
| Enclosure Material: | Stainless Steel 316L. |
| Mounting Method: | Wall mounting straps. Fixing holes as per drawing. |
| Temperature Limits: | Ambient temperature -60°C to +55°C Purge media temperature -40°C to +55°C |
| Compressed Air Supply: | Clean, dry, oil free air or inert gas. Refer to Air Supply Quality section in Installation of the System. |
| Supply Pressure: | 4.5 to 8 barg (65 to 120 psi). |
| Main Regulator: | Set at 5 barg, 40 µm automatic drain supply inlet filter. |
| Logic Regulator and Gauge: | Fitted and set to 2.5 barg (36 psi). |
| Process Connections: | Purge supply and outlet to pressurized enclosure 1" NPT female. Minimum supply line 25 mm (1") ID tube, inlet sized appropriately for flow rate. Reference points & signals $\frac{1}{8}$ " NPT female, minimum 6 mm pipe to be used. |
| Visual Indicators: | Alarm (Red ) / Pressurized (Green ). System Purging: 4 LEDs that flash sequentially to indicate elapsed time (black when not purging). |
| /PA Terminal Box: | GRP, Ex e IIC T6 Gb / Ex tb IIIC T85°C Db IP66 T _{amb} : -60°C to 75°C. Mounted inside D860 system c/w terminals, front access cover & access for glands on bottom of D860 system. |
| Power Interlock Switch: | DPNO switch, contact ratings 250 Vac 4 Amps (AC-15) / 24V DC 4A, Ex d IIC T6 Gb / Ex tb IIIC T80°C Db. |
| Alarm Switch: | SPCO switch, contact ratings 250 Vac 4 Amps (AC-15) / 24V DC 4A, Ex d IIC T6 Gb / Ex tb IIIC T80°C Db. |
| Intermediate Switch: | SPCO switch, contact ratings 250 Vac 4 Amps (AC-15) / 24V DC 4A, Ex d IIC T6 Gb / Ex tb IIIC T80°C Db. |
| Minimum Pressure Sensor: | Minimum: 0.5 mbarg. Maximum: 5.0 mbarg. Default Setting: 1.5 mbarg. Tolerance -0, +0.7 mbarg. |
| Intermediate Sensor: | Minimum: 2.0 mbarg. Maximum: 7 mbarg. Default Setting: 4.0 mbarg. Tolerance: -0, +10%. |
| High Pressure: | Minimum: 20 mbarg. Maximum: 35 mbarg. Default Setting: 25 mbarg. Tolerance: -0, +10%. |

Note: There must be a 1.5 mbarg difference between the minimum pressure and intermediate sensors and a 5 mbarg difference between the RLV lift-off point and the high pressure.

Purge Flow Sensor: Set at 6.4 mbarg (Tolerance: -0, +10%).

CLAPS Sensor: Minimum: 5.0 mbarg.

Maximum: 15 mbarg.

Default Setting: 10 mbarg.

Tolerance: -0, +10%

Note: there must be a 2.5 mbarg difference between the intermediate and CLAPS sensor calibration point.

For example: Minimum pressure = 5 mbarg, intermediate pressure = 6.5 mbarg, CLAPS sensor = 9 mbarg.

Purge Time: User selectable, in 1 minute intervals, up to 99 minutes (tolerance -0, +3 seconds).

Default Setting 99 minutes.

Weight: 110 kg (242.5lb).

Relief Valve Unit and Purge Outlet Valve with integral spark arrestor

Type: RLV200/ss/FS, Design number D860RLV.

Bore: Purge Outlet Valve Ø 200 mm, Relief Valve Ø 200 mm.

Relief Valve Lift-Off Pressure: Minimum: 20 mbarg.

Maximum: 35 mbarg.

Default: 30 mbarg (+0, -20%).

Flow Rate: Range: 7000, 8000, 10000, 12000, or 14000 NI/min.

Default: 8000 NI/min.

Material: Housing: Stainless steel 316L.

Gasket: Silicone foam.

Spark arrestor: Stainless steel mesh.

Mounting Method: Rectangular cut-out and fixing holes as per drawing.

Weight: 23 kg (50.7 lb).

Note: Special settings are available on request, see Test and Inspection Sheet.

Section 2: Quick User Guide

Installation

The MiniPurge® system must be installed by a competent engineer, in accordance with relevant standards, such as IEC / EN 60079-14 and any local codes or practice.

- Mount the purge system in accordance with the hook-up drawing.
- Ensure the system is installed according to the full instructions in the "Installation of the System" section of this manual.
- All piping must be clean and free of dirt, condensation and debris prior to connection to the purge system or pressurized enclosure.
- It is strongly recommended that a local isolation valve is installed on the air supply upstream of the purge system.

Note: Most faults are due to restricted air supply, inadequate supply pipe work or drop in air supply pressure during the purge process.

Operation of the System

Once the system is installed correctly, turn on the air supply. Refer to Commissioning section.

| Indicator | Colour | Status |
|---------------------|---|---|
| Alarm / Pressurized | Red  | Low pressure alarm (enclosure pressure too low) |
| Purging | Black  | Purge flow too low or not in purge mode |

The purge system commences the purge cycle:

- The purge air will enter the enclosure.
- The pressurized enclosure will obtain a positive pressure.
- The Purge Outlet Valve will open within the Relief Valve Unit.
- The air will then exit the Relief Valve Unit housing via the spark arrestor.

| Indicator | Colour | Status |
|---------------------|---|---|
| Alarm / Pressurized | Green  | Pressurized (minimum enclosure pressure achieved) |
| Purging | Black  | Purge flow too low |

Open the Purge Flow Restrictor Valve until the air flow reaches the required rate; the system will initiate the timed purge cycle. Start a stopwatch when the purging indicator flashes yellow.

| Indicator | Colour | Status |
|---------------------|--|-------------------------------|
| Alarm / Pressurized | Green  | Pressurized |
| Purging | Sequential flashing Yellow  | Purge flow rate above minimum |

On completion of an uninterrupted purge cycle of the required length, the system will indicate purge complete.

Stop the stopwatch when the purging indicator stops flashing.

| Indicator | Colour | Status |
|---------------------|---|--|
| Alarm / Pressurized | Green  | Pressurized and in leakage compensation mode |
| Purging | Black  | No longer in purge mode |

Check stopwatch timing to verify that the actual purge time is equal to or greater than the required purge time.

Note: The recorded purge time must never be less than the required purge time.

The system is now operating correctly in leakage compensation mode.

If the system has not performed as expected, check the installation thoroughly and ensure it has been carried out according to the instructions.

If an obvious problem has not been highlighted and corrected, follow the procedures in the Fault Finding section.

If all checks have been carried out and the system still does not perform as expected, contact your local distributor or Expo Technologies.

Section 3: Application Suitability

MiniPurge® systems are certified for use in hazardous locations, where the hazardous location is non-mining (above ground) and the hazard is caused by flammable gasses, vapours or dust. Depending on the model the systems may be used in IECEx and ATEX Zone 1 and/or Zone 2 - Categories 2 and 3 respectively.

MiniPurge® systems may be used for hazards of any gas group. Apparatus associated with the MiniPurge® system, such as intrinsically safe signalling circuits and flameproof enclosures containing switching devices may be limited in their gas group. The certification documentation supplied with any such devices must be checked to ensure their suitability.

This system is primarily designed for use with compressed air. Where other inert compressed gasses are used (Nitrogen, for example) the user must take suitable precautions so that the build up of the inert gas does not present a hazard to health. Consult the Control of Substances Hazardous to Health (COSHH) data sheet for the gas used. Where a risk of asphyxiation exists, a warning label must be fitted to the pressurized enclosure.

The following materials are used in the construction of MiniPurge® systems. If substances that will adversely affect any of these materials are present in the surrounding environment, please consult Expo Technologies for further guidance.

| Materials of Construction | | |
|---------------------------|---------------|--------------------------|
| Stainless Steel | Aluminium | Acrylic |
| Mild (Carbon) Steel | Nylon | Silicone |
| Brass | Polyurethane | Neoprene |
| ABS | Polycarbonate | Polyester (glass filled) |

Section 4: Description and Principle of Operation

The MiniPurge® system is pneumatic in operation, with electrical interfaces.

Purge and pressurization is a method of protection used in Zone 1 and/or Zone 2 hazardous locations to ensure that the interior of an enclosure is free of flammable gas. Addition of a MiniPurge® system allows the electrical equipment within the enclosure to be used safely in a hazardous location.

The principle of purge and pressurization is as follows:

- Clean compressed air or inert gas is drawn from a non-hazardous location.
- The interior of the pressurized enclosure is flushed to remove any hazardous gas or dust.
- This is introduced into the pressurized enclosure to keep the internal pressure at least 0.5 mbarg above the external pressure.
- Whilst pressurized, flammable gas cannot enter the enclosure from the environment.

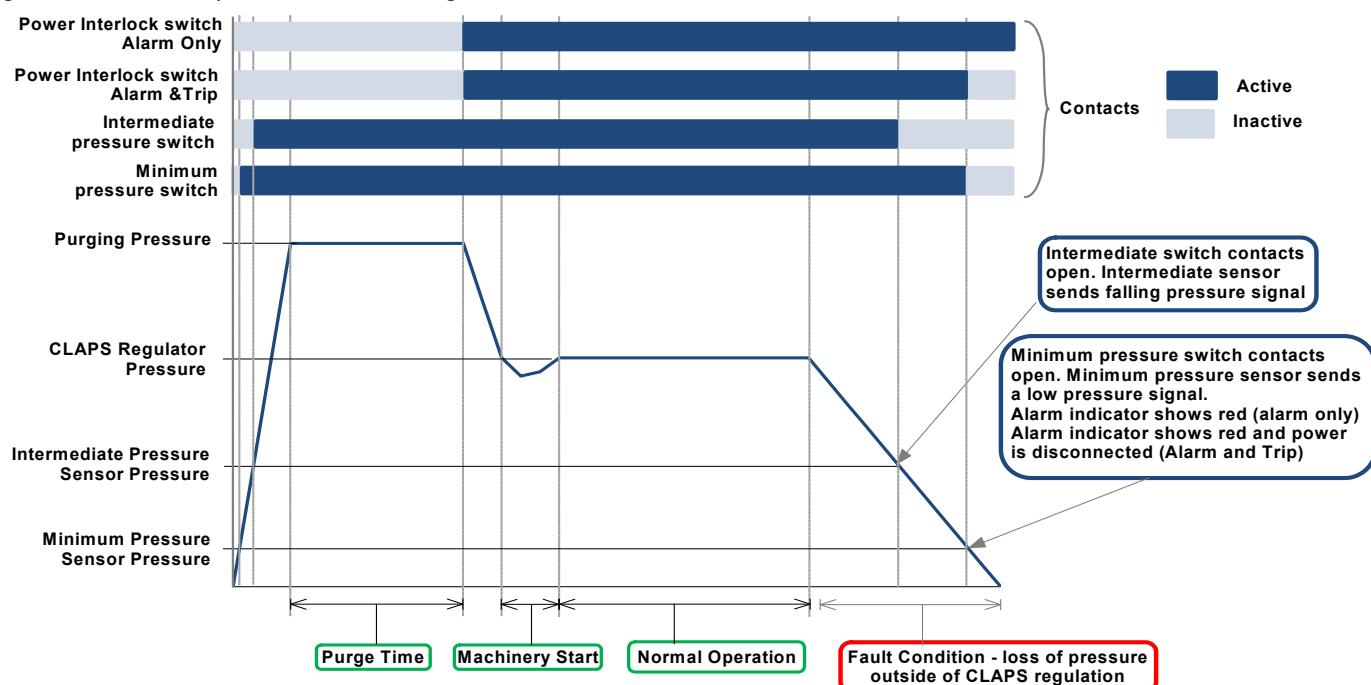
Prior to switching on the power to the electrical equipment, the enclosure must be purged to remove any flammable gas that might have entered the enclosure before pressurization. Purging is the process of removal contaminated air and replacement with air (or inert gas) known to be free from flammable gas. The duration of this purge process is normally ascertained by performing a purge test.

At the end of the purge cycle the system automatically switches to leakage compensation mode. The Purge Outlet Valve is closed and the airflow is reduced but remains high enough to compensate for the leakage of air from the enclosure whilst maintaining the minimum over pressure state.

In the event of pressure failure within the pressurized enclosure the system will raise an alarm in the form of visual indicators and a volt free contact depending on the specification of the system. The default action on loss of pressurization is alarm and automatic disconnect of power (A&T - Alarm and Trip). This can be changed by the customer to Alarm Only (/AO), please refer to section titled Main Components.

The MiniPurge® system incorporates a Closed Loop Automatic Pressurization System (CLAPS). This allows the system to detect a rise or fall of the enclosure's internal pressure and adjust the leakage compensation rate accordingly. Pressure variations are more likely during sudden start up of large rotating electrical machines but can also be caused by changes in running temperature. This system has been specifically designed to maintain a stable internal pressure within the enclosure.

Pressure characteristics during purge and pressurization of a pressurized enclosure using a MiniPurge® system that incorporates a CLAPS system:



Section 5: Main Components

Air Supply Filter / Regulator

The unit is provided with a 40 µm liquid / dust filter element as a precaution. The user of the MiniPurge® system must ensure that air supply is to the quality stated in Air Supply Quality paragraph found in the Installation of the System section.

Logic Air Supply Regulator

This device provides the system with a stable air supply pressure to the logic system and allows consistent operation. The pressure level is factory set to 2.5 barg (36 psig) and can be verified by means of the integral pressure gauge.

Minimum Pressure Sensor

This monitors the pressure inside the pressurized enclosure. When the pressure is below the minimum required for safe operation, the pressure sensor causes the system to reset and the Alarm / Pressurized indicator turns **Red**. The sensor is factory calibrated and set to operate in falling pressure at or above the minimum specified pressure.

Purge Flow Sensor

The Purge Flow Sensor monitors flow through the Purge Outlet Valve. At correct purge flow rates, above the minimum specified for purging, the sensor sends a signal that activates the purge timer. This sensor is factory calibrated to operate on falling flow rate at or above the minimum specified purge flow rate.

Intermediate Sensor

This sensor monitors the pressure inside the pressurized enclosure. It senses when the pressure is drops and provides early warning before the low pressure sensor trips the system.

High Pressure Sensor

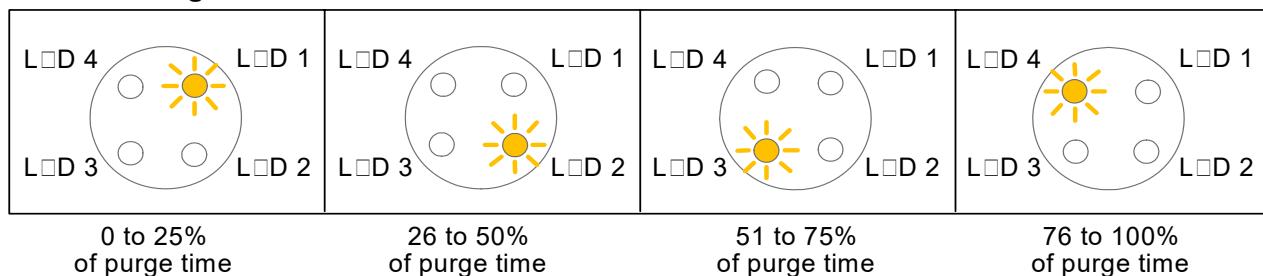
This sensor monitors the pressure inside the pressurized enclosure. When the pressure reaches the pressure setting, this sensor sends a signal to cut the pilot signal operating the volume booster until the pressure falls below the setting of the sensor.

Electronic Purge Timer

When both the enclosure pressure and the purge flow rate are correct, the Purge Flow Sensor activates the timer and the electronic timer starts. The timing period is selected using switches mounted on the timer module.

Note: Setting the timer to 00 minutes will cause infinite purging; the cycle will never complete.

During timing, the percentage of the purge cycle is indicated by four LEDs which flashes sequentially while the timer is running.



The Electronic Timer is powered by an EPPS (Electro-Pneumatic Power Supply.) Supply air must be available for the EPPS to operate.

EPPS (Electro-Pneumatic Power Supply)

The EPPS is a flameproof/explosion proof and dust-tight module, which uses a limited amount of air from the logic system to generate sufficient intrinsically safe power to drive the Electronic Timer.

When the Electronic Timer is powered by an EPPS up to 30 seconds delay is expected once the flow sensor signal is received for the timer to start.

Purge Complete Valve

This valve receives a signal from the purge timer that indicates the completion of the purge cycle and verifies that the pressurization signal is still present. If both conditions are satisfied a signal is sent to indicate that the purge is complete. This performs two functions: to turn on the electrical supply to the pressurized enclosure and to reduce the high purge flow rate to leakage compensation mode. It also provides a hold-on signal that maintains the leakage compensation mode with the power switch on, even when the purge timer has reset ready for the next purge cycle.

OR Gate

This device provides the Purge Complete Valve with the hold-on function referred to previously. When either the timed-out signal or the purge complete signal is present it allows the pilot signal to be sent to the purge complete valve.

Alarm Only Circuit (/AO)

If the pressure in the pressurized enclosure is too low the system will normally cut off electrical power to it. In certain circumstances, where local codes of practice allow, the system can be altered to provide a hold-on circuit that will maintain the electrical power supply to the pressurized enclosure while also providing a pressure failure alarm. The user must respond to the alarm and either restore the pressure to the pressurized enclosure or otherwise make the installation safe; for example, cut off the electrical supply. The decision to use the Alarm Only facility, and the allowable length of time for non-pressurized operation, is the responsibility

of the user.

Warning: It is potentially dangerous to energise the pressurized enclosure in an non-pressurized condition when it is known that there is potentially explosive gas or dust in the hazardous location.

Visual Indicators

Visual indicators are fitted to provide status information to the operator.

Alarm / Pressurized Indicator

| | | |
|--------|---|---|
| Green* |  | Pressurized |
| Red |  | Pressure Alarm (enclosure pressure low) |

System Purging Indicator

| | | |
|-------------------|---|--|
| Black* |  | Purge flow too low (not in purge mode) |
| Yellow (flashing) |  | Purging (flow above minimum) |

* The Green  / Black  combination indicates normal operation of the pressurized enclosure after the initial purging cycle has been completed.

Power Interlock Switch

This flameproof power switch is activated by the signal from the Purge Complete Valve. This activation can be used to turn on the electrical supply to the pressurized enclosure. The cable from the switch is terminated in the /PA terminal box.

Alarm / Pressurized Switch

This flameproof switch is operated by the pressurized signal. It allows a remote electrical system status indicator to show either pressurized or a pressure failure alarm. The cable from the switch is terminated in the /PA terminal box.

System Purging Switch (Optional)

This switch is operated by the purge flow signal that allows a remote electrical system status indicator to signal that the system is purging; sometimes referred to as "purge-in-progress". The cable from the switch is terminated in the /PA terminal box.

Intermediate Switch

This is a flameproof switch which is activated by the signal from the Intermediate Sensor. The cable from the switch is terminated in the /PA terminal box.

High Pressure Switch (Optional)

This switch is operated by the signal from the High Pressure Sensor. It allows a remote electrical system status indicator to show whether the pressure inside the enclosure has reached the pressure setting of the high Pressure Sensor. The cable from the switch is terminated in the /PA terminal box.

Purge Valve

This changeover valve selects between purge air flow or leakage compensation. It is sized to allow sufficient air into the enclosure during purging based on: the specified air supply pressure range, the minimum specified purging outlet flow rate +10% and the expected leakage rate from the pressurized enclosure. At the end of the purge cycle, the purge valve closes in response to the "Purge Complete" signal; it remains in the closed position until the next purge cycle is initiated.

Purge Flow Restrictor

This valve restricts the purge flow to the minimum required flow rate. The Purge Flow Restrictor must be readjusted during commissioning.

CLAPS Sensor

This sensor monitors the pressure within the pressurized enclosure and sends a control signal to the CLAPS Regulator. The normal running pressure must be determined prior to system start-up so that the CLAPS Sensor may be set to the level required to control the CLAPS Regulator.

CLAPS Regulator

This is the regulator that controls the leakage compensation air flow into the enclosure after the purging is complete. It either increases or decreases the air flow into the enclosure as appropriate to maintain a stable running pressure. The CLAPS Regulator must be set at the time of commissioning.

Relief Valve Unit

The Relief Valve Unit allows the purge air to exit the enclosure safely via a built-in spark arrestor. This spark arrestor is designed to prevent the emission of arcs, sparks and incandescent particles produced within the pressurized enclosure.

Purge air passes through the Relief Valve Unit; the preset pressure differential across the appropriate orifice ensures that the purge flow sensor is activated once the selected purge flow has been attained.

During the purge cycle a pneumatic cylinder operates the Purge Outlet Valve that lets the air from inside the enclosure exhaust through the Relief Valve Unit. When the system changes to leakage compensation mode, the Purge Outlet Valve is closed and the enclosure sealed.

The Relief Valve Unit has an in-built relief valve. This is sized to ensure that, if the air supply pressure rises up from the specified maximum, the internal enclosure pressure will not exceed the specified maximum working pressure of the pressurized enclosure.

/PA Terminal Box

The Terminal Box is increased safety (Ex e) certified and incorporates the terminal connection points for the alarm and interlock switches. All contacts provided are volt free (dry).

Cable entry methods (for example conduit or cable glands) must also be certified to IECEx and/or ATEX standards (and must match the certification scheme for the motor). The main requirement is that IP66 (or better) ingress protection must be provided by use of seals or washers.

Thermostat and Heater

This Expo MiniPurge® system is equipped with an Ex d certified heater for temperature maintenance when ambient temperatures drop below -10°C. The heater is thermostatically controlled via an external Ex d certified thermostat, a 240Vac supply must be maintained at all times when the MiniPurge® system is in use.

Temperature Sensors

The ambient temperature of the system and the purge air temperature are to be monitored via the provided temperature sensors. These sensors are PT00 RTDs and they are connected to terminals in the main terminal box. Each RTD has 4-wire capability, but the user may choose to use 2-, 3- or 4-wire connections as preferred so long as that circuit can confirm operation of the system within the certification envelope (internal temperatures above -20°C, in an external ambient of -60°C). The connected circuit must be selected and installed in compliance with local codes of practice for intrinsic safety.

Section 6: Installation of the System

The MiniPurge® is designed for use under normal industrial conditions of ambient temperature, humidity and vibration. Please consult Expo before installing this equipment in conditions that may cause stresses beyond normal industrial conditions. The MiniPurge® system must be installed by a competent person in accordance with relevant standards, such as IEC / EN 60079-14, and any local codes of practice.

The MiniPurge® control unit should be installed either directly on, or close to the pressurized enclosure. It should be installed such that the system indicators and certification labels are in view.

All parts of the system carry a common serial number. If installing more than one system, ensure that this commonality is maintained within each system installed.

Relief Valve Unit

To achieve effective purging, the points where air enters and exits the pressurized enclosure should normally be at opposite ends of the enclosure. The RLV unit must be mounted vertically and there should be a minimum clearance of 300 mm (12") around the spark arrestor (purge outlet).

It is important that the interior and exterior of the spark arrestor is kept clean and debris is not allowed to accumulate; this might affect the calibration of the device. In particular, the exterior of the spark arrestor should not be painted or blocked in any way.

Air Supply Quality

The MiniPurge® system should be connected to a protective gas supply, which is suitable for purging and pressurization.

The supply pipe connection to the MiniPurge® must be appropriate for the maximum input flow rate for the application.

The air supply must be regulated at a pressure less than the maximum stated inlet pressure.

The air supply must be: clean, non-flammable and from a non-hazardous location. The air should be of Instrument Air Quality. Although the purge control system will operate with lower air quality, its operational life will be adversely affected. The equipment that is being protected by the MiniPurge® may also suffer because of poor air quality.

With reference to BS ISO 8573-1: 2010, Instrument Air is typically specified as:

Particle Class 1

In each cubic metre of compressed air, the particulate count should not exceed 20,000 particles in the 0.1 to 0.5 micron size range, 400 particles in the 0.5 to 1 micron size range and 10 particles in the 1 to 5 micron size range.

Humidity or pressure dew point

The dew point, at line pressure, shall be at least 10 °C below the minimum local recorded ambient temperature at the plant site. In no case, should the dew point at line pressure exceed +3 °C.

Oil Class 2

In each cubic metre of compressed air, not more than 0.1mg of oil is allowed. This is a total level for liquid oil, oil aerosol and oil vapour.

When an inert gas is being used to supply the purge system, risk of asphyxiation exists. Refer to Application Suitability section.

Before connection of the air supply to the purge system, the supply pipe work should be flushed through with instrument quality air to remove any debris that may remain in the pipes. This must be carried out for at least 10 seconds for every meter of supply pipe.

Unless a supply shut-off valve has been fitted to the MiniPurge® system, an external shut-off valve with the same, or larger, thread size as the Control Unit inlet fitting should be fitted by the installer to prevent any restriction of purge flow.

The purge air from the MiniPurge® Control Unit should be piped within the pressurized enclosure to ensure purging of potential dead air spots.

The purge system is fitted with an internal regulator factory set to 4.5 bar feeding the logic.

Pipe Work

If the MiniPurge® is not connected directly to the pressurized enclosure, pipe work and fittings used to connect the Control Unit to the pressurized enclosure should be either metallic or appropriate to the environment into which the system is installed. No valve may be fitted in any signal pipe connecting the Control Unit to the pressurized enclosure. This pipe work must be fitted in accordance with local codes of practice where relevant.

Multiple Enclosures

This system is suitable for the purge and pressurization of the primary pressurized enclosure and its associated terminal boxes.

Provision and Installation of Alarm Devices

When the pressure inside the pressurized enclosure is above the minimum, the Minimum Pressure Sensor returns a positive (**pressurized**) signal causing the alarm indicator on the control unit to change from **red** to **green**.

When the pressure falls below the minimum permissible the positive (**pressurized**) signal is removed. This absence of signal indicates a **low pressure alarm** condition and causes the alarm indicator on the control unit to go from **green** to **red**.

There are volt free (dry) contacts available within the terminal box for remote usage.

The user must make use of this alarm facility in accordance with the local code of practice for Action on Pressure or Flow Failure. Most codes include the following recommendations:

- **Zone 1 Installations:** Alarm and Automatic Trip of Power.
- **Zone 2 Installations:** Alarm Only on pressure or flow failure with power being removed manually.

Power Supplies and their Isolation

All power entering the pressurized enclosure should have a means of isolation. This requirement also applies to any external power sources that are connected to the equipment such as volt-free (dry) contacts within the pressurized enclosure. This is commonly achieved using the Power Interlock Switch.

Power Interlock Switch

This switch is a Double Pole Normally Open. This switch is a Double Pole Normally Open, double-break switch: it provides two independent contacts that should be connected in series and used to isolate the power. This can be achieved using suitable certified intrinsically safe barriers. These contacts are terminated and accessible to the user in the terminal box.

It is the responsibility of the user to ensure that the switch is only operated within appropriate technical limits.

The switch must be replaced after any short circuit that occurs within the main circuit; the switch is a piece of encapsulated equipment and as such it is not possible to check the state of the contacts. Technical modifications to the switch are not permitted.

Prior to commissioning, check that the terminal box is clean, the connections have been made properly, the cables laid correctly and all screws in the terminals are secure.

In all cases the application and isolation of power must be controlled by the MiniPurge® system using the power interlock signal.

No switches are permitted between the power switch and the MiniPurge® system other than an authorized manual override circuit.

The safe use of this switch is the responsibility of the user, all electrical installations must conform to local codes of practice.

Exception

Power to apparatus that is already suitable for use in hazardous locations need not be isolated by the MiniPurge® system.

Section 7: Commissioning

Commissioning the System

Note: The steps 12 and 16 to 22 represent detailed commissioning tests

The following equipment is needed for this process:

- Continuity meter
- Gauge manometer (0 to 200 mbarg)
- Differential manometer
- 2 off 4mm plugs

If, after commissioning, the system does not perform as expected, refer to the Fault Finding Section.

Follow the steps as outlined:

1. Connect power to the heater via terminals 1 (Live) 4 (Neutral) and where required 3(Earth) of the Ex d junction box and check continuity across terminals. An earth terminal is also provided within the junction box if required. Purging is permissible only when an internal temperature of -10°C or greater has been validated by purge environment RTD sensor.
2. Check that the cable and pipe are securely connected to EPPS. Check that the exhaust on the EPPS is not obstructed.
3. Check all connections and that the Relief Valve Unit is fitted correctly with an unobstructed path to the purge exhaust.
4. Set CLAPS regulator & Purge Flow Regulator to 0.
5. Fully open external supply shut-off valve where fitted.
6. Check that the internal logic pressure gauge reads 2.5 barg / 36 psi / 250 kPag.
7. Check that the pressure gauge on main air supply reads 4.2 barg / 61 psi / 420 kPag.
8. Check that the Pressure Relief Valve is correctly set by isolating the High-Pressure Sensor and Purge Outlet Valve. To do this locate High-Pressure/Open Purge Outlet Signal bulkhead. Follow nylon tube back to the y-piece connector. Remove tube & plug.
 - Remove red plug from the top of the Minimum Pressure Sensor and connect a gauge manometer.

- Raise the internal pressure by turning the CLAPS regulator clockwise till the Low-Pressure Alarm Indicator turns green. This activates the Purge Flow Regulator.
- Slowly open the Purge Flow Regulator until the Pressure Relief Valve opens. This is the set point.
- This test can be carried out several times to ensure repeatability and compliance.
Refer to the Maintenance of the System section if the Relief Valve needs recalibrating.

9. Reset CLAPS regulator & Purge Flow Regulator to 0.

10. De-isolate the High-Pressure Sensor and Purge Outlet Valve.

11. Connect a differential manometer to the test points on the flow sensor.

12. To check sensor calibration

- Raise the internal pressure by turning the CLAPS regulator clockwise until the Low-Pressure Alarm Indicator turns green. This will activate the Purge Flow regulator & Purge Outlet Valve. The pressure will fluctuate as the Purge Outlet Valve opens/closes. This is normal.
- Gradually open the Purge Flow Regulator until System Purging Indicator flashes yellow.
- Gradually close Purge Flow Regulator Valve until the purging indicator stops flashing yellow.
- Take a reading from pressure gauge.

13. To set the purge flow rate:

- Raise the internal pressure by turning the CLAPS regulator clockwise until the Low-Pressure Alarm Indicator turns green. This will activate the Purge Flow regulator & Purge Outlet Valve. The pressure will fluctuate as the Purge Outlet Valve opens/closes. This is normal.
- Gradually open the Purge Flow Regulator until System Purging Indicator flashes yellow.
- The flashing yellow indicator confirms the timer has started.
- The differential pressure should be greater than 6.4 mbarg.
- The relief valve is supplied with different orifice plates for the specified flow rate. This orifice plate is held in position by two M3 screws and can easily be changed by removing the large cover plate from over the outlet valve assembly and screws.

Warning: When opening the Purge Flow Regulator Valve, ensure the over pressure within the enclosure does not exceed the pressure relief valve setting.

14. The purge timer will start as soon as the Purging Indicator **flashes yellow**. Check that the time delay between the indicator turning to **yellow (flashing)** and returning to **black** is not less than the minimum time required for complete purging of the pressurized enclosure. Times in excess of minimum are permitted.

15. After the purge has been completed, the Purge Outlet Valve will close and the air flow into the pressurized enclosure will be controlled by the CLAPS Regulator. The initial setting may be too high or too low.

16. Gradually turn the CLAPS Regulator anti-clockwise to reduce enclosure pressure.

17. Reduce regulator until intermediate sensor causes contacts to open.

18. Check reading on manometer matches calibration label on pressure sensor.

19. Continue to reduce the CLAPS Regulator to test the minimum pressure sensor.

20. To check operation of Minimum Pressure Sensor, check readings on manometer as system will automatically re-purge when it reaches minimum pressure.

21. While the system re-purges, return the CLAPS Regulator to the initial setting.

22. If minimum pressure is below the set point, refer to the Recalibration section

23. If the setting is too high, continual rising and falling of the enclosure pressure will be seen as the CLAPS Regulator automatically shuts off and reinstates the flow. The CLAPS Regulator should be adjusted to reduce the flow into the pressurized enclosure by turning the adjuster screw anti-clockwise.

24. If the initial setting is too low the CLAPS Regulator may not provide enough air flow causing a gradual decline in enclosure pressure. To increase the flow into the pressurized enclosure, adjust the CLAPS Regulator by turning the adjuster screw clockwise.
25. To test the CLAPS settings, create a leak in the system by removing a bolt or loosening a gland plate in order to create a 15mm hole. Remember to replace bolt or retighten gland plate after testing.
26. The setting of the CLAPS Sensor is factory calibrated to the normal working pressure expected in the pressurized enclosure, typically 10 mbarg. The pressure in the pressurized enclosure should be stabilized as close as possible to this figure. This can be checked by a manometer attached to the minimum pressure sensor.
27. Remove the air supply to the system, remove all test equipment and replace all plugs.

Normal Operation

For normal operation of the system, after commissioning has been carried out it is possible to turn the air supply valve on or off to start or stop the system. After this, the purge and pressurization sequence is automatic.

Section 8: Maintenance of the System

General maintenance

The maintenance of the system outlined in this manual should be supplemented with any additional requirements set out in appropriate local codes of practice.

The following checks should be carried out every 6 - 36 months dependent on environment according to IEC / EN 60079-17

- Tests outlined in the Detailed Commissioning section.
- Ensure that the Relief Valve Unit is free from contamination prior to making any adjustment. To do this:
 - Remove large cover plate using an 8 mm spanner (wrench).
 - Check that the interior and all components are clean and free from contamination.
 - Replace large cover plate.
- Check the condition of the air supply filter element. Clean or replace, as necessary.
- Check that the electrical and pneumatic connections to the EPPS are secure.
- Check that the exhaust port on the EPPS is not obstructed.

Additional maintenance checks

The following additional checks are recommended at least every 3 years:

Check that:

- Apparatus is suitable for use in the hazardous location.
- There are no unauthorised modifications.
- The air supply is uncontaminated.
- The interlocks and alarms function correctly.
- Approval labels are legible and undamaged.
- Adequate spares are carried.
- The action on pressure failure is correct.

Re-calibration of the Relief Valve Unit

Warning

Incorrect adjustment of the Relief Valve Unit can lead to significant over pressure and result in damage to the enclosure.

If maximum pressure setting is reached, stop adjustment, and reduce the pressure.

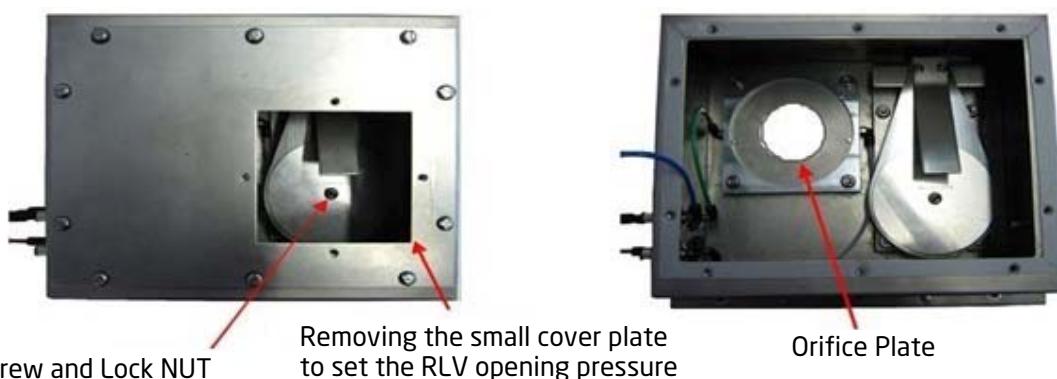
To perform the following adjustments, an 8 mm spanner (wrench) and a 2.5 mm hex key will be required.

Ensure that the Relief Valve Unit is free from contamination prior to making any adjustment. To do this:

- Remove large cover plate using an 8 mm spanner (wrench).
- Check that the interior and all components are clean and free from contamination.
- Replace large cover plate

To adjust the lift off pressure of the Relief Valve:

- Attach test equipment as described in the Commissioning Section.
- Remove small cover plate.
- Whilst holding the central adjustment screw in position using the hex key, loosen the retaining nut.
- Adjust the hex key clockwise to increase, or anti-clockwise to reduce the lift off pressure.
- Before testing, retighten the locking nut whilst holding the adjustment screw in place.
- Carry out the commissioning tests to check the correct setting of the relief valve after adjustment.
- The adjustment is sensitive, and it is recommended that a $\frac{1}{4}$ turn (maximum) adjustments are applied between tests.



Re-calibration of the Pressure Sensors

The brass nozzle on the sensor is sealed into position using Loctite thread sealant. If the thread has seized up, remove to a safe area and heat slightly to soften prior to making any adjustment. This prevents potential damage to the brass of the nozzle.

- Disconnect pipe work from the sensor, including pipe located below the sensor.
- Remove sensor by unscrewing anti-clockwise.
- The nozzle is located under the sensor.
- The adjustment is sensitive, turn the nozzle in $\frac{1}{8}$ of a turn step.
- Turn clockwise to reduce the pressure setting and anti-clockwise to increase.
- Replace sensor, screwing clockwise.
- Reconnect all pipe work.

Section 9: Fault Finding

General Information

If you are having problems that cannot be corrected using one of the methods described, please call Expo or your supplier for further assistance. If the system is less than 12 months old, parts under warranty should be returned to Expo for investigation. A full report of the fault and the system serial number should accompany the parts.

It is common for problems with the MiniPurge® system to be caused by contamination of the air supply with oil, water, or dirt. To prevent these problems, the air supply must contain a dust filter and a water filter. This will ensure that the air is instrument quality and protect both the purge system and the equipment being purged. This filtration system is not provided by Expo and must be sourced separately.

Contamination can enter the system from a number of sources. To prevent this, it is essential that the procedures described in the Installation section are carried out prior to first use of the system. These procedures should also be carried out following any disconnection and re-connection of the pipe work. Failure to perform these procedures may cause damage to the system that will not be covered by the warranty.

The system has been designed for ease of fault finding and many of the components fitted are plug-in or chassis mounted. Check components by substitution only after establishing that such action is necessary.

Before carrying out the fault finding procedures, ensure that:

- Both the main air pressure to the system and for Motor Purge Systems, the regulated pressure to the logic manifold are as specified on the settings sheet.
- Air pressure does not drop below the minimum supply pressure during purging; most faults reported are due to insufficient air supply during the purge cycle.

System purges correctly but trips and auto re-purges at the end of the purge time.

This is a result of the pressure within the pressurized enclosure being below the minimum pressure sensor setting. The pressure can be checked using a manometer. The most common causes of this problem are outlined below.

| Fault Location | Cause | Solution |
|-------------------------|---|--|
| Pressurized Enclosure | There is debris on the face of the Relief Valve disk held in place by the magnet. | <ul style="list-style-type: none"> • Remove debris and ensure RLV disk is clean. |
| | Enclosure leaking excessively. | <ul style="list-style-type: none"> • Ensure all doors and covers are closed and that all conduit and cable glands are properly sealed. • Seal any other leaks. |
| | Pressure sensing tube damaged. | <ul style="list-style-type: none"> • Replace tubing. |
| CLAPS Regulator | The CLAPS Regulator setting is too low. | <ul style="list-style-type: none"> • Increase the setting of the CLAPS regulator to raise the pressure in the pressurized enclosure after purging. • To do this, turn clockwise. |
| MiniPurge® Control Unit | the Minimum Pressure Sensor setting has drifted above the CLAPS setting | <p>The Minimum Pressure Sensor needs re-calibrating.</p> <ul style="list-style-type: none"> • Refer to Re-calibration of Pressure Sensors in the Maintenance section |

Relief Valve opens (continuously or intermittently)

| Fault Location | Cause | Solution |
|-----------------------|--|---|
| Pressurized Enclosure | Enclosure pressure is too high due to CLAPS Regulator being open to far. | Adjust the CLAPS Regulator. |
| Relief Valve Unit | Debris on the Relief Valve disk allowing air to leak from the valve. | Remove Relief Valve cover and clean the valve disk. |

System enters purging but purge indication does not occur

| Fault Location | Cause | Solution |
|------------------------|--|--|
| Air Supply | Insufficient flow rate due to inadequate air supply pressure. Often due to pressure drop in the supply pipe. | Static pressure of 4.5 barg must be maintained during purge <ul style="list-style-type: none"> Check air supply pressure at the inlet to the control unit. Ensure that the supply pipe bore is suitable for the flow rate |
| Pressurized Enclosure | Excessive leakage from the pressurized enclosure. | <ul style="list-style-type: none"> Check around the enclosure while purging is taking place. Total leakage at purge outlet valve should not exceed 10% of purge flow sensor setting. Check for leakage down cables and conduit. |
| Pipe Work | Tubing from Relief Valve flow sensing point not airtight. | <ul style="list-style-type: none"> Ensure fitting nuts are tightened. Check for tube damage. Repair as necessary. |
| Relief Valve Unit | Relief Valve opening during purge. | <ul style="list-style-type: none"> Check enclosure pressure on start up is less than Relief Valve lift off pressure. |
| MiniPurge Control Unit | Flow sensor setting incorrect. | <ul style="list-style-type: none"> Check the pressure is correct on the flow sensor. |

System begins purging but cycles fail to complete

| Fault Location | Cause | Solution |
|------------------|---------------------------|--|
| Electronic Timer | Time set to 00 | <ul style="list-style-type: none"> Reset timer to correct purge time. |
| | EPPS not working properly | <ul style="list-style-type: none"> Check all piping connections to EPPS and connection from EPPS to Timer Module. Check that exhaust port on EPPS is free of any debris or obstruction. EPPS may need to be replaced. |

Section 10: Recommended Spares List

| Part Number | Description |
|--------------|---|
| HF1-A04N-002 | Filter kit for HF1-A04N-001 2" filter |
| S0030/606 | Purge flow sensor factory set to 6.4 mbarg |
| S0030/016 | Minimum Pressure sensor, must be factory set to the value as stated on the Customer Test and Inspection Sheet |
| HSI-0160-000 | Intermediate pressure sensor |
| AGM-PA00-123 | CLAPS Sensor must be factory set to the value as stated on the Customer Test and Inspection Sheet |
| S0015/018 | Pressure gauge (Air Supply Pressure), 0 - 10 barg |
| S0015/135 | Miniature gauge (Logic Pressure), 0-4 barg |
| AGE-GE00-168 | Electronic Timer Assembly c/w potted Timer Switch |
| EPW-EPPS-000 | EPPS 10.8V 80mA (Electro-Pneumatic Power Supply) |

Section 11: Glossary

| Acronym | Definition |
|---------|---|
| A&T | Alarm and Trip |
| AO | Alarm Only |
| CLAPS | Closed Loop Automatic Pressurization System |
| CU | Control Unit |
| EPPS | EPPS (Electro-Pneumatic Power Supply) |
| FCV | Flow Control Valve |
| IS | Intrinsically Safe |
| LC | Leakage Compensation |
| PA | Power and Alarm |
| RLV | Relief Valve Unit |

Section 12: Drawings and Diagrams

| Title | Drawing Number | Number of Sheets |
|--|----------------|------------------|
| D860MOTORSYS-S | D860MOTORSYS-S | 4 |
| Size 7 MOTORPURGE RLV WITH LOW TEMP CYLINDER | XBR-RTD0-015 | 1 |
| D860 HOOK-UP DIAGRAM | D860-HU | 1 |
| LOW TEMP MOTORPURGE P AND I DIAGRAM | LOWTEMP-PI | 1 |
| LOW TEMP MOTORPURGE CIRCUIT | AGM-PA00-062 | |
| LOW TEMP MOTORPURGE TERMINAL LAYOUT | AGE-WC00-248 | 1 |

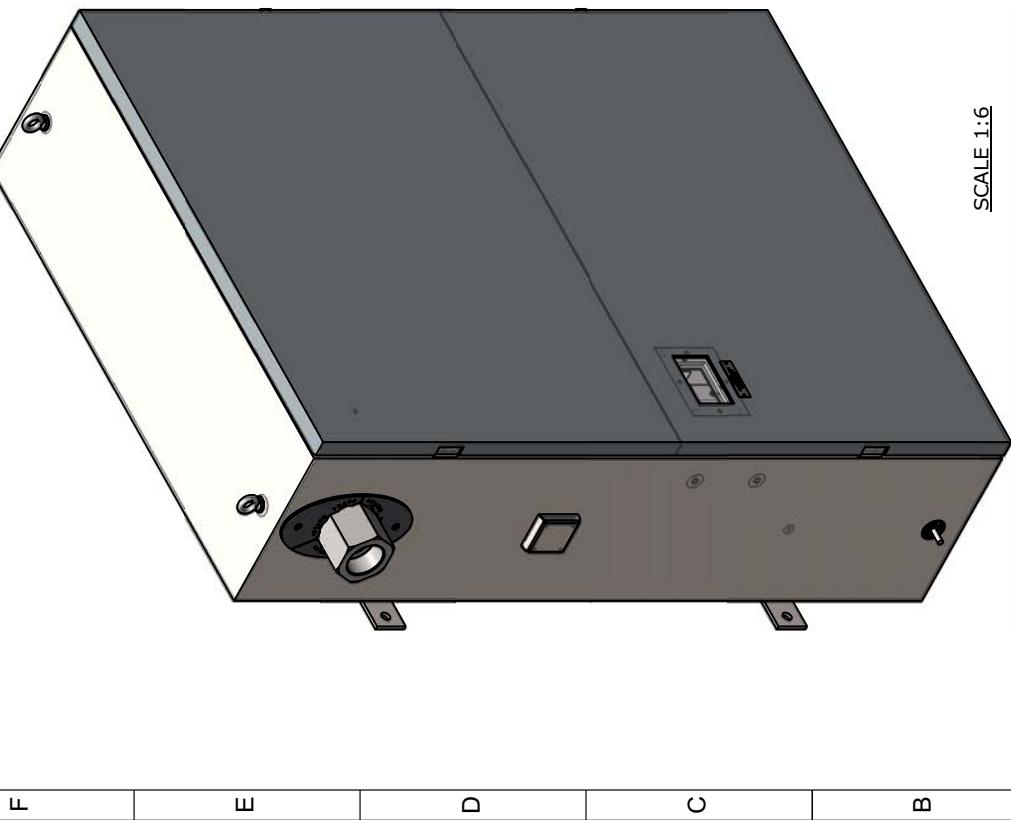
Section 13: Certifications

Download the certificates at www.expoworldwide.com or refer to ML497.

| Component | Certificate | Number |
|---------------------|------------------------------|---------------------------------|
| Purge System | EU-Declaration of Conformity | SC004-CE* |
| | UK-Declaration of Conformity | SC004-UK* |
| | UKEX Certificate | CSAE 21UKEX1067X |
| | ATEX Certificate | SIRA 01ATEX1295X |
| | IECEx Certificate | IECEx SIR07.0027X |
| | CCC Certificate | 2020312304000830 * |
| Ex e Terminal Box | EAC Certificate | EAEC RU C-GB.AJK58.B.00906/20 * |
| | ATEX Certificate | BASEEFA 06ATEX0117X * |
| Electronic Timer | IECEx Certificate | IECEx BAS06.0028X * |
| | EU-Declaration of Conformity | SC039-EU* |
| | ATEX Certificate | FM 10 ATEX0003X |
| Electronic Switches | IECEx Certificate | IECEx FME 10.0001X |
| | UKEX Certificate | CML 21UKEX1850X |
| | ATEX Certificate | EPS 14 ATEX 1766 X |
| | IECEx Certificate | IECEx EPS 14.0092X |
| | CCC Certificate | 2020322304000843 * |
| Heater | EAC Certificate | EAC RU C-DE.AH07.B.01462/22 * |
| | ATEX Certificate | KEMA 01ATEX2124 X * |
| | IECEx Certificate | IECEx DEK 11.0017 * |
| Thermostat | ATEX Certificate | LCIE 99 ATEX 6017 X * |
| | IECEx Certificate | IECEx LCI 07.0003X * |
| EPPS | EU-Declaration of Conformity | SC040-CE* |
| | UK-Declaration of Conformity | SC040-UK* |
| | ATEX Certificate | DEMKO 17ATEX1795X |
| | IECEx Certificate | IECEx UL 17.0016X |
| RTD Sensors | Manufacturers Declaration | EXPO 20MDOC1403X |

*Certificates attached to manual.

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| 3RD ANGLE PROJECTION | | DIMENSIONS IN mm [] DENOTES IMPERIAL | TOLERANCES UNLESS OTHERWISE STATED FLATNESS TO BE LESS THAN 0.4 OVER ANY 100mm LENGTH | DECIMALS X ±0.5 XX ±0.2 XXX ±0.1 XXXX ±0.05 | ANGLE STD ±1° | DO NOT SCALE IF IN DOUBT ASK | The contents of this drawing / document are Copyright © Expo Technologies Limited. They are to be treated as confidential and are returnable upon request. They are not to be copied or communicated in part or in whole without written consent from Expo Technologies Limited, neither are they to be used in any way against our interests. | |



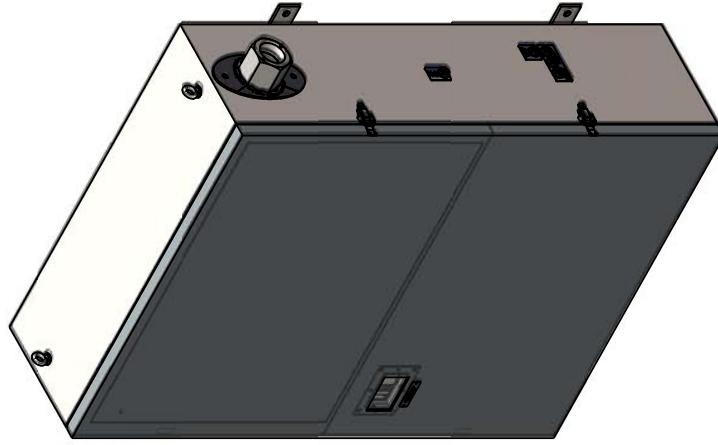
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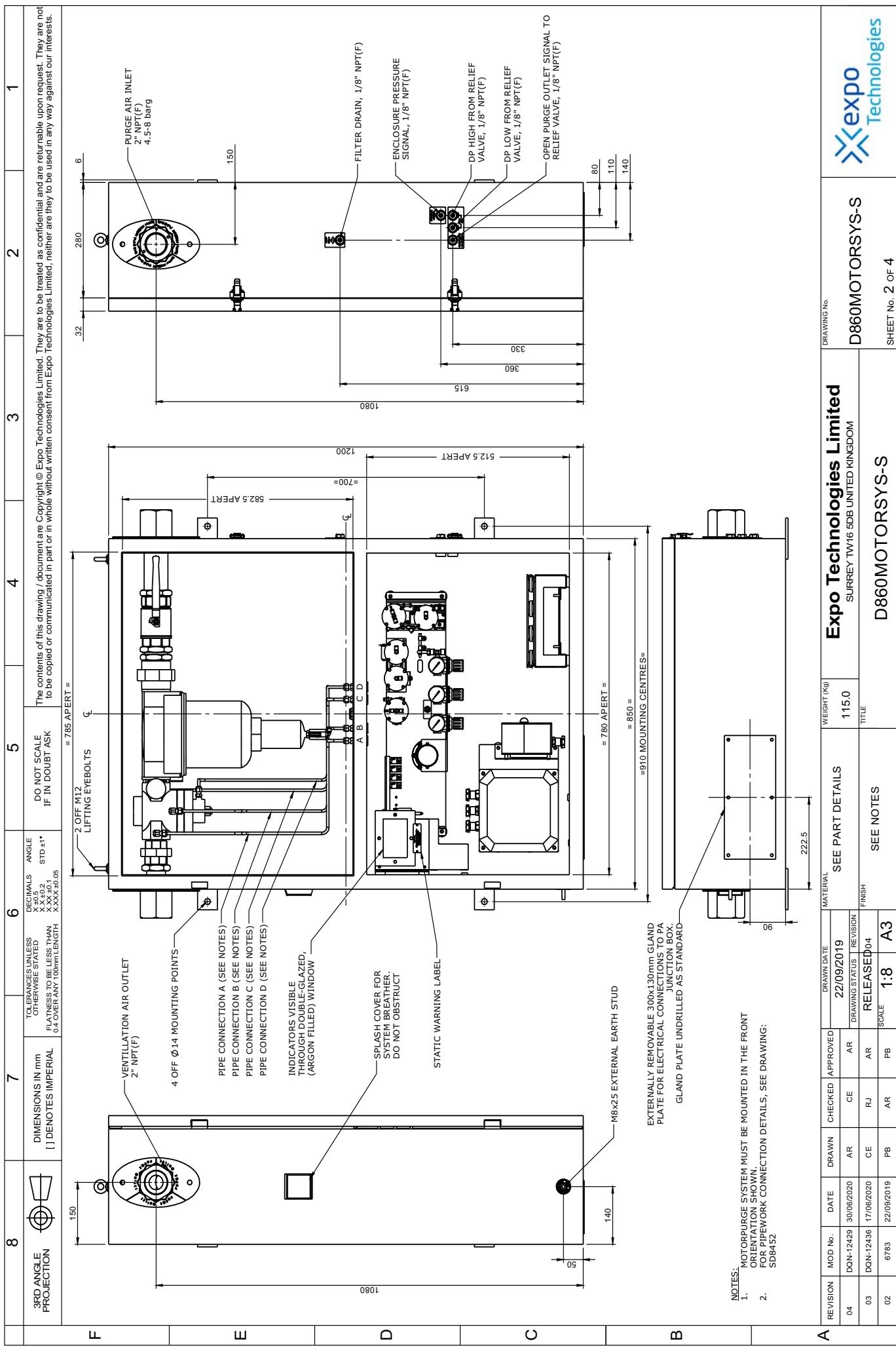
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LOW-TEMPERATURE MOTORPURGE SYSTEM MODEL: D860MOTORSYS-S

TECHNICAL SPECS:

- SUPPLY: 4.5 - 8bar(g)
- FLOW CAPACITY: 7000-14000Nm/min
- AMBIENT TEMPERATURE: -60 to +55°C
- MEDIA / SUPPLY TEMPERATURE: -40 to +55°C
- SYSTEM NET WEIGHT (Approx.): 115kg
- GROSS SHIPPING WEIGHT (Approx.): 185kg
- MATERIALS:
- SYSTEM HOUSING AND FLANGES: STL ST 316.
- BULKHEAD FITTINGS: STL ST 316.

| A | REVISION | MOD. No. | DATE | DRAWN | CHECKED | APPROVED | DRAWN DATE | MATERIAL | SEE PART DETAILS | WEIGHT (KG) | Expo Technologies Limited | DRAWING NO. |
|----|----------|-----------|------------|-------|---------|----------|------------|----------------|------------------|-------------|---------------------------|--------------------------------|
| 04 | | DQN-12429 | 30/06/2020 | AR | CE | AR | 22/09/2019 | | | 115.0 | | SURREY TW16 5DB UNITED KINGDOM |
| 03 | | DQN-12436 | 17/06/2020 | CE | RJ | AR | | DRAWING STATUS | RELEASED 04 | | D860MOTORSYS-S | |
| 02 | | 6783 | 22/09/2019 | PB | AR | PB | | REVISION | FINISH | SEE NOTES | TITLE | SHEET No. 1 OF 4 |



| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-----|---------------------------------|--|-----------------------|----------------|-------------------------|------------------------------------|---|---|--|
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| No. | MAIN AIR SUPPLY SHUT OFF VALVE | MAIN AIR SUPPLY FILTER | MAIN AIR SUPPLY GAUGE | VOLUME BOOSTER | CONNICALLY SEALED UNION | Ex e ELECTRICAL JUNCTION BOX PL620 | ELECTRONIC PURGE TIMER WITH LED INDICATOR | SYSTEM PURGING INDICATOR, QUAD AMBER LEDs | LOW PRESSURE ALARM & TRIP INDICATOR, RED/GREEN |
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THIS DRAWING DETAILS THE STANDARD D860 MOTOR PURGE.
SEE SHEET 4 FOR DETAILS WHEN SOLD WITH A KMP-2000-081 KIT.

BREAK OUT SECTION
OF EPSS MODULE

| A | REVISION | MOD No. | DATE | DRAWN | CHECKED | APPROVED | DRAWN DATE | MATERIAL | SEE PART DETAILS | WEIGHT (kg) | Expo Technologies Limited | DRAWING NO. |
|----|----------|-----------|------------|-------|---------|----------|-------------|----------------|------------------|-------------|--------------------------------|------------------|
| 04 | 04 | DOM-12429 | 30/06/2020 | AR | CE | AR | 22/09/2019 | DRAWING STATUS | REVISION | 115.0 | SURREY TW16 5QB UNITED KINGDOM | D860MOTORSYS-S |
| 03 | 03 | DOM-12436 | 17/06/2020 | CE | RJ | AR | RELEASED 04 | FINISH | SEE NOTES | TITLE | D860MOTORSYS-S | SHEET NO. 3 OF 4 |
| 02 | 02 | 6783 | 22/09/2019 | PB | AR | PB | SCALE 1:8 | A3 | | | | |

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Technologies

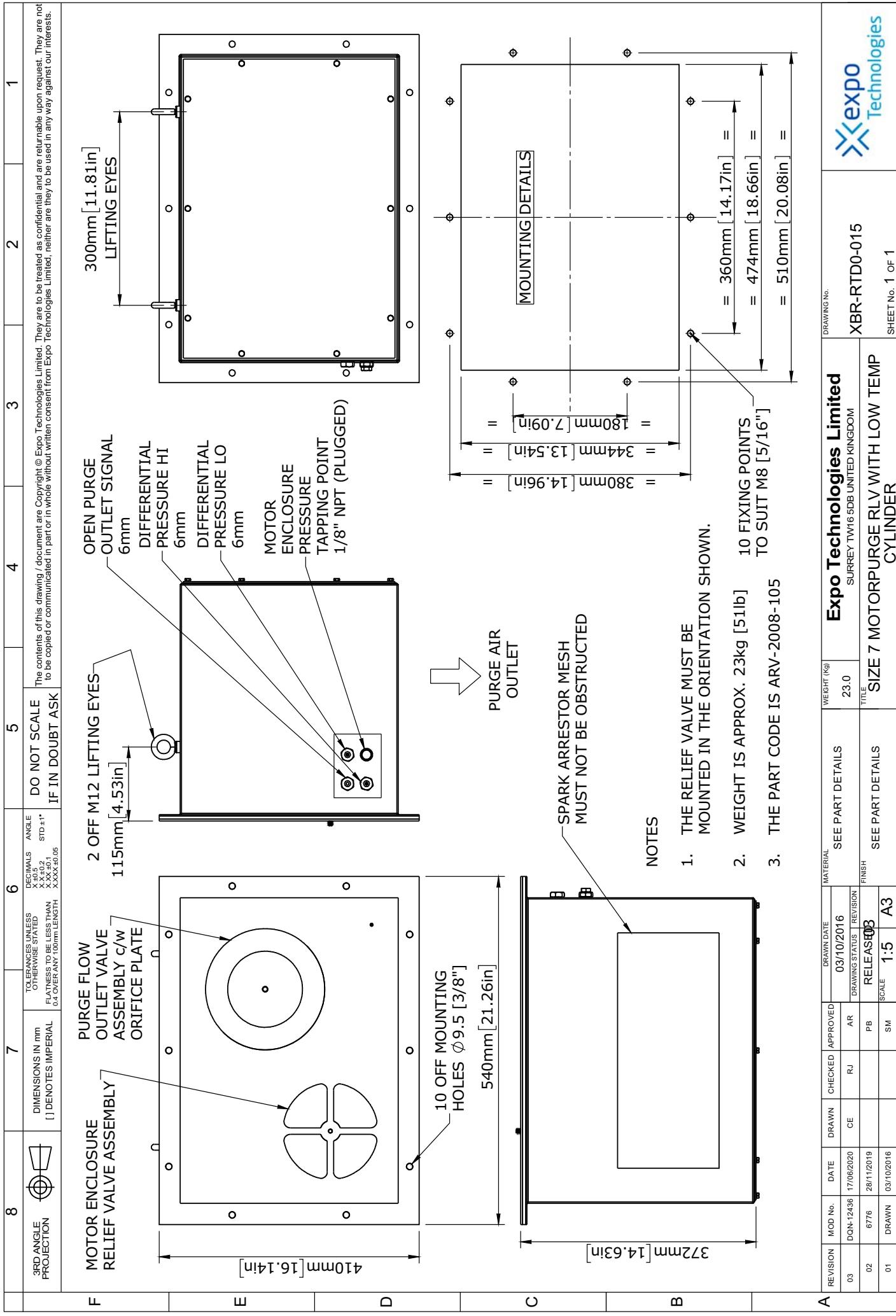
| | 8 | 7 | 6 | 5 | 4 | 3 | 2 |
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| F | 3RD ANGLE PROJECTION | DIMENSIONS IN mm [] DENOTES IMPERIAL | TOLERANCES UNLESS OTHERWISE STATED FLATNESS TO BE LESS THAN 0.4 OVER ANY 100mm LENGTH | DECIMALS X 0.05 STD ± 1° XXX ± 0.05 | ANGLE STD ± 1° XXX ± 0.05 | DO NOT SCALE IF IN DOUBT ASK | The contents of this drawing / document are Copyright © Expo Technologies Limited. They are to be treated as confidential and are returnable upon request. They are not to be copied or communicated in part or in whole without written consent from Expo Technologies Limited, neither are they to be used in any way against our interests. |
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DESCRIPTION

| No. | MAIN AIR SUPPLY SHUT OFF VALVE | MAIN AIR SUPPLY FILTER | MAIN AIR SUPPLY GAUGE |
|-----|---|---|---|
| 1 | CONICALLY SEADED UNION | Ex e ELECTRICAL JUNCTION BOX PL626 | SYSTEM PURGING INDICATOR, QUAD AMBER LEDS |
| 2 | MAIN AIR SUPPLY SHUT OFF VALVE | ELECTRONIC PURGE TIMER WITH LED INDICATOR | LOW PRESSURE ALARM & TRIP INDICATOR, RED/GREEN |
| 3 | MAIN AIR SUPPLY FILTER | SYSTEM PURGING INDICATOR, QUAD AMBER LEDS | ALARM/PRESSURIZED SWITCH, AC-15, 250V 4A, SPCO |
| 4 | MAIN AIR SUPPLY GAUGE | POWER INTERLOCK SWITCH, AC-15, 250V 4A, DPCO | LOGIC MANIFOLD |
| 5 | VOLUME BOOSTER | PURGE FLOW SENSOR | PURGE COMPLETE VALVE |
| 6 | CONICALLY SEADED UNION | MINIMUM PRESSURE SENSOR | TIMER VALVE |
| 7 | MAIN AIR SUPPLY SHUT OFF VALVE | INTERMEDIATE PRESSURE SENSOR | INTERMEDIATE PRESSURE SENSOR |
| 8 | MAIN AIR SUPPLY FILTER | INTERMEDIATE PRESSURE SENSOR | INTERMEDIATE PRESSURE ACTUATOR |
| 9 | MAIN AIR SUPPLY GAUGE | INTERMEDIATE PRESSURE SENSOR | INTERMEDIATE PRESSURE SWITCH AC-15 250V 4A SPCO |
| 10 | VOLUME BOOSTER | INTERMEDIATE PRESSURE SENSOR | FLOW RESTRICTOR (CLAPS SENSOR SUPPLY) |
| 11 | LOGIC MANIFOLD | INTERMEDIATE PRESSURE SENSOR | PURGE OUTLET OPEN SIGNAL VALVE (1) |
| 12 | PURGE FLOW SENSOR | LOGIC MANIFOLD | PURGE OUTLET OPEN SIGNAL VALVE (1) |
| 13 | PURGE COMPLETE VALVE | LOGIC MANIFOLD | PURGE SIGNAL ISOLATION VALVE |
| 14 | TIMER VALVE | LOGIC MANIFOLD | CLAPS REGULATOR |
| 15 | MINIMUM PRESSURE SENSOR | CLAPS REGULATOR | TIME SELECTOR SWITCHES |
| 16 | INTERMEDIATE PRESSURE SENSOR | TIME SELECTOR SWITCHES | INTERMEDIATE PRESSURE SWITCH ACTUATOR |
| 17 | INTERMEDIATE PRESSURE SENSOR | INTERMEDIATE PRESSURE SENSOR | INTERMEDIATE PRESSURE SWITCH AC-15 250V 4A SPCO |
| 18 | INTERMEDIATE PRESSURE SENSOR | INTERMEDIATE PRESSURE SENSOR | FLOW RESTRICTOR (CLAPS SENSOR SUPPLY) |
| 19 | INTERMEDIATE PRESSURE SENSOR | INTERMEDIATE PRESSURE SENSOR | PURGE CHANGEOVER VALVE (1) |
| 20 | INTERMEDIATE PRESSURE SENSOR | INTERMEDIATE PRESSURE SENSOR | PURGE CHANGEOVER VALVE (2) |
| 21 | INTERMEDIATE PRESSURE SENSOR | INTERMEDIATE PRESSURE SENSOR | HIGH PRESSURE SENSOR |
| 22 | CLAPS REGULATOR | CLAPS REGULATOR | EPPS (ELECTRO PNEUMATIC POWER SUPPLY) |
| 23 | TIME SELECTOR SWITCHES | TIME SELECTOR SWITCHES | SYSTEM REGULATOR |
| 24 | INTERMEDIATE PRESSURE SWITCH ACTUATOR | INTERMEDIATE PRESSURE SWITCH ACTUATOR | SYSTEM REGULATOR GAUGE |
| 25 | INTERMEDIATE PRESSURE SWITCH AC-15 250V 4A SPCO | INTERMEDIATE PRESSURE SWITCH AC-15 250V 4A SPCO | LOGIC SUPPLY REGULATOR |
| 26 | INTERMEDIATE PRESSURE SENSOR | INTERMEDIATE PRESSURE SENSOR | LOGIC SUPPLY REGULATOR GAUGE |
| 27 | FLOW RESTRICTOR (CLAPS SENSOR SUPPLY) | FLOW RESTRICTOR (CLAPS SENSOR SUPPLY) | PURGE FLOW REGULATOR |
| 28 | PURGE CHANGEOVER VALVE (1) | PURGE CHANGEOVER VALVE (1) | PURGE FLOW REGULATOR GAUGE |
| 29 | PURGE CHANGEOVER VALVE (2) | PURGE CHANGEOVER VALVE (2) | 250W Ex d HEATER |
| 30 | HIGH PRESSURE SENSOR | HIGH PRESSURE SENSOR | COPPER PIPE HEAT EXCHANGER |
| 31 | EPPS (ELECTRO PNEUMATIC POWER SUPPLY) | EPPS (ELECTRO PNEUMATIC POWER SUPPLY) | LOGIC AIR RTD SENSOR (DUPLEX) |
| 32 | SYSTEM REGULATOR | SYSTEM REGULATOR | AMBIENT AIR RTD SENSOR (DUPLEX) |
| 33 | SYSTEM REGULATOR GAUGE | SYSTEM REGULATOR GAUGE | Ex d THERMOSTAT |
| 34 | LOGIC SUPPLY REGULATOR | LOGIC SUPPLY REGULATOR | THIS DRAWING DETAILS THE D860 MOTOR PURGE D860MOTORSYS-S+ WHEN SOLD WITH A KMP-2000-081 KIT. REFER TO DRG No. KMP-2000-081 FOR DETAILS |
| 35 | LOGIC SUPPLY REGULATOR GAUGE | LOGIC SUPPLY REGULATOR GAUGE | |
| 36 | PURGE FLOW REGULATOR | PURGE FLOW REGULATOR | |
| 37 | PURGE FLOW REGULATOR GAUGE | PURGE FLOW REGULATOR GAUGE | |
| 38 | COPPER PIPE HEAT EXCHANGER | COPPER PIPE HEAT EXCHANGER | |
| 39 | LOGIC AIR RTD SENSOR (DUPLEX) | LOGIC AIR RTD SENSOR (DUPLEX) | |
| 40 | AMBIENT AIR RTD SENSOR (DUPLEX) | AMBIENT AIR RTD SENSOR (DUPLEX) | |
| 41 | Ex d THERMOSTAT | Ex d THERMOSTAT | |

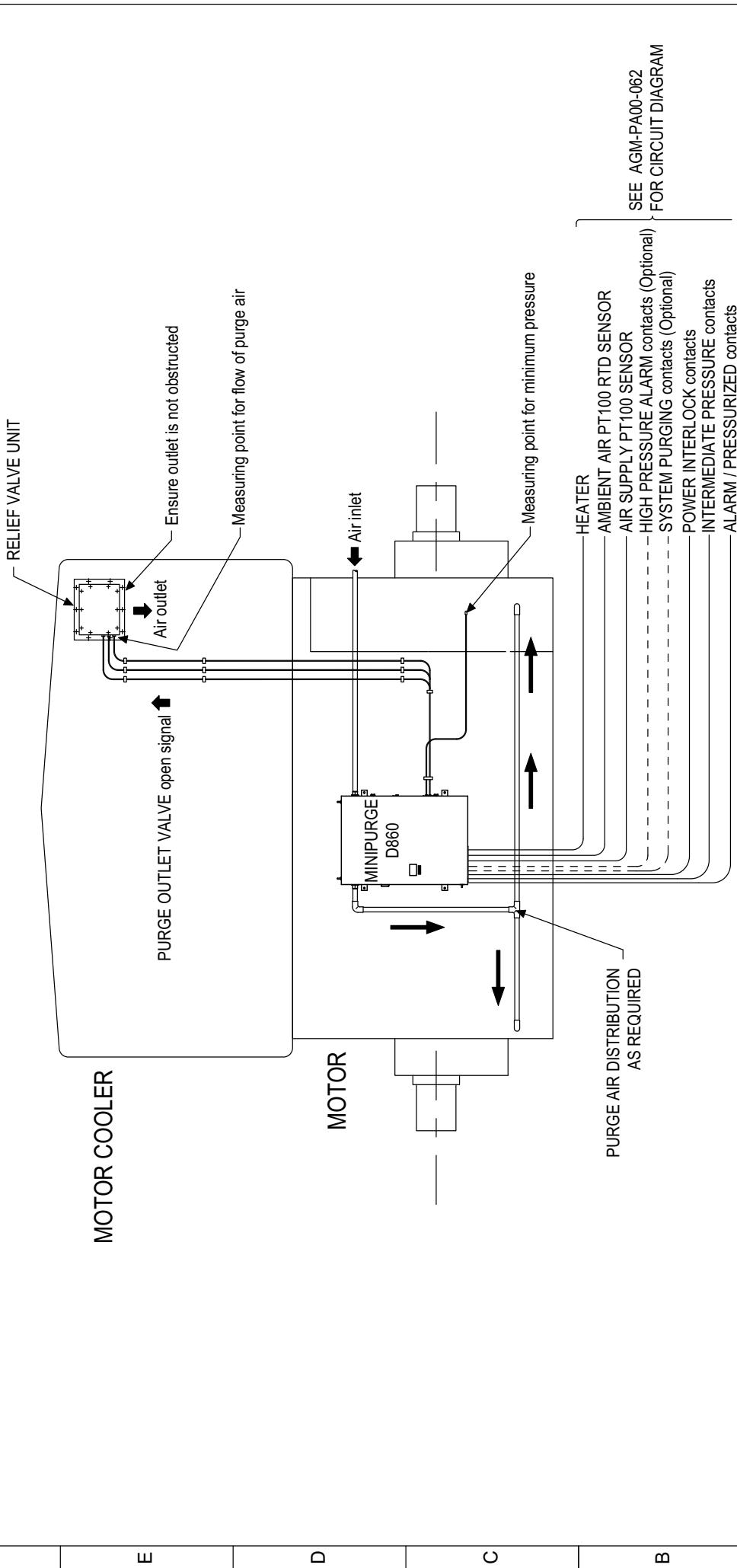
BREAK OUT SECTION OF EPPS MODULE

| REVISION | MOD No. | DATE | DRAWN | CHECKED | APPROVED | DRAWN DATE | MATERIAL | SEE PART DETAILS | WEIGHT (KG) | EXPO TECHNOLOGIES LIMITED | DRAWING NO. |
|----------|-----------|------------|-------|---------|----------|------------|----------------|------------------|-------------|--------------------------------|----------------|
| 04 | DQN-12429 | 30/06/2020 | AR | CE | AR | 22/09/2019 | DRAWING STATUS | RELEASED 04 | 115.0 | SURREY TW16 5DB UNITED KINGDOM | D860MOTORSYS-S |
| 03 | DQN-12436 | 17/06/2020 | CE | RJ | AR | FINISH | SEE NOTES | | | | |
| 02 | 6783 | 22/09/2019 | PB | AR | PB | SCALE 1:8 | A3 | | | SHEET NO. 4 OF 4 | |



| | | | | | | | | |
|----------------------|---|--|--|---|---------------------------------|--|---|---|
| | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3RD ANGLE PROJECTION | | DIMENSIONS IN mm [] DENOTES IMPERIAL | TOLERANCES UNLESS OTHERWISE STATED FLATNESS TO BE LESS THAN 0.4 OVER ANY 100mm LENGTH | DECIMALS ANGLE X±0.5° XXX±0.2° XXX±0.05° | DO NOT SCALE IF IN DOUBT ASK | The contents of this drawing / document are Copyright © Expo Technologies Limited. They are to be treated as confidential and are returnable upon request. They are not to be copied or communicated in part or in whole without written consent from Expo Technologies Limited, neither are they to be used in any way against our interests. | | |

F



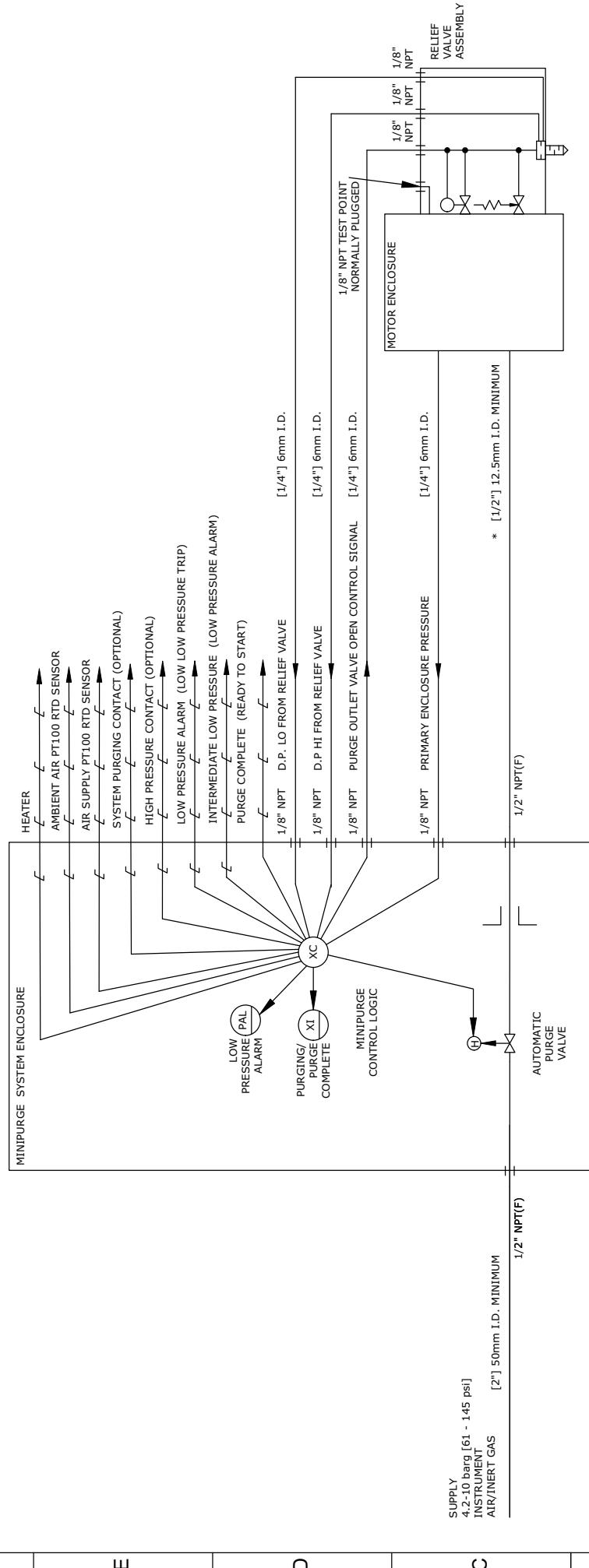
B

| A | REVISION | MOD # | DATE | DRAWN | CHECKED | APPROVED | DRAWN DATE | MATERIAL | WEIGHT (kg) | Expo Technologies Limited | DRAWING No. |
|----|----------|----------|----------|-------|---------|----------|-------------|----------|-------------|--------------------------------|------------------|
| 03 | | DN-12443 | 13/07/20 | CE | RJ | AR | 25/09/2019 | | | SURREY TW16 5DB UNITED KINGDOM | D860-HU |
| 02 | | DN-12438 | 17/06/20 | CE | RJ | AR | RELEASED 03 | FINISH | | | |
| 01 | | DRAWN | 25/09/19 | PB | AR | PB | SCALE N.T.S | A3 | | D860 HOOK-UP DIAGRAM | SHEET No. 1 OF 1 |

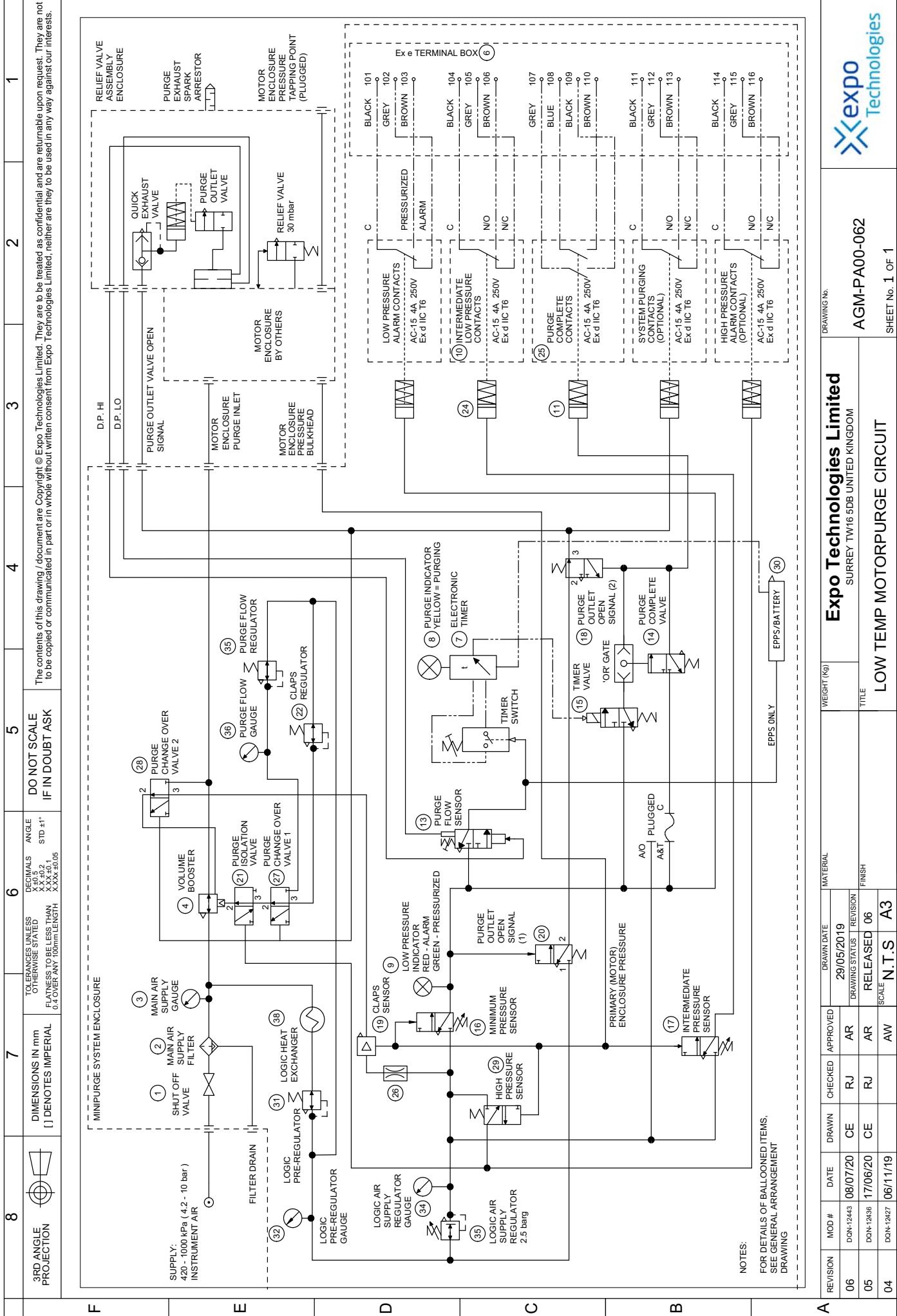


| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----------------------|---|--|---------------------------------------|---|------------------|---------------------------------|--|---|
| 3RD ANGLE PROJECTION | | DIMENSIONS IN mm [] DENOTES IMPERIAL | TOLERANCES UNLESS OTHERWISE STATED | DECIMALS X .05 X .02 X .01 X .005 | ANGLE STD ±1° | DO NOT SCALE IF IN DOUBT ASK | The contents of this drawing / document are Copyright © Expo Technologies Limited. They are to be treated as confidential and are returnable upon request. They are not to be copied or communicated in part or in whole without written consent from Expo Technologies Limited, neither are they to be used in any way against our interests. | |

4



m



expo
Technologies

AGM-PA00-062
SHEET NO. 1 OF 1

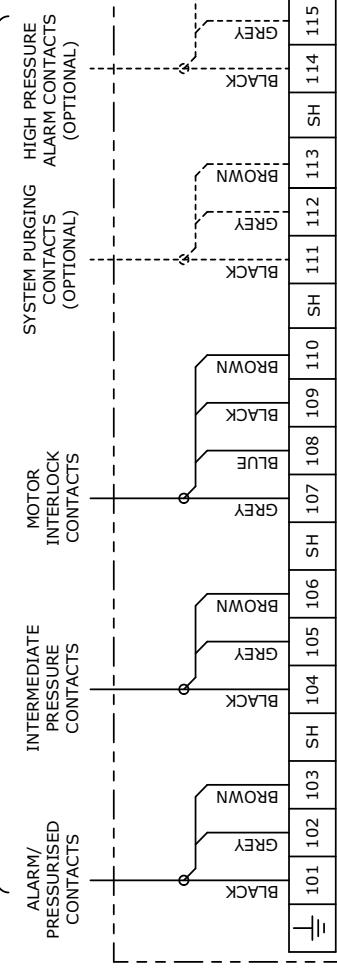
DRAWING NO.

Expo Technologies Limited
SURREY TW16 5DB UNITED KINGDOM

LOW TEMP MOTOR PURGE CIRCUIT

| | | | | | | | | |
|---|----------------------|---|--|--|--|------------------|---------------------------------|--|
| | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| F | 3RD ANGLE PROJECTION | | DIMENSIONS IN mm [] DENOTES IMPERIAL | TOLEANCES UNLESS OTHERWISE STATED FLATNESS TO BE LESS THAN 0.2mm 0.4 OVER ANY 100mm LENGTH | DECIMALS XX.XX±0.2 XX.XX±0.1 XX.XX±0.05 | ANGLE STD ±1° | DO NOT SCALE IF IN DOUBT ASK | The contents of this drawing / document are Copyright © Expo Technologies Limited. They are to be treated as confidential and are returnable upon request. They are not to be copied or communicated in part or in whole without written consent from Expo Technologies Limited, neither are they to be used in any way against our interests. |

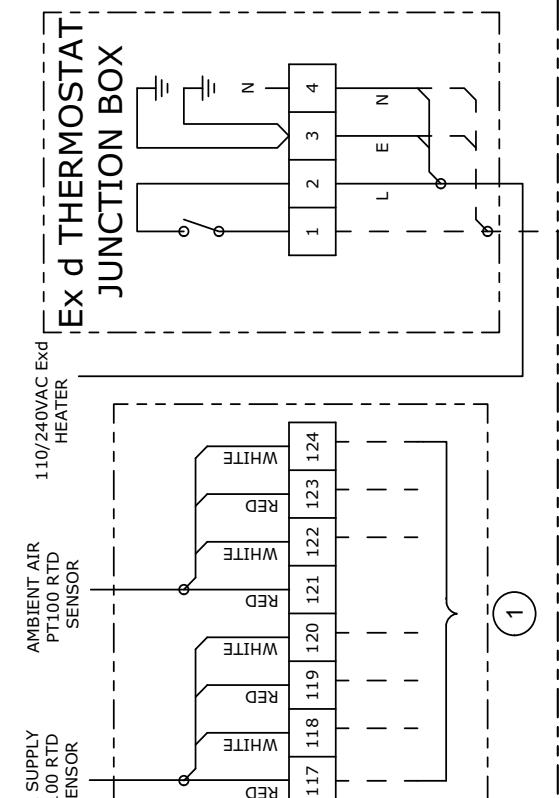
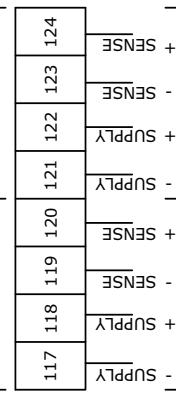
SEE AGM-PA00-062, CIRCUIT DIAGRAM



Ex e JUNCTION BOX TERMINAL LAYOUT

LOW TEMPERATURE MOTORPURGE HOUSING

- C PT100 RTD SENSOR
1. FOR CONNECTION TO INTRINSICALLY SAFE CIRCUITS ONLY. CONNECT TO A SUITABLE CERTIFIED I.S. INTERFACE. TYPICAL CONNECTION FOR 4-WIRE BARRIER SHOWN.

110/240VAC 6A
USER SUPPLY FOR
HEATER

①

A

DRAWING NO.

Expo Technologies Limited

SURREY TW16 5DB UNITED KINGDOM

AGE-WC00-248

SHEET NO. 1 OF 1

| REVISION | MOD # | DATE | DRAWN | CHECKED | APPROVED | DRAWN DATE | MATERIAL | WEIGHT (kg) | Expo Technologies Limited |
|----------|-----------|----------|-------|---------|----------|-------------|----------------------------|-------------|------------------------------------|
| 06 | DON-12443 | 07/07/20 | CE | AR | AW | 10/06/2015 | DRAWING STATUS RELEASED | 06 | AGE-WC00-248 |
| 05 | DON-12436 | 17/06/20 | CE | RJ | AR | 10/06/2015 | REVISION FINISH | | |
| 04 | DON-12417 | 30/08/18 | | | AR | SCALE N.T.S | A3 | | LOW TEMP MOTOPURGE TERMINAL LAYOUT |



EU Declaration of Conformity



This is to declare that the products listed below are manufactured in conformity with the following EU Directives under the sole authority of Expo Technologies Ltd:

Electromagnetic Compatibility Directive 2014/30/EU

MiniPurge Systems with a /PO suffix in the type number are non-electrical and are outside the scope of the EMC Directive. MiniPurge Systems with suffices /PA or /IS incorporate one or more volt-free ("dry") contacts which work in circuits specified by others. In normal operation these circuits are "benign" and no CE mark is appropriate. MiniPurge Systems with Electronic Timer (Option /ET and /ES) are designed to conform to the EMC Directive, in compliance with EN 61000-6-4:2007 and EN 61000-6-2:2005 (Intertek Report EM10048000) and 61000-6-4:2007 + A1:2011 and EN 61000-6-2:2005 (Intertek Report 102569070LHD-001) respectively.

Low Voltage Directive 2014/35/EU

MiniPurge Systems are intended for use in potentially explosive atmospheres (Hazardous Areas) and are therefore excluded from the Low Voltage Directive.

Pressure Equipment Directive 2014/68/EU

MiniPurge Systems are classified as not higher than category I under Article 13 of this Directive and intended for use in potentially explosive atmospheres (Hazardous Areas) and are therefore excluded from the Pressure Equipment Directive. MiniPurge Systems are covered under ATEX Directive 2014/34/EU.

ATEX Directive 2014/34/EU

MiniPurge Systems are designed to conform to the above Directive in fulfilment of the Essential Health & Safety requirements of Annex II and in compliance with:

EN IEC 60079-0:2018

EN 60079-2:2014

EN 60079-11:2012

MiniPurge Systems are certified under EU Type-Examination Certificate Sira 01ATEX1295X by CSA Group (Netherlands) B.V., in compliance with:

EN 60079-0:2012 + A11:2013

EN 60079-2:2014

EN 60079-11:2012

MiniPurge Systems are manufactured under Production Quality Assurance Notification SIRA 99ATEXM043, issued by CSA Group (Netherlands) B.V. (EU Notified Body No. 2813).

Technical documentation and assessments are in the Expo Technologies confidential technical file SC004.

For and on behalf of Expo Technologies Ltd

John Paul De Beer
Managing Director

Date 23rd November 2021

UK Declaration of Conformity



This is to declare that the products listed below are manufactured in conformity with the following UK Product Regulations under the sole authority of Expo Technologies Ltd

MiniPurge® Purge & Pressurization Systems

A range of systems intended to provide explosion protection of electrical enclosures through purge & pressurization under international and national standards.

Electromagnetic Compatibility Regulations 2016 (SI 2016/1091)

MiniPurge Systems with a /PO suffix in the type number are non-electrical and are outside the scope of the EMC Regulations.

MiniPurge Systems with suffices /PA or /IS incorporate one or more volt-free ("dry") contacts which work in circuits specified by others. In normal operation these circuits are "benign" and no UKCA mark is appropriate.

MiniPurge Systems with Electronic Timer (Option /ET and /ES) are designed to conform to the EMC Regulations, in compliance with EN 61000-6-4:2007 and EN 61000-6-2:2005 (Intertek Report EM10048000) and 61000-6-4:2007 + A1:2011 and EN 61000-6-2:2005 (Intertek Report 102569070LHD-001) respectively.

Electrical Equipment (Safety) Regulations 2016 (SI 2016/1101)

MiniPurge Systems are intended to be used in potentially explosive areas (hazardous areas) and are therefore excluded from the Regulation.

Pressure Equipment (Safety) Regulations 2016 (SI 2016/1105)

MiniPurge Systems are classified as not higher than Category I under article 13 of this Regulation and also intended for use in potentially explosive atmospheres and are therefore excluded from this Regulation.

Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres Regulations, UKSI 2016:1107 (as amended) - Schedule 3A Part 1

MiniPurge Systems are designed to conform to the above Regulations in fulfilment of the Essential Health & Safety requirements of Annex II and in compliance with:

EN IEC 60079-0:2018

EN 60079-2:2014

EN 60079-11:2012

MiniPurge Systems are certified under UK Type-Examination Certificate CSAE 21 UKEX 1067X by CSA Group Testing UK Ltd. (UK Conformity Assessment Body No. 0518) in compliance with:

EN 60079-0:2012 + A11:2013

EN 60079-2:2014

EN 60079-11:2012

MiniPurge Systems are manufactured under Production Quality Assurance Notification CSAE 21 UKQAN 0005, issued by CSA Group Testing UK Ltd. (UK Conformity Assessment Body No. 0518).

Technical documentation and assessments are in the Expo Technologies confidential technical file SC004.

For and on behalf of Expo Technologies Ltd



John Paul De Beer
Managing Director

Date 15th December 2021



CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION

No.: 2020312304000830

Applicant EXPO Technologies Ltd
Address Unit 2, The Summit, Hanworth Road, Sunbury on Thames Surrey TW16 5DB, United Kingdom

Manufacturer EXPO Technologies Ltd
Address Unit 2, The Summit, Hanworth Road, Sunbury on Thames Surrey TW16 5DB, United Kingdom

Production Factory EXPO Technologies Ltd
Production Address Unit 2, The Summit, Hanworth Road, Sunbury on Thames Surrey TW16 5DB, United Kingdom

Product MiniPurge Purge Controller
Model/Type 1XLC cs DS SS AA MO FM OA TW
Ex marking See Annex
Reference Standards GB3836.1-2010, GB/T3836.5-2017, GB12476.1-2013, GB12476.7-2010

Certification mode Type Test + Initial Factory Inspection + Post-Certification Surveillance

The product(s) is verified and certified according to CNCA-C23-01: 2019 *China Compulsory Certification Implementation Rule on Explosion Protected Electrical Product* and CNEX-C2301-2019 *Guideline of China Compulsory Certification Implementation Rule on Explosion Protected Electrical Product*.

See Annex for the detailed product information (6 pages).

Issued on: 2020-11-04

Valid to: 2025-11-03

The validity of this certificate is maintained through the regular supervision of the issuing authority during the validity period.

Where any discrepancy arises between the English translation and the original Chinese version, the Chinese version shall prevail.

Director:



Nanyang Explosion Protected Electrical Apparatus Research Institute Co.,Ltd.



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产品
PRODUCT
CNAS C208-P

<http://www.ccc-cnex.com>
ccc.china-ex.com

Add: No. 20, North Zhongjing Road, Nanyang, Henan, P. R. China
 P.C.: 473008
 Tel: 0377-63239734
 Email: ccc@cn-ex.com

CN 0000298



CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION (Annex)

No.: 2020312304000830

Page 1 of 6

Product information:

- This certificate covers the following models:

- 1XLC cs DS SS AA MO FM OA TW

Nomenclature:

| 1 | X | LC | cs | DS SS AA MO FM OA TW |
|---|---|----|----|----------------------|
| a | b | cc | mm | Option codes |

Model Number Designation for approved MiniPurge systems

| | |
|------|--|
| a | Size or Capacity Option codes (Added only if used) |
| 1 | MiniPurge with Purge Flow Capacity up to 225 NL/min |
| 2 | MiniPurge with Purge Flow Capacity up to 450 NL/min |
| 3 | MiniPurge with Purge Flow Capacity up to 900 NL/min |
| 4 | MiniPurge with Purge Flow Capacity up to 2000 NL/min |
| 5 | MiniPurge with Purge Flow Capacity up to 6000 NL/min |
| 6 | MiniPurge with Purge Flow Capacity up to 8000 NL/min |
| 7 | MiniPurge with Purge Flow Capacity above 8000 NL/min |
| b | Pressurization Type |
| X | X Pressurization |
| Y | Y Pressurization |
| Z | Z Pressurization |
| cc | Action after initial purging |
| LC | Leakage Compensation only after initial High Purge |
| CF | Continuous Flow (same flow rate during and after purging) |
| CF2 | Two Flow CF system with initial High Purge rate but only one orifice |
| CFHP | Continuous (lower) Flow after initial High Purge |

Issued on: 2020-11-04

Director:



Nanyang Explosion Protected Electrical Apparatus Research Institute Co.,Ltd.



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 Tel: 0377-63239734
 Email: ccc@cn-ex.com



CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION
(Annex)

No.: 2020312304000830

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| | |
|-----------------------------------|---|
| DP | Dust Protection (pressurization only) |
| mm | Material of the Control Unit Enclosure |
| al | Aluminum alloy |
| cs | Mild steel, painted |
| ss | Stainless steel |
| bp | Back plate only |
| co | Chassis only |
| pm | Panel mounting |
| nm | Non-metallic |
| Option codes (Added only if used) | |
| AA | Active Alarm output fitted |
| AC | Alarm cancellation circuit |
| AO | "Alarm Only Action" on Pressure or Flow Failure |
| AS | Alarm "Action on Pressure or Flow failure", Selector valve |
| CS | Containment System Monitor |
| DS | Door Switch Power Interlock fitted |
| DT | Delayed Trip after Pressure or Flow failure |
| ES | Electronic Timer with EPPS |
| ET | Electronic Timer (not EPPS option) |
| FM | Flow Meter(s) fitted |
| H6 | High Temperature Tamb -20°C to +60°C, Air Supply Max Temp +60°C |
| H7 | High Temperature Tamb -20°C to +60°C, Air Supply Max Temp +70°C |
| HP | System LC or CF with High Pressure Sensor |
| IS | Internal Switches suitable for Ex i circuits |
| LS | Local Sensing |
| LT | Low Temperature |

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CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION
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| | |
|------|---|
| MO | Manual Override fitted |
| MT | Mechanical Purge or Delay timer |
| OA | On/Off switch controlling Protective gas and logic supply |
| OB | On/Off switch controlling logic supply only |
| OC | On/Off switch controlling Protective gas supply only |
| OS | Outlet (Orifice) Selector valve |
| OV | Outlet valve, pneumatically operated |
| PA | "Ex" switch(es) built-in, with/without "Ex" junction box |
| PC | PE Pressure Control Leakage Compensation Valve (CLAPS System) |
| PO | Pneumatic Output signals for Power and Alarm control |
| SP | Secondary Pressurization supply options |
| SS | Separate Supply for Protective gas and Logic air |
| TW | Twin (or more) outputs for two or more separate pressurized enclosures purged in parallel |
| DXXX | Special design for specific flow rates, or other non-certification related options |

Relief Valve - The MiniPurge controller is supplied with an optional overpressure relief valve, which is to be fitted to the Ex p protected apparatus to prevent an internal overpressure above the maximum overpressure rating of the apparatus. There are 14 models of relief valve; the designation of each relief valve refers to its nominal bore in mm, as follows: RLV3, RLV6, RLV9, RLV12, RLV19, RLV25, RLV26, RLV52, RLV36, RLV75, RLV104, RLV125, RLV150 and RLV200;

The outlet of each relief valve is fitted with a spark arrestor, of which there are four optional types:

- ① Metal foam
- ② Tortuous path with at least 4 x 90° or 2 x 180° bends
- ③ Multi-layer stainless steel mesh

Issued on: 2020-11-04

Director:



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Apparatus Research Institute Co.,Ltd.



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No.: 2020312304000830

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④ Knitted mesh

Outlet Orifice - Three types of orifice are used:

- ① Threaded Orifices e.g. 1/4" NPT or 2" BSP with a built in spark arrester. These are selected to maintain a desired back pressure within the Ex p protected apparatus when used with the Continuous Flow options. The designation of each outlet orifice indicates the nominal inlet diameter. The designations are as follows: SA3, SA6, SA9, SA12, SA19, SA25, SA32, SA38 and SA50
- ② Plain holes in the Relief Valve disk, sized according to the flow rate required
- ③ Replaceable orifice type SAU**

High Pressure Sensor for CF Systems (HP code) - If the pressure in the pressurized enclosure rises above the setting of the High Pressure sensor, the controller resets cutting the power to the enclosure. On detecting the overpressure an optional facility is available for the generation of an alarm or indicator. On systems with a High Pressure sensor, the relief valve may be omitted.

High Pressure Sensor for LC Systems (HP code) - If the pressure in the pressurized enclosure rises above the setting of the High Pressure sensor, the purge gas flow is isolated from the pressurised enclosure. The valve isolates both the leakage compensation and the purge streams. On detecting the overpressure, an optional facility is available for the generation of an alarm or indicator. On systems with a High Pressure sensor, the relief valve may be omitted.

Pneumatically Operated Outlet Valve - The pneumatically operated outlet valve is used to positively open or close the outlet of the purged enclosure by means of a spring return pneumatic cylinder. Systems fitted with the Pneumatically Operated Outlet Valve will carry the option OV.

Note: the possible protection type of certified Ex products(components) list in Option codes(see table above) could be Ex d, Ex e, Ex ia or Ex iaD.

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Apparatus Research Institute Co.,Ltd.



CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION (Annex)

No.: 2020312304000830

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Ex marking:

Standard versions: Ex [px] IIC T6 Gb, Ex [pD] 21 IP54 T85°C (Ta: -20°C~+55°C)
Ex [py] IIC T6 Gb, Ex [pD] 21 IP54 T85°C (Ta: -20°C~+55°C)
Ex [pz] IIC T6 Gc, Ex [pD] 22 IP54 T85°C (Ta: -20°C~+55°C)

Standard/ET/ES versions: Ex [px] ia IIC T5 Gb, Ex [pD] iaD 21 IP54 T100°C
(Ta: -20°C~+55°C)

Low temperature versions: Ex [px] d e IIC T3 Gb, Ex [px] d e IIC T4 Gb
(Ta: -60°C~+55°C)

Low temperature/ET/ES versions: Ex [px] d e ia IIC T3 Gb, Ex [px] d e ia IIC T4 Gb
(Ta: -60°C~+55°C)

High temperature versions - H6: Ex [px] IIC T4 Gb
(Ta: -20°C~+60°C, Purge air temp. up to +60°C)

High temperature/ET/ES versions - H6: Ex [px] ia IIC T4 Gb
(Ta: -20°C~+60°C, Purge air temp. up to +60°C)

High temperature versions - H7: Ex [px] IIC T4 Gb
(Ta: -20°C~+60°C, Purge air temp. up to +70°C)

High temperature/ET/ES versions - H7: Ex [px] ia IIC T4 Gb
(Ta: -20°C~+60°C, Purge air temp. up to +70°C)

Combined Versions

Low temp. with High temp. H6: Ex [px] d e IIC T3/T4 Gb
(Ta: -60°C~+60°C, Purge air temp. up to +60°C)

Low temp. with High temp. H6 and ET/ES: Ex [px] d e ia IIC T3/T4 Gb
(Ta: -60°C~+60°C, Purge air temp. up to +60°C)

Low temp. with High temp. H7: Ex [px] d e IIC T3/T4 Gb
(Ta: -60°C~+60°C, Purge air temp. up to +70°C)

Low temp. with High temp. H7 and ET/ES: Ex [px] d e ia IIC T3/T4 Gb
(Ta: -60°C~+60°C, Purge air temp. up to +70°C)

- Producers should organize production in accordance with the technical documents approved by the certification body.

2. Specific conditions of safety use:

- When using the AO, AS and DT options, the recommendations for the additional

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CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION

(Annex)

No.: 2020312304000830

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requirements of Ex p apparatus shall be applied.

- The installer/user shall ensure that the MiniPurge Control Unit is installed in accordance with the equipment certificate that covers the combination of the pressurised enclosure(s) and MiniPurge Control Unit.
 - The values of the safety parameters shall be set in accordance with the equipment certificate that covers the combination of the pressurized enclosure(s) and MiniPurge Control Unit.
 - This MiniPurge Control Unit shall be incorporated into equipment and the appropriate Conformity Assessment Procedures applied to the combination. This certificate does not cover the combination.
 - The purge controller, low temperature version, shall be protected by a system that ensures that it cannot be energized if the temperature of the controller logic air or purge controller falls below -20°C. This system shall utilise the RTDs that are fitted to the purge controller to provide the appropriate level of system integrity.
 - Where a Vortex cooler is fitted the hot air outlet pipe shall be kept free from obstructions and blockage.
 - The following routine tests are to be carried out:
The vortex cooler is functioning correctly. (H6 and H7 options ONLY)
The pneumatic logic isolator is functioning correctly. (H6 and H7 options ONLY)
 - See instruction for other information.
3. Certificate related report(s):
- Type test report: CQST2009C581
 - Factory inspection report: CN2020Q010175
4. Certificate change information: None

Issued on: 2020-11-04

Director:

穆大玉



Nanyang Explosion Protected Electrical
Apparatus Research Institute Co.,Ltd.



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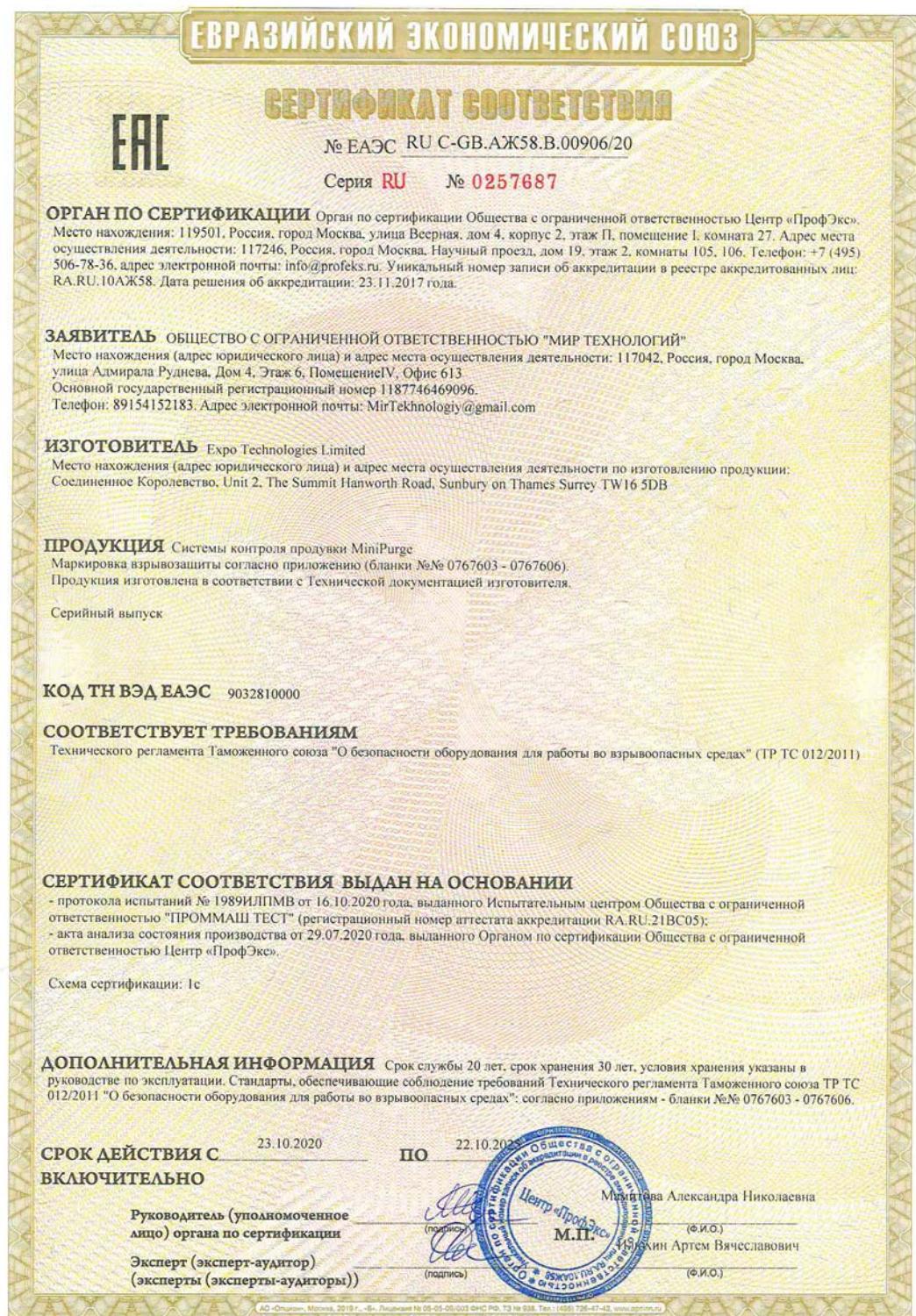
CERTIFICATE

*In accordance with
SERCONS INTERNATIONAL
Russian Certification Authority in Europe*

*the company:
Expo Technologies Limited,
United Kingdom, Unit 2,
The Summit Hanworth Road,
Sunbury on Thames Sur-rey,
TW16 5DB*

*fulfills the necessary requirements to be
certified according to EAC regulations.*

Valid until: 22.10.2025



ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ЕАЭС RU C-GB.АЖ58.В.00906/20
Серия RU № 0767605

| | |
|---|---|
| Комбинированное исполнение Низкотемпературное с высокотемпературным - Н7 | IEx [px] d e mb IIC T3/T4 Gb (-60°C ≤ Tamb < +60°C) [температура предуваемого воздуха до +70°C] |
| Комбинированное исполнение | IEx [px] d e mb IIC T3/T4 Gb (-60°C ≤ Tamb < +60°C) |
| Низкотемпературное с высокотемпературным - Н7 и /ET & /ES | IEx [px] d e mb IIC T3/T4 Gb (-60°C ≤ Tamb < +60°C) [температура предуваемого воздуха до +70°C] |

Перечень взрывозащищенного оборудования, входящего в состав систем контроля продувки MiniPurge, представлен в таблице 2.

Таблица 2.

| № | Наименование | Завод-изготовитель | Маркировка |
|----|------------------------------------|--------------------|---|
| 1. | Клеммные коробки модели MIU e | Expo Technologies | IEx e IIC T5 Gb Ex ib IIC T100°C Db |
| 2. | Клеммные коробки модели MIU d | Expo Technologies | IEx d IIC T* Gb Ex ib IIC T* Db IEx d IIIB+H2 T* Gb Ex ib IIC T* Db IEx d IIIB+H2 T3 Gb |
| 3. | Модуль электронного таймера ETM-IS | Expo Technologies | 0Ex ia IIC T* Ga Ex ia IIC T* Da |
| 4. | Нагреватель CP | Intertec-Hess GmbH | IEx d IIC T3 |
| 5. | Клеммные коробки модели BPG | Abtech | IEx e IIC T6 Gb Ex ib IIC T85°C Db |
| 6. | Клеммные коробки модели ZAG | Abtech | IEx e IIC T6 Gb Ex ib IIC T85°C Db |
| 7. | Клеммные коробки модели OTB-122 | Bartec | IEx e IIC T6 Gb Ex ib IIC T85°C Db |
| 8. | Клеммные коробки модели 07-51 | Bartec | IEx e IIC T6 Gb Ex ib IIC T80°C Db |
| 9. | Концевой выключатель 07-2511 | Bartec | IEx d IIC T6 Gb |

Конструкция систем контроля продувки MiniPurge обеспечивает их взрывобезопасность, что достигается выполнением ряда требований, в том числе:

- обеспечением продувки внутреннего пространства шкафов защитных под избыточным давлением по ГОСТ IEC 60079-2-2011 в случае установки компонентов системы общепромышленного исполнения во внутренний объем шкафов;
- выполнение корпусов шкафов и блоков элементов систем контроля продувки MiniPurge из материалов, имеющих высокую степень механической прочности, устойчивых к механическим воздействиям величиной до 7 Дж.
- выполнение корпусов из материалов не содержащих более 7,5 % магния;
- наличие на корпусе заземляющих зажимов;
- конструкция соединения деталей, исключающая возможность прорыва уплотнений или раскрытия стыков;
- обеспечением степени защиты от внешних воздействий по ГОСТ 14254-2015;
- конструкция и применяемые материалы для исключения возможности накопления и разряда статического электричества;
- разъемные соединения сборочных единиц, обеспечивающие взрывозащиту электрооборудования, имеют устройства для предотвращения произвольного самоослабления;
- на двери и крышки защищаемого оборудования нанесены предупредительные надписи: «ПРЕДОСТЕРЕЖЕНИЕ! НЕ ОТКРЫВАТЬ ПРИ ВОЗМОЖНОМ ПРИСУСТВИИ ВЗРЫВООПАСНОЙ СРЕДЫ ИЛИ ПОД НАПРЯЖЕНИЕМ» или подобные.
- монтаж, эксплуатация, ремонт и обслуживание систем контроля продувки MiniPurge должны производиться в строгом соответствии с требованиями руководства по эксплуатации. Обслуживающий персонал должен строго соблюдать требования к параметрам окружающей и рабочей сред, установленные в руководстве по эксплуатации;
- оборудование систем контроля продувки MiniPurge при применении ее по назначению и выполнении требований к монтажу и эксплуатации по ГОСТ IEC 60079-14-2013, обеспечивает безопасность, что достигается выполнением ряда требований;
- применением взрывобезопасного электрооборудования с видами взрывозащиты «взрывонепроницаемая оболочка "d"» по ГОСТ IEC 60079-1-2011, продувка оболочки под избыточным давлением "р" по ГОСТ IEC 60079-2-2011, повышенная защита вида "e" по ГОСТ Р МЭК 60079-7-2012, искробезопасная электрическая цепь "i" по ГОСТ Р 31610.11-2012, видом взрывозащиты «герметизация компаундом "m"» по ГОСТ Р МЭК 60079-18-2012, защитой от воспламенения пыли оболочками "T" по ГОСТ IEC 60079-31-2013, конструкция которого соответствует требованиям ГОСТ Р 31610.0-2014 и соблюдением условий безопасного применения «X».

Внесение изменений в согласованные чертежи и конструкцию изделий возможно только по согласованию с ОС ООО Центр "ПрофЭкс".

Данный сертификат соответствия подтверждает соответствие требованиям взрывобезопасности ТР ТС 012/2011 и не рассматривает любые другие виды безопасности при эксплуатации оборудования.

Руководитель (уполномоченное лицо) органа по сертификации
Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))



Махова Александра Николаевна
(Ф.И.О.)
Михохин Артем Вячеславович
(Ф.И.О.)

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ЕАЭС RU C-GB.АЖ58.В.00906/20
Серия RU № 0767606

3. Системы контроля продувки MiniPurge соответствуют требованиям:

ТР ТС 012/2011

Технический регламент Таможенного союза «О безопасности оборудования для работы во взрывоопасных средах»

ГОСТ 31610.0-2014

Взрывоопасные среды. Часть 0. Оборудование. Общие требования

ГОСТ IEC 60079-1-2011

Взрывоопасные среды. Часть 1. Оборудование с видом взрывозащиты "взрывонепроницаемые оболочки "d"

ГОСТ IEC 60079-2-2011

Взрывоопасные среды. Часть 2. Оборудование с видом взрывозащиты заполнение или продувка оболочки под избыточным давлением "р"

ГОСТ Р МЭК 60079-7-2012

Взрывоопасные среды. Часть 7. Оборудование. Повышенная защита вида "e"

ГОСТ 31610.11-2012

Электрооборудование для взрывоопасных газовых сред. Часть 11. Искробезопасная электрическая цепь "i"

ГОСТ Р МЭК 60079-18-2012

Взрывоопасные среды. Часть 18. Оборудование с видом взрывозащиты "герметизация компаундом "m"

ГОСТ IEC 60079-31-2013

Взрывоопасные среды. Часть 31. Оборудование с защитой от воспламенения пыли оболочками "T"

ГОСТ IEC 60079-14-2013

Взрывоопасные среды. Часть 14. Проектирование, выбор и монтаж электроустановок

4. Маркировка взрывозащиты

Маркировка наносится на оборудование, включает следующие данные:
- наименование изготовителя или его зарегистрированный товарный знак;
- наименование изделия;
- маркировку взрывозащиты (см.таблицу 1);
- температуру эксплуатации (см.таблицу 1);
- дату выпуска;
- порядковый номер изделия по системе нумерации предприятия-изготовителя, включающий обозначение типа оборудования;
- название или знак органа по сертификации и номер сертификата соответствия;

Маркировка специальным знаком взрывобезопасности и единичным знаком обращения продукции в соответствии с ТР ТС 012/2011.

5. Специальные условия применения

- контроллер продувки, установленный на передней части оборудования, не должна подвергаться воздействию прямых источников ультрафиолетового излучения или прямых солнечных лучей;
- защитный газ не должен содержать горючих газов, паров и влаги, а также агрессивных примесей;
- в процессе эксплуатации запрещается изменять время предпусковой продувки; пределы срабатывания блокировок по избыточному давлению и установки по величине расхода;
- перед вводом в эксплуатацию, после ремонта и профилактических работ необходимо выполнить проверки величин сигнала достижения защитным газом допустимого минимального или максимального избыточного давления; расхода защитного газа;
- отключать блокировки и сигнальную систему для проведения наладочных работ разрешается только при условии отсутствия взрывоопасной окружающей среды в течение всего времени отключения блокировок;
- запрещается проводить ремонт электронных схем, обеспечивающих исправное исполнение. В случае выхода из строя печатные платы и элементы неразъемных электрических цепей должны заменяться новыми, предоставленными изготовителем;
- монтаж, эксплуатацию, осмотр, обслуживание и ремонт оборудования, имеющего в маркировке знак «Х» следует осуществлять строго в соответствии с руководством по эксплуатации, изложенным в сопроводительной технической документации на данное оборудование (см.таблицу 2), а также с учетом всех требований ГОСТ IEC 60079-14-2013 и отраслевых Правил безопасности.

Руководитель (уполномоченное лицо) органа по сертификации
Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))



Махова Александра Николаевна
(Ф.И.О.)
Михохин Артем Вячеславович
(Ф.И.О.)

EC - TYPE EXAMINATION CERTIFICATE

1 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC

2 EC - Type Examination
Certificate Number:

3 Equipment or Protective System: **PL6** Range of Junction Boxes**

4 Manufacturer: **Hawke International**

5 Address:
Oxford Street West, Ashton-under-Lyne, Lancashire, OL7 0NA
6 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

7 Baseefa (2001) Ltd, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **GB/BAS/Ex/TR06.0033/00**

8 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2004, EN60079-7:2003, EN 61241-1: 2004, EN 61241-1: 2004

9 except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

(Ex II 2GD Ex II Ex d A21 T(se schedule) 80°C Tamb -60°C to (see schedule)

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0500**

Project File No. **04/0901**

This certificate is granted subject to the general terms and conditions of
Baseefa (2001) Ltd. It does not necessarily indicate that the equipment
may be used in particular industries or circumstances.

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Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305570 at the above address

| | 13 | 14 | 15 |
|--|-----------------|----|--|
| | Schedule | | Certificate Number Baseefa06ATEX0117X |
| | | | |

| Description of Equipment or Protective System | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| The PL6** Range of Junction Boxes consist of the type ZPL6* range of plastic empty enclosures covered by Baseefa06ATEX0116U Exe II. The junction boxes are fitted with a variety of different terminal arrangements. All the terminals are covered by their own component certificates and are coded Exe II. The terminals are listed on D9160 held on Baseefa General Technical File 0500. The actual terminals fitted to each junction box will be listed in the schedule of the instruction sheet supplied with the junction box. | | | | | | | | | |
| The terminals must be used within their relevant temperature range, voltage and current limitations, and fitted in accordance with IEC 60079 with regard to creepage and clearance distances by Hawke International. Details on drawing C2542 describe partitioning arrangements which allow for the termination of intrinsically safe (i.s.) circuits and non i.s. circuits within the same junction box. When i.s. circuits are present an additional label is fitted to the outside of the junction box stating 'INTRINSICALLY SAFE CIRCUITS ENCLOSED'. | | | | | | | | | |
| The maximum power dissipation within each junction box is as follows: | | | | | | | | | |
| $\text{Power} = I^2 \times N (R_t + R_c) \text{ Watts}$ | | | | | | | | | |

Where:
I = Actual current through the conductor up to the maximum permitted certified current of the terminal when fitted in a junction box (Amps).
N = Number of terminals
R_t = Terminal Resistance (Ohms at 20°C)
R_c = Resistance of one conductor (Ohms at 20°C) when using a maximum diagonal cable length listed in the above table.

Earth facilities and cable entries are described on the component certificate for the empty enclosures Basefa06ATEX0116U. A suitable certified internal rail mounted earth terminal may be used. If a 'clean earth' is required a rail mounted power terminal may be used.
When required a component certified breather, drain or breather-drain may be fitted to the junction box as specified on the component certificate Basefa06ATEX0116U. When fitted the IP rating of the junction box is reduced to the breather drain fitted, but must be at least IP54, and may no longer be suitable for category 2D. Breather drains must be installed in their correct orientation in the bottom face of the junction box.

16 Report Number
GB/BAS/Ex/TR06.0033/00

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.
Re-issued 06/07/10 – minor clarifications



17 Special Conditions for Safe Use

1. When used under dust layers the maximum depth shall be no greater than 50mm.
2. Unused cables entries must be fitted with the following stopping plugs:
Hawke type 375 to Baseefa06ATEX0236U / IECEx BAS 06.0036U
Hawke type 387 to Baseefa06ATEX0118U / IECEx BAS 06.0029U
Redapt type PU-E-4 to SIRAO0ATEX3091
Redapt type PU-D to SIRAO0ATEX1094
Raxton types CK, CQ, CF and CB to SIRAO0ATEX1073U
3. Any breathing and draining device must be installed in its correct orientation in the bottom face of the enclosure.
4. All terminal screws, used and unused, shall be fully tightened down by the end user.
5. Insulation of conductors must extend to within 1 mm of the metal of the terminal throat unless specified otherwise on the terminal certificate.
6. No more than one single or multi-stranded lead shall be connected to either side of any terminal unless multiple conductors have been joined in a suitable manner, e.g. two conductors into a single insulated bootlace ferrule, any method indicated on the terminal certificate.
7. Terminals shall be installed in such a manner that the creepage and clearance distances between the terminal and adjacent components, enclosure walls and covers complying with the requirements of IEC 60079 for the rated voltage of the equipment.
8. Terminal temperatures must not exceed the operating range specified on the component certificate.
9. All terminals, and accessories such as cross-connectors, shall be installed in accordance with the terminal manufacturer's instructions. Hawke International will supply the relevant terminal manufacturer's instructions with each junction box covered by this certificate.
10. The maximum voltage, current and dissipated power shown on the rating label must not be exceeded.
11. When connecting conductors of cross section below the maximum allowed for the particular terminal then the maximum amps per pole must be reduced inline with the maximum amps permitted for a terminal equivalent conductor size fitted e.g. If a terminal that can take a 10mm² conductor at 40Amps is fitted with a 4mm conductor then the current shall be reduced to a maximum of 22Amps, or the rating marked on the apparatus label, whichever is the lower.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

| Number | Sheet | Issue | Date | Description |
|--------|-------|-------|----------|---------------------------|
| C2542 | - | B | 31/07/06 | PL6** General Arrangement |
| 9004 | - | B | 03/08/06 | PL626 General Arrangement |

All drawings are common to and held on IECEx BAS 06.0028X

1 SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres

Directive 94/9/EC

Baseefa06ATEX0117X/1

3 Supplementary EC - Type Examination Certificate Number:

Supplementary Certificate Number:

Examination Certificate Number:

4 Equipment or Protective System:

Equipment or Protective System:

Manufacturer:

HAWKE INTERNATIONAL

5 Address:

Oxford Street West, Ashton-under-Lyne, Lancashire, OL7 0NA

This supplementary certificate extends EC - Type Examination Certificate No. Baseefa06ATEX0117X to apply to

equipment or protective systems designed and constructed in accordance with the specification set out in the

Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and

the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

Project File No. 10/0532

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

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Buxton, Derbyshire SK17 9RZ

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Registered in England No. 4305578. Registered address as above.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

Schedule

Certificate Number Baseefa06ATEX0117X/1

15 Description of the variation to the Equipment or Protective System

Variation 1.1

To allow the use of the following stopping plug:

| Manufacturer | Product | Type | Certificate Number | IP Rating |
|--------------|---------------|-------|--|-----------|
| Hawke | Stopping Plug | 387/1 | Sira06ATEX12401U Operating Temperature -20°C to +60°C | IP66 |

16 Report Number

GB/BAS/TR10.0155/00

17 Special Conditions for Safe Use

None additional to those listed previously

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

None

This supplementary certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. 0500

Project File No. 10/0718

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.


R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

Baseefa

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Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.



Schedule

Certificate Number Baseefa06ATEX0117X/2

Description of the variation to the Equipment or Protective System

Variation 2.1

Addition of further Special Condition for Safe Use regarding closing of unused entries.

Report Number

GB/BAS/TR 0.0270/00

Additional Special Conditions for Safe Use

Unused entries may be fitted with alternative stopping plugs and/or breather drains to those listed in the schedule. The user is responsible for ensuring that the protection concept, temperature class and relevant IP rating are maintained.

Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

Drawings and Documents

None

SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres

Directive 94/9/EC

Baseefa06ATEX0117X/3

PL6*** RANGE OF JUNCTION BOXES

HAWKE INTERNATIONAL

Oxford Street West, Ashton-under-Lyne, Lancashire, OL7 0NA

This supplementary certificate extends EC – Type Examination Certificate No. Baseefa06ATEX0117X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

Item 9 of the original Certificate is replaced by "Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

IEC 60079-0: 2011 EN 60079-7: 2007 EN 60079-31: 2009

except in respect of those requirements listed at item 18 of the Schedule."

9 The marking of the equipment has changed from the original Certificate and shall include the following:

Ex II 2GD Ex e IIC T(see schedule) Gb Ex tb IIC T80°C Db IP66 and IP67
Tamb -60°C to +(see schedule)

This certificate shall be held with the original certificate and may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. 0500

Project File No. 12/0352

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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R S SINCLAIR MBE

DIRECTOR
On behalf of
Baseefa



- 13 **Schedule**
14 Certificate Number Baseefa06ATEX0117X/3

15 **Description of the variation to the Equipment or Protective System**

Variation 3.1

To confirm that the equipment covered by this certificate has been reviewed against the requirements of IEC 60079-0: 2011, EN 60079-7: 2007, EN 60079-31: 2009 in respect of the differences from EN 60079-0: 2004, EN 60079-7: 2003, EN 61/241-0: 2004 and EN 61/241-1:2004, and the equipment has been assessed and is in compliance with the requirements of the latest standards.

The marking is now as follows:

(Ex) II 2GD Ex e IIC T(see schedule) Gb Ex tb IIC T80°C Db IP66 and IP67
T_amb -60°C to +(see schedule)

16 **Report Number**

GBBAS/TRI/2.0113/00

17 **Specific Conditions of Use**

None additional to those listed previously

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 **Drawings and Documents**

| Number | Sheet | Issue | Date | Description |
|--------|--------|-------|----------|--|
| C2542 | -- | C | 03/04/12 | General arrangement type 'PL6' series junction box |
| 9004 | 1 of 1 | C | 03/04/12 | PL626 Certification drawing |

Drawings held on IECEX BAS 06.0028X and common to Baseefa06ATEX0117X

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

| | | |
|------------------|--------------------|-------------|
| Certificate No.: | IECEx BAS 06 0028X | Issue No. 4 |
| Status: | Current | |
| Date of Issue: | 2014-02-11 | Page 1 of 4 |

Certificate history:
Issue No. 4 (2014-2-11)
Issue No. 3 (2012-4-30)
Issue No. 2 (2010-11-25)
Issue No. 1 (2010-7-7)
Issue No. 0 (2006-8-11)

Applicant:

Hawke International
A Division of Hubbell Ltd.
A member of the Hubbell Group of Companies
Oxford Street West
Ashton-under-Lyne, Lancashire
OL7 0NA
United Kingdom

Electrical Apparatus:
Optional accessory:

Type of Protection:

Ex e II

Ex e IIC T (see schedule) Gb
Ex tb IIIC T80°C Db IP66 and IP67
Tamb -50°C to + (see schedule)

Approved for issue on behalf of the IECEx
Certification Body:

R S Sinclair

General Manager

General Manager

Position:

W. J. Dowdy

1/27/14

Date:

1/27/14

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.

Certified issued by
SGS Baseefa Limited
Rockhead Business Park
Staden Lane
Buxton
Derbyshire
SK17 9RZ
United Kingdom



SGS

Quality Assessment Report:
GBIBAS/QAR06.0061/03

Test Report:
GBIBAS/EXTR06.0155/00
GBIBAS/EXTR12.0113/00

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

GBIBAS/EXTR10.0270/00

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IECEx Certificate of Conformity



IECEx BAS 06 0028X

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Manufacturer:

Hawke International
A Division of Hubbell Ltd.
A member of the Hubbell Group of Companies
Oxford Street West
Ashton-under-Lyne, Lancashire
OL7 0NA
United Kingdom

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 O2 and Operational Documents as amended.

STANDARDS:

The electrical 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
Edition: 6.0
IEC 60079-31 : 2008
Edition: 1
IEC 60079-7 : 2006-07
Edition: 4

Explosive atmospheres - Part 0: General requirements
Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure 't'
Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

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

IECEx Certificate of Conformity



Certificate No.:

IECEx BAS 06.0028X

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4

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Schedule

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

The PI6** Range of Junction Boxes comprises the type ZPL6** range of empty glass filled polyester enclosures, covered by IECEx BAS 06.0027U Ex II, fitted with a variety of different terminal arrangements.

All the terminals are covered by their own component certificates and are coded Ex II, Drawing D9160, held on Baseefa General Technical File 0500, gives details of the permitted terminals, their rated conductor sizes, and their maximum permitted current ratings when used in this application.. Note that the ratings for junction box use may be lower than the maximum ratings given in the terminal certificate.

The actual terminals fitted to each junction box will be listed in the schedule of the instruction sheet supplied with the junction box. The method of calculating the overall rating of the junction box, according to the ambient temperature range and temperature class, is given with the full equipment description in Annex 1 to this certificate.

CONDITIONS OF CERTIFICATION: YES as shown below:

1. When used under dust layers the maximum depth shall be no greater than 50mm.
2. Unused entry holes must be fitted with one of the following stopping plugs:
Hawke Type 375 - Baseefa06ATEX0296U / IECEx BAS 06.0056U
Hawke Type 387 to baseefa06ATEX0180U / IECEx BAS 06.0029U
3. Redapt Type PD-E-4 to SIRAD00ATEX3091
4. Redapt Type PD-U to SIRAD00ATEX1094
5. Raxton Types CK, CQ, CF and CB to SIRAD00ATEX1073U
6. Any breathing and draining device as listed on the ZPL6** Component Certificate must be installed in its correct orientation in the bottom face of the enclosure.
7. Terminals and their accessories shall be installed in such a manner that the creepage distances and clearances between the terminal and adjacent components, enclosure walls and covers comply with the requirements of IEC 60079-7 for the rated voltage of the equipment.
8. Terminal temperatures must not exceed the operating range specified on the component certificate for the terminal.
9. All terminals, and accessories such as cross-connectors, shall be installed in accordance with the terminal manufacturer's instructions. Hawke International will supply the relevant terminal manufacturer's instructions with each junction box covered by this certificate.
10. The maximum voltage, current and dissipated power shown on the rating label must not be exceeded.
11. When connecting conductors of cross section below the maximum allowed for the particular terminal then the maximum amps per pole must be reduced inline with the maximum amps permitted for a terminal equivalent to the conductor size fitted e.g. if a terminal that can take a 10mm² conductor at 40Amps is fitted with a 4mm² conductor then the current shall be reduced to a maximum of 22Amps, or the rating marked on the apparatus label, whichever is the lower.
12. The enclosure is limited to the temperature range of the stopping plug fitted.
13. Unused entries may be fitted with alternative stopping plugs and/or breather drains to those listed in the schedule. The user is responsible for ensuring that the protection concept, temperature class and relevant IP rating are maintained.

IECEx Certificate of Conformity



IECEx Certificate of Conformity

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Variation 4.1

To correct minor typographical error.

Certificate No.:

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Issue No.:

Page 4 of 4

SGS Baseefa Limited
Rockhead Business Park
Staden Lane, Buxton, Derbyshire
SK17 9RZ
United Kingdom



ANNEX to IECEx BAS 06.0028X

Issue No. 1

Date: 2014/02/11

The PL6** Range of Junction Boxes comprises the type ZPL6** range of empty glass filled polyester enclosures, covered by IECEx BAS 06.0027U Ex II, fitted with a variety of different terminal arrangements.

All the terminals are covered by their own component certificates and are coded Ex II. Drawing D9160, held on Baseefa General Technical File 0500, gives details of the permitted terminals, their rated conductor sizes, and their maximum permitted current ratings when used in this application. Note that the ratings for junction box use may be lower than the maximum ratings given in the terminal certificate.

The terminals are used within their relevant temperature range, voltage and current limitations, and fitted in accordance with IEC 60079-7 with regard to creepage distances and clearances by Hawke International. A specified partitioning arrangement allows for the termination of intrinsically safe (i.s.) circuits and non i.s. circuits within the same junction box. When i.s. circuits are present, an additional label is fitted to the outside of the junction box stating 'INTRINSICALLY SAFE CIRCUITS ENCLOSED'.

The maximum power dissipation within each junction box is as follows:

| BOX TYPE | T _{range} | T _{start} | T _{end} | T _{range} | T _{start} | T _{end} | T _{range} | T _{start} | T _{end} | Maximum Power Dissipation (Watts) | T _{range} | T _{start} | T _{end} | T _{range} | T _{start} | T _{end} | T _{range} | T _{start} | T _{end} | |
|----------|--------------------|--------------------|------------------|--------------------|--------------------|------------------|--------------------|--------------------|------------------|-----------------------------------|--------------------|--------------------|------------------|--------------------|--------------------|------------------|--------------------|--------------------|------------------|------|
| | | | | | | | | | | | | | | | | | | | | |
| PL612 | 4.1 | 80°C | -60 | 16 | 80°C | -60 | 16 | 80°C | +40°C | 1.5 | -60 | T5 | +65°C | -40°C | +40°C | +40°C | +40°C | +40°C | +40°C | |
| PL615 | 6.4 | 6.4 | 2.5 | 7.1 | 7.1 | 4.0 | 4.0 | 7.1 | 7.1 | 2.4 | 4.2 | 4.2 | 4.2 | 8.8 | 15.6 | 15.6 | 11.4 | 11.4 | 4.1 | 3.0 |
| PL620 | 11.4 | 11.4 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 4.2 | 4.2 | 4.2 | 4.2 | 6.4 | 11.4 | 11.4 | 8.5 | 8.5 | 6.4 | 4.8 |
| PL626 | 11.4 | 11.4 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 4.2 | 4.2 | 4.2 | 4.2 | 15.6 | 15.6 | 15.6 | 11.4 | 11.4 | 8.5 | 8.5 |
| PL630 | 20.8 | 20.8 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 7.8 | 7.8 | 7.8 | 7.8 | 28.6 | 28.6 | 28.6 | 20.8 | 20.8 | 15.6 | 15.6 |

The maximum number of terminals which may be fitted into each junction box is calculated using the following formula:

$$\text{Power} = I^2 \times N (R_i + R_c) \text{ Watts}$$

Where:

I = Actual current through the conductor up to the maximum permitted certified current of the terminal when fitted in a junction box (Amps).

N = Number of terminals.

R_i = Terminal resistance (Ohms at 20 DegC)

R_c = Resistance of one conductor (Ohms at 20 DegC) when using a maximum diagonal cable length listed in the above table.

Earth facilities and cable entries are described on the component certificate for the empty enclosures IECEx BAS 06.0027U.

A suitable certified internal rail mounted earth terminal may be used. If a 'clean earth' is required a rail mounted power terminal may be used. (Earth terminals are not considered to contribute to the power dissipation.)

When required, a component certified breather, drain or breather-drain may be fitted to the junction box as specified on the component certificate IECEx BAS 06.0027U.



EU Authorized Representative:
ExpoPharma Engineering Services Ltd
46 Eastcote Drive, Little Island,
Co. Cork, T45 WR68 Ireland.
E EUAR@expopharma.ie

Manufacturer:
Expo Technologies Ltd
Unit 2, The Summit, Hanworth Road,
Sunbury-on-Thames, TW16 5DB, U.K.
E sales@expoworldwide.com

EU Declaration of Conformity



This is to declare that the products listed below are manufactured in conformity with the following EU Directives under the sole authority of Expo Technologies Ltd:

Electronic Timer Modules Type ETM-IS_*****

The ETM-IS is a powered electronic timer module designed to be powered by a battery or power supply. The battery pack contains a non-rechargeable battery. The timer settings are controlled by two BCD switches. Connections from the timer to a switch to enable timing and a solenoid valve which is used to terminate the timing cycle are provided. The solenoid valve is supplied with the timer and battery or power supply (certified separately). Four LED's are used to indicate the status of the timer circuit.

Low Voltage Directive 2014/35/EU

Electronic Timer Modules Type ETM-IS**_*** are intended for use in potentially explosive atmospheres (Hazardous Areas) and are therefore excluded from the Low Voltage Directive.

ATEX Directive 2014/34/EU Equipment for explosive atmospheres

Electronic Timer Modules Type ETM-IS**_*** are designed to conform to the ATEX Directive in fulfilment of the essential health and safety requirements set out in Annex II, and in compliance with:

EN 60079-0: 2018

EN 60079-11: 2012

Electronic Timer Modules Type ETM-IS**_*** are certified by FM Approvals Europe Ltd. One Georges Quay Plaza, Dublin, Ireland. D02 E440, under EU Type-Examination Certificate FM10ATEX0003, in compliance with:

EN 60079-0: 2012 + A11:2013

EN 60079-11: 2012

Electronic Timer Modules Type ETM-IS**_*** are rated and shall be marked as follows:

Group II Category 1 G
Group II Category 1 D

II 1 G
 II 1 D

Electronic Timer Modules Type ETM-IS**_*** are manufactured under Production Quality Assurance Notification SIRA 99 ATEX M043, issued by CSA Group Netherlands B.V. (CSA), Notified Body No 2813.

Signed for and on behalf of Expo Technologies Ltd.,

John Paul De Beer
Managing Director

Date 2nd November 2021
Confidential Assessment file reference SC039



中国国家强制性产品认证证书



Sitiias
Worldwide Access

证书编号: 2020322304000843

认证委托人名称: 博太科防爆设备(上海)有限公司

认证委托人地址: 上海市闵行区浦江高科技园F区新骏环路188号7号楼101、
401

生产者名称: BARTEC GmbH

生产者地址: Max-Eyth-Str. 16 97980 Bad Mergentheim Germany

生产企业名称: BARTEC GmbH

生产企业地址: Max-Eyth-Str. 16 97980 Bad Mergentheim Germany

产品名称: 限位及行程开关

系列、规格、型号: 07-25系列, 07-291系列

标准: GB 3836.1-2010、GB 3836.2-2010、GB 12476.1-2013、
GB 12476.5-2013

上述产品符合强制性产品认证实施规则 CNCA-C23-01:2019 的要求, 特发此证。

发证日期: 2020年8月28日 有效期至: 2025年8月27日

首次发证日期: 2020年8月28日

证书有效期内本证书的有效性依据发证机构的定期监督获得保持。

本证书的相关信息可通过国家认监委网站 www.cnca.gov.cn 查询



批准:



上海仪器仪表自控系统检验测试所有限公司

<http://www.sitiias.com.cn>

中国·上海·漕宝路103号200233

电话: +86 21 64510844

S 0000882



CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION



Sitiias
Worldwide Access

CERTIFICATE NO: 2020322304000843

APPLICANT:

BARTEC Explosion Proof Appliances (Shanghai) Co. Ltd

New Building 7,101、401 No. 188, Xinjun Ring Rd., Shanghai
Pujiang Hi-Tech Park(Pu Dong Area), Minhang
District, Shanghai China

MANUFACTURER:

BARTEC GmbH

ADDRESS:

Max-Eyth-Str. 16 97980 Bad Mergentheim Germany

FACTORY:

BARTEC GmbH

ADDRESS:

Max-Eyth-Str. 16 97980 Bad Mergentheim Germany

PRODUCTNAME:

Limit and Position Switch

SERIES,SPECIFICATION,MODEL: 07-25 Series, 07-291 Series

STANDARDS: GB 3836.1-2010、GB 3836.2-2010、GB 12476.1-2013、GB 12476.5-2013

This is to certify that the above mentioned product(s) complies with the requirements of implementation rules for compulsory certification (REFNO. CNCA-C23-01:2019).

Valid from: August 28, 2020

Valid until: August 27, 2025

Date of original certification: August 28, 2020

The validity of this certificate is subject to positive result of the regular follow up inspection by issuing certification body until the expiry date.

This certificate is available through CNCA's website: www.cnca.gov.cn



APPROVAL:

Xu JianPing



Shanghai Inspection and Testing Institute of Instruments and Automation Systems Co., Ltd.

<http://www.sitiias.com.cn>

Building 9, 103 Cao Bao Road, Shanghai 200233, China

Tel: +86 21 64510844

S 0000517



中国国家强制性产品认证证书



Sitiias
Worldwide Access

证书编号: 2020322304000843

附 件

产品名称: 限位及行程开关

型号规格: 07-25 *a* 1 - *b c d e / f g h i*, 其中

a 代表外壳类型, 可选代码为: 1, 8

b 代表应用环境, 可选代码为: 1, 3, 5, 6, 7, 8

c 代表导线长度, 可选代码为: 0~9

d 代表 1 号腔室触点类型, 可选代码为: 1, 2, 3, 4, 6, 7

e 代表 2 号腔室触点类型, 可选代码为: 0, 1, 2, 3, 4, 6, 7, A, B, C, D

f, g, h, i 为与防爆无关代码

07-291 *a - b c d e / f g h i*

a 代表应用环境, 可选代码为: 1, 3, 5, 6, 7, 8

b 代表材料保护外壳, 可选代码为: 1

c 代表导线长度, 可选代码为: 0~9

d 代表 1 号腔室触点类型, 可选代码为: 1, 2, 3, 4

e 代表 2 号腔室触点类型, 可选代码为: 1, 2, 3, 4

f, g, h, i 为与防爆无关代码

防爆标志: Ex d IIC T6/T5 Gb, Ex tD A21 T80°C/T95°C

电气参数: 最大额定电压 AC 400V, DC 250V, 最大额定电流AC 7A, DC 7A。

批准:



上海仪器仪表自控系统检验测试有限公司

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

СЕРТИФИКАТ СООТВЕТСТВИЯ



№ ЕАЭС RU C-DE.AД07.B.04162/22

Серия RU № 0272869

ОРГАН ПО СЕРТИФИКАЦИИ

Орган по сертификации Общество с ограниченной ответственностью «Центр Сертификации «ВЕЛС». Место нахождения (адрес юридического лица): 195009, РОССИЯ, город Санкт-Петербург, улица Академика Лебедева, дом 12, корпус 2, литера А, этаж 2, комната 26. Адрес места осуществления деятельности: 195009, РОССИЯ, город Санкт-Петербург, улица Академика Лебедева, дом 12 корпус 2 литер А, помещение № 6-9. Уникальный номер записи об аккредитации в реестре аккредитованных лиц № RA.RU.10АД07. Дата решения об аккредитации: 24.03.2016. Телефон: +79452211810. Адрес электронной почты: info@velessert.ru

ЗАЯВИТЕЛЬ

ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ «БАРТЕК РУС»
Место нахождения (адрес юридического лица): 111141, Россия, город Москва, проезд 3-й Перова Поле, дом 8, строение 1, помещение 253
Адрес места осуществления деятельности: 141006, Россия, Московская область, город Мытищи, шоссе Волковское, владение 5А строение 1, бизнес-центр «Волковский», офис 401
Основной государственный регистрационный номер 1107746415347.
Телефон: 74952490542 Адрес электронной почты: mail@bartek-russia.ru

ИЗГОТОВИТЕЛЬ

БАРТЕК GmbH
Место нахождения (адрес юридического лица): Германия, Max-Eyth-Straße 16, 97980 Bad Mergentheim
Адрес мест осуществления деятельности по изготовлению продукции: Соединенное Королевство, Unit 12, Basepoint Business Centre, Rivermead Dr, Westlea, Swindon SN5 7EX
Германия, Max-Eyth-Straße 16, 97980 Bad Mergentheim
Мексика, Calle poniente 4 S/N, esq. Norte 7 Ciudad industrial 87499, H-Matamoros, Tamaulipas
Китай, Nanfang Industrial Park, Dangfeng Road, Beiche, Hunan Town, Dongguan City, Guangdong 523925

ПРОДУКЦИЯ

Переключатели герконовые типа 07-211-****/****, переключатели встраиваемые типа 07-15*1-****/****, переключатели миниатюрные встраиваемые типа 07-1501-****/**** и типа 07-2501-****/****, переключатели концевые типа 07-25*1-****/****, переключатели позиционные типа 07-291-****/****, переключатели прецизионные концевые типа 07-295-**30/**** и типа 07-296-**62/****.

Маркировка взрывозащиты согласно приложению (бланки №№ 0782237 - 0782241). Продукция изготовлена в соответствии с технической документацией изготовителя для работы во взрывобезопасных средах в соответствии с требованиями Технического регламента ТР ТС 012/2011.

Серийный выпуск

КОД ТН ВЭД ЕАЭС 8536500700

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ

Технического регламента Таможенного союза "О безопасности оборудования для работы во взрывобезопасных средах" (TP TC 012/2011)

СЕРТИФИКАТ СООТВЕТСТВИЯ ВЫДАН НА ОСНОВАНИИ

Протоколов испытаний №№ 4181 ИЛПМВ, 4182 ИЛПМВ от 26.01.2022 года, выданных Испытательным центром Общества с ограниченной ответственностью «ПРОММАШ ТЕСТ» (унифицированный номер записи об аккредитации в реестре аккредитованных лиц № RA.RU.21BC05) акта анализа состояния производства от 24.08.2021 года, выданного Органом по сертификации Общество с ограниченной ответственностью «Центр Сертификации «ВЕЛС»

руководство по эксплуатации: 01-1211-6Д0004, 01-1541-6Д0006, 01-1541-6Д0007, 01-1511-6Д0006, 01-2910-6Д0004, 01-2511-6Д0005, 01-2950-6Д0004, 01-2960-6Б0001, 01-1501-6Д0005, 01-2501-6Д0003; описание: 01-1211-6Б0002, 01-1511-6Б0004, 01-2511-6Б0004, 01-2950-6Б0001, 01-2960-6Б0001, 01-1501-6Б0003, 01-2501-6Б0003; чертежей Схема сертификации: 1с

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Анализ состояния производства проведен посредством дистанционной оценки. Срок службы – не менее 20 лет, срок хранения – 2 года, условия хранения – хранить переключатели в оригинальной упаковке при температуре от -40 °C до +80 °C, окружающая среда должна быть сухой, без пыли и вибрации. Стандарты, обеспечивающие соблюдение требований Технического регламента Таможенного союза (TP TC 012/2011) "О безопасности оборудования для работы во взрывобезопасных средах": согласно приложению (бланки №№ 0782237 - 0782241).

СРОК ДЕЙСТВИЯ С 28.01.2022

ВКЛЮЧИТЕЛЬНО

Руководитель (уполномоченное лицо) органа по сертификации



Галина Александровна
(Ф.И.О.)

Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))

Мартынин Дмитрий Олегович
(Ф.И.О.)

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ЕАЭС RU C-DE.AД07.B.04162/22

Серия RU № 0782237

1. Назначение и область применения

Сертификат соответствия распространяется переключатели герконовые типа 07-211-****/****, переключатели встраиваемые типа 07-15*1-****/****, переключатели миниатюрные встраиваемые типа 07-1501-****/**** и типа 07-2501-****/****, переключатели концевые типа 07-25*1-****/****, переключатели позиционные типа 07-291-****/****, переключатели прецизионные концевые типа 07-295-**30/**** и типа 07-296-**62/****, предназначенные для коммутации электрических цепей.

Область применения переключателей герконовых типа 07-211-****/****, переключателей концевых типа 07-25*1-****/****, переключателей позиционных типа 07-291-****/****, переключателей прецизионных концевых типа 07-295-**30/**** и типа 07-296-**62/**** - взрывобезопасные зоны классов I и 2 по ГОСТ ИСК 60079-10-1-2011 и взрывоопасные зоны классов 21 и 22 по ГОСТ ИСК 60079-10-2-2011 согласно маркировке взрывозащиты электрооборудования, ГОСТ ИСК 60079-14-2011 и другим нормативным документам, регламентирующими применение оборудования в потенциально взрывоопасных средах.

Область применения переключателей миниатюрных встраиваемых типа 07-2501-****/**** - взрывобезопасные зоны классов I и 2 по ГОСТ ИСК 60079-10-1-2011 согласно маркировке взрывозащиты электрооборудования, ГОСТ ИСК 60079-14-2011 и другим нормативным документам, регламентирующими применение оборудования в потенциально взрывоопасных средах.

Область применения переключателей встраиваемых типов 07-15*1-****/****, переключатели миниатюрные встраиваемые типа 07-1501-****/**** - переключатели являются Ex-компонентами и предназначены для установки в электрооборудование, которое предназначено для установки во взрывоопасных зонах классов I и 2 по ГОСТ ИСК 60079-10-1-2011, а также в подземных выработках угольных шахт и рудников, опасных по газу (метану) и угольной пыли.

2. Описание оборудования и средств обеспечения взрывозащиты

Переключатели герконовые типа 07-211-****/**** имеют неразборную конструкцию и состоят из армированного стекловолокном пластмассового корпуса, внутри которого размещены один или два герконовых переключателя или герконовый переключатель и плавкий предохранитель, залитый компаундом вместе с постоянно присоединенным кабелем.

Переключатели миниатюрные встраиваемые типа 07-2501-****/****, переключатели концевые типа 07-25*1-****/****, переключатели позиционные типа 07-291-****/****, переключатели прецизионные концевые типа 07-295-**30/**** и типа 07-296-**62/****, переключатели встраиваемые типа 07-15*1-****/****, переключатели миниатюрные встраиваемые типа 07-1501-****/**** состоят из подвижных контактов, размещенных в корпусе, кабельного ввода, залитого компаундом и постоянно присоединенных проводников.

Структура условного обозначения переключателей приведена в руководствах по эксплуатации на переключатели.

Ex-маркировка и основные технические характеристики переключателей представлены в таблице 2.1.

Таблица 2.1

| Наименование переключателей | Ex-маркировка по ГОСТ 31610.0-2014 | Диапазон температур окружающей среды, эксплуатационной/рабочей температуры | Степень защиты от внешних воздействий по ГОСТ 14254-2015 | Максимальные электрические параметры коммутируемой цепи |
|--|--|--|--|---|
| Переключатели герконовые типа 07-211-****/**** | Ex mb IIC T6 Gb X Ex mb IIIC T80°C Db X | - 40 °C ≤ Ta ≤ + 70 °C | IP68 | 200 В переменного/постоянного тока, 0,5 А, 10 Вт (10 В·А) в зависимости от установленного геркона |

Руководитель (уполномоченное лицо) органа по сертификации



Галина Александровна
(Ф.И.О.)

Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))

Мартынин Дмитрий Олегович
(Ф.И.О.)

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ЕАЭС RU C-DE.АД07.В.04162/22

Серия RU № 0782238

| | | | |
|--|--|---|--|
| Переключатели встраиваемые типа 07-15*1-****/**** | Ex d I Mb U Ex d IIc Gb U | Диапазон эксплуатационной температуры: от -20 °C до +100 °C от -55 °C до +100 °C от -60 °C до +100 °C в зависимости от исполнения | - 400 В переменного тока, 2,0 А; 250 В переменного тока, 7,0 А; 250 В постоянного тока, 0,5 А; 30 В постоянного тока 7,0 А или 0,4 А (согласно эксплуатационной документации изготовителя и заводской табличке с маркировкой) |
| Переключатели миниатюрные встраиваемые типа 07-1501-****/**** | Ex d I Mb U Ex d IIc Gb U | Диапазон эксплуатационной температуры: от -60 °C до +100 °C (в зависимости от используемых проводов и исполнения переключателя) | - 250 В переменного тока, 5,0 А или 1,0 А; 30 В постоянного тока, 3,0 А или 0,4 А; 15 В постоянного тока, 5,0 А |
| Переключатели миниатюрные встраиваемые типа 07-2501-****/**** | IEx d IIc T5 Gb X IEx d IIc T6 Gb X | -60 °C ≤ Ta ≤ +90 °C для T5 -60 °C ≤ Ta ≤ +75 °C для T6 | - 250 В переменного тока, 5,0 А или 1,0 А; 30 В постоянного тока, 3,0 А или 0,4 А; 15 В постоянного тока, 5,0 А |
| Переключатели концевые типов 07-25*1-****/**** и переключатели позиционные типа 07-29*1-****/**** | IEx d IIc T5 Gb X Ex tb IIIC T95°C Db X IEx d IIc T6 Gb X Ex tb IIIC T80°C Db X | -60 °C ≤ Ta ≤ +90 °C для T5 -60 °C ≤ Ta ≤ +75 °C для T6 | IP66 400 В переменного тока, 2,0 А; 250 В переменного тока, 7,0 А; 250 В постоянного тока, 0,5 А; 30 В постоянного тока, 7,0 А; 30 В постоянного тока, 0,4 А |
| Переключатели прещипонные концевые типа 07-295*-**30/**** | IEx d IIc T6 Gb X Ex tb IIIC T80°C Db X | -20 °C ≤ Ta ≤ +60 °C Максимальная эксплуатационная температура до 90°C | IP65 250 В переменного тока, 5,0 А; 230 В постоянного тока, 0,16 А |
| Переключатели прещипонные концевые типа 07-296*-**62/**** | IEx d IIc T5 Gb X Ex tb IIIC T95°C Db X IEx d IIc T6 Gb X Ex tb IIIC T80°C Db X | -20 °C ≤ Ta ≤ +65 °C для T5/195°C -20 °C ≤ Ta ≤ +75 °C для T6/T80°C Диапазон эксплуатационной температуры: от -20 °C до 90°C | IP65 250 В переменного тока, 6,0 А; 250 В постоянного тока, 0,25 А |
| Остальные технические и электрические характеристики согласно руководству по эксплуатации на конкретный тип переключателей, которое направляется изготовителем | | | |

Взрывозащищенность переключателей герконовых типа 07-*211-****/**** обеспечивается выполнением требований ТР ТС 012/2011, ГОСТ 31610.0-2014 (IEC 60079-0:2011) и видом взрывозащиты "герметизация компаундом "mb" по ГОСТ Р МЭК 60079-18-2012.

Взрывозащищенность переключателей встраиваемых типа 07-15*1-****/****, переключателей миниатюрных встраиваемых типа 07-1501-****/**** и типа 07-2501-****/**** обеспечивается выполнением требований ТР ТС 012/2011, ГОСТ 31610.0-2014 (IEC 60079-0:2011) и видом взрывозащиты взрывонепроницаемая оболочка "d" по ГОСТ ИСО 60079-1-2011.

Взрывозащищенность переключателей концевых типа 07-25*1-****/****, переключателей позиционных типа 07-291*-****/****, переключателей прещипонных концевых типа 07-295*-**30/**** и типа 07-296*-**62/**** обеспечивается выполнением требований ТР ТС 012/2011, ГОСТ 31610.0-2014 (IEC 60079-0:2011) и видами взрывозащиты: взрывонепроницаемая оболочка "d" по ГОСТ ИСО 60079-1-2011, с защитой от воспламенения пыли оболочками "tb" по ГОСТ ИСО 60079-31-2013.

Внесение изготовителем в конструкцию и техническую документацию изменений, влияющих на взрывозащищенность и соответствие переключателей требованиям ТР ТС 012/2011, возможно только по согласованию с органом по сертификации ООО «Центр Сертификации «ВЕЛЕС».

Данный сертификат соответствия подтверждает соответствие требованиям взрывобезопасности ТР ТС 012/2011 и не рассматривает любые другие виды безопасности при эксплуатации переключателей.

3. Оборудование соответствует требованиям:

Руководитель (уполномоченное лицо) органа по сертификации

Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))



Рогачев Галина Александровна
(Ф.И.О.)
Мартынук Дмитрий Олегович
(Ф.И.О.)

АО «Оникс», Москва, 2020 г., № ТЗ № 334

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ЕАЭС RU C-DE.АД07.В.04162/22

Серия RU № 0782239

TP TC 012/2011

Технический регламент Таможенного союза «О безопасности оборудования для работы во взрывоопасных средах».

Взрывоопасные среды. Часть 0. Оборудование.
Общие требования.

Взрывоопасные среды. Часть 1. Оборудование с видом взрывозащиты "взрывонепроницаемые оболочки "d".

ГОСТ Р МЭК 60079-18-2012

Взрывоопасные среды. Часть 18. Оборудование с видом взрывозащиты "герметизация компаундом "m".

ГОСТ ИСО 60079-31-2013

Взрывоопасные среды. Часть 31. Оборудование с защитой от воспламенения пыли оболочками "b".

4. Маркировка

Маркировка, наносимая на электрооборудование, должна включать следующие данные:

4.1 Наименование предприятия-изготовителя или его зарегистрированный товарный знак;

4.2 Обозначение типа оборудования;

4.3 Порядковый номер оборудования по системе нумерации предприятия-изготовителя;

4.4 Ex-маркировку согласно таблице 2.1;

4.5 Номер сертификата соответствия;

4.6 Единый знак ЕАС обращения продукции на рынке государств - членов Таможенного союза;

4.7 Специальный знак взрывобезопасности Ex в соответствии с ТР ТС 012/2011;

4.8 Другие данные, которые должен отразить изготовитель, если это требуется технической документацией (диапазон температур окружающей среды, степень защиты оболочки и т.д.).

Согласно пункту 29.10 ГОСТ 31610.0-2014 на малогабаритном электрооборудовании и на Ex-компонентах с ограниченной поверхностью маркировка может быть сокращена.

5. Специальные условия применения и шкала ограничений

5.1 Специальные условия применения для переключателей герконовых типа 07-*211-****/****:

Переключатели выполнены с постоянно присоединенными проводниками. Присоединение свободных концов проводников переключателей должно осуществляться либо за пределами взрывоопасной зоны, либо с помощью сертифицированного электрооборудования, соответствующего требованиям одного из стандартов на виды взрывозащиты, перечисленных в ГОСТ 31610.0-2014 (IEC 60079-0:2011).

Переключатели должны быть установлены таким образом, чтобы они были защищены от УФ-света и ударов, а постоянно подключенные кабели имели соответствующие концевые заделки и были защищены от ударов.

Выключатели должны питаться только от цепи, содержащей отключающее устройство настроенное на 1500 А.

5.2 Шкала ограничений для переключателей встраиваемых типа 07-15*1-****/****:

Переключатель встраиваемый должен применяться в пределах своего рабочего диапазона температур и номинальных значений, указанных в эксплуатационной документации изготовителя и на заводской табличке с маркировкой.

Переключатель встраиваемый должен быть установлен в корпусе, корпусе сертифицированного взрывозащищенного оборудования, который соответствует требованиям одного из стандартов на виды взрывозащиты, перечисленных в ГОСТ 31610.0-2014 (IEC 60079-0:2011). Стойкость к воздействию УФ-света

Руководитель (уполномоченное лицо) органа по сертификации

Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))



Рогачев Галина Александровна
(Ф.И.О.)
Мартынук Дмитрий Олегович
(Ф.И.О.)

АО «Оникс», Москва, 2020 г., № ТЗ № 334

EC-TYPE EXAMINATION CERTIFICATE

SCHEDULE

- (1) EC-Type Examination Certificate Number: KEMA 01ATEX2124 X Issue Number: 3 Issue No. 3
- (2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC
- (3) EC-Type Examination Certificate Number: KEMA 01ATEX2124 X Issue Number: 3
- (4) Equipment: Self-limiting heating element Cameo-S, Models CT-*A, LP-*A, LP-*S, CS-*S, SP-*A, LP-0AHP and LP-0SHP and Smart Heater, models SM-*A, SM-0AHP, SMLP-*A and SMLP-0AHP for fixed installation, made of aluminium or stainless steel, provided with PTC-heating elements.
- (5) Manufacturer: Condor Technology Ltd.
- (6) Address: Havenstraat 66, 1271 AG Huizen, The Netherlands
- (7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the directive.
- The examination and test results are recorded in confidential test report number 212100300.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
- EN 60079-1 : 2006
 - EN 61241-0 : 2006
 - EN 61241-1 : 2004
- (10) If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment shall include the following:
- II 2 G Ex d IIC T4 or T3
II 2 D Ex tD A21 IP6x T 135 °C or T 200 °C



This certificate is issued on January 15, 2009 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

KEMA Quality B.V.


G.G. van Es
Certification Manager

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KEMA Quality B.V. Utrechtseweg 310, 6812 AR Arnhem P.O. Box 5185, 6802 ED Arnhem The Netherlands
T +31 26 3 56 20 00 F +31 26 3 52 58 00 customer@kema.com www.kema.com Registered Arnhem 09085396

Experience you can trust.

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MEAN-P-Ex30 v2.1.2

Page 2/2

IECEx Certificate of Conformity



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

IECEx DEK 11.00017

Issue No. 0
Certificate history:
Issue No. 0 (2011-05-25)

Page 1 of 3

Certificate No.: IECEx DEK 11.00017

Issue No. 0

Certification history:

Issue No. 0 (2011-05-25)

Page 1 of 3

Status: Current

Date of Issue: 2011-05-26

Applicant: Condor Technology Ltd.
Havenstraat 66
1271 AG Huizen
The Netherlands

Electrical Apparatus: Heaters Cameo-S and Smart Heaters, Thermostat FX-THERM98

Optional accessory:

Type of Protection: Ex d, tD

Marking: Heaters: Ex d IIC T4 or T3
Ex ID A21 IP66 T 135 °C or T 200 °C
Thermostat: Ex d IIC T6 or T4
Ex ID A21 IP66 T 85 °C or T 135 °C

Approved for issue on behalf of the IECEx
Certification Body:

Position: Certification Manager

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:

DEKRA Certification B.V.
Utrechtseweg 310
6812 AR Arnhem
The Netherlands



Issue No. 0

Page 2 of 3

Certificate No.: IECEx DEK 11.00017

Date of Issue: 2011-05-26

Manufacturer: Condor Technology Ltd.
Havenstraat 66
1271 AG Huizen
The Netherlands

Additional Manufacturing location(s):

Condor Technology Ltd.
Havenstraat 66
1271 AG Huizen
The Netherlands

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 Q2 and Operational Documents as amended.

STANDARDS:

The electrical 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 :2004

Edition:4.0

IEC 60079-1 :2007-04

Edition:6

IEC 61241-0 :2004

Edition:1

IEC 61241-1 :2004

Edition:1

Electrical apparatus for explosive gas atmospheres - Part 0: General requirements

Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"

Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements

Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures "tD"

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:

NL/DEK/TEXTR11.0013/00

Quality Assessment Report

NL/DEK/QAR11.0002/00



IECEx Certificate of Conformity

Certificate No:

IECEx DEK 11.0017

Date of Issue:

2011-05-25

Issue No. 0

Page 3 of 3

Schedule

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

Self-limiting heating element Cameo-S, models CT-*A, LP-*A, SP-*S, CS-*S, SP-*A, LP-QAHP and LP-QSHP and Smart Heater, models SM-*A, SM-QAHP, SM/LP-A and SM/LP-QAHP for fixed installation. It consists of a body made of aluminium or stainless steel, alternatively with fins, complete with PTC-heating element, cable gland and cable as an integral part of the heater.

The relation between the Model and the Temperature class/ code is given in the following table:

| Model | Temperature class / code |
|-----------------------|--------------------------|
| xx-0x / xx-1x | T3 / T200 °C |
| xx-2x / xx-3x / xx-4x | T4 / T135 °C |

Ambient temperature range -60 °C to +90 °C.**Description thermostat:**

Thermostat FIX-THERM6 Model TH-... for fixed installation. It consists of a body made of aluminium or stainless steel, complete with cable gland and cable as an integral part of the thermostat. Maximum temperature for T6 / T85 °C is 80 °C. Maximum measuring temperature for T4 / T135 °C is 130 °C.

Ambient temperature range:

-50 °C to +75 °C for T6 / T85 °C
-50 °C to +90 °C for T4 / T135 °C

Electrical data:

| | |
|---------------|----------------------|
| Heaters: | |
| Rated voltage | 12-36 V or 110-240 V |
| Power | max. 500 W |
| Thermostat: | |
| Voltage | max. 240 V |
| Current | max. 6 A |

CONDITIONS OF CERTIFICATION: NO



L C I E

(A1) ATTESTATION D'EXAMEN CE DE TYPE
LCIE 99 ATEX 6017X du 22 septembre 1999

AVENANT 99 ATEX 6017X /01

(A2) DESIGNATION DE L'EQUIPEMENT OU DU SYSTEME DE PROTECTION :
Thermostat antidiéflagrant

Type : HFT

Manufactured by : HEATEX LIMITED.

(A3) OBJET DE L'AVENANT. DESCRIPTION DE L'APPAREIL OU DU SYSTEME DE PROTECTION :
Possibilité d'utiliser un bollier antidiéflagrant alternative équipée d'un thermostat ajustable.Le marquage de ce nouveau modèle est le suivant :
HEATEX LTD NORFOLK ENGLANDType : HFT
n° de fabrication :
Année de fabrication :
Ex II 2 G/DHEATEX LTD NORFOLK ENGLAND
Type : HFT
Serial number :
Year of construction :
Ex II 2 G/DLCIE 99 ATEX 6017X
DO NOT OPEN WHILE ENERGIZED
Do not open in presence of dust atmosphere.(A4) DOCUMENTS DESCRIPTIFS :
Dossier technique N°2004-15-TF Rev 4 du 13/06/2003
Ce dossier comprend 10 rubriques (11 pages).(A5) CONDITIONS SPECIALES POUR UNE UTILISATION SURE :
Inchangées.(A6) EXIGENCES ESSENTIELLES EN CE CONCERNANT LA SECURITE ET LA SANTE :
Complétées par :
Conformité à la norme européenne EN 50281-1-1 (1998).(A7) DOCUMENTS DESCRIPTIFS :
Dossier de certification 2004-15-TF rev. 03 du 01/08/08.
Ce dossier comprend 15 rubriques (16 pages).(A8) SPECIAL CONDITIONS FOR SAFE USE :
Unchangées.(A9) ESSENTIAL HEALTH AND SAFETY REQUIREMENTS :
Supplemented by :
Conformity to the European standard EN 50281-1-1 (1998).(A10) CONDITIONS SPECIALES POUR UNE UTILISATION SURE :
-60°C ≤ Tamb ≤ +60°C(A11) EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE :
Conformité aux normes européennes EN 60079-0 (2006), EN 60079-1 (2004), EN 61241-0 (2006) et EN 61241-1 (2004).(A12) VERIFICATIONS ET ESSAIS INDIVIDUELS :
NéantLe Directeur de l'organisme certificateur
Manager of the certification body

Fontenay-aux-Roses, le 18 septembre 2003

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au capital de 15 459 981 €
contratcile fr
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L C I E

(A1) EC TYPE EXAMINATION CERTIFICATE
LCIE 99 ATEX 6017X dated September 22, 1999

VARIATION 99 ATEX 6017X /01

(A2) NAME OF EQUIPMENT OR PROTECTIVE SYSTEM :
Thermostat antidiéflagrant

Type : HFT

Manufactured by : HEATEX LIMITED.

(A3) SUBJECT OF THE VARIATION. DESCRIPTION OF EQUIPMENT OR PROTECTIVE SYSTEM :
Optional thermostat adjuster added with an alternative enclosure.The marking of this new model is the following :
HEATEX LTD NORFOLK ENGLANDType : HFT
Serial number :
Year of construction :
Ex II 2 G/DHEATEX LTD NORFOLK ENGLAND
Type : HFT
IP6X, T85°C, for D
LCIE 99 ATEX 6017X
DO NOT OPEN WHILE ENERGIZED
Do not open in presence of dust atmosphere.(A4) DESCRIPTIVE DOCUMENTS :
Technical file N°2004-15-TF Rev 5 dated June 13th, 2003
This file includes 10 items (11 pages).(A5) SPECIAL CONDITIONS FOR SAFE USE :
Unchangées.(A6) ESSENTIAL HEALTH AND SAFETY REQUIREMENTS :
Supplemented by :
Conformity to the European standard EN 50281-1-1 (1998).(A7) CONDITIONS SPECIALES POUR UNE UTILISATION SURE :
-60°C ≤ Tamb ≤ +60°C(A8) EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE :
Conformité aux normes européennes EN 60079-0 (2006), EN 60079-1 (2004), EN 61241-0 (2006) et EN 61241-1 (2004).(A9) VERIFICATIONS ET ESSAIS INDIVIDUELS :
NéantFontenay-aux-Roses, le 1^{er} octobre 2008

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L C I E

1 AVENANT D'ATTESTATION D'EXAMEN CE DE TYPE

2 Appareil ou système de protection destiné à être utilisé en atmosphères explosives (Directive 94/9/CE)

3 Numéro de l'avenant :
LCIE 99 ATEX 6017 X /024 Appareil ou système de protection :
Thermostat antidiéflagrantType :
HFT, AFT5 Demandeur :
EXHEAT LIMITED

15 DESCRIPTION DE L'AVENANT

- Mise à jour selon les normes EN 60079-0 (2006), EN 60079-1 (2004), EN 61241-0 (2006) and EN 61241-1 (2004)

Les résultats des vérifications et essais figurent dans le rapport confidentiel N°77475-566018/02.

Paramètres spécifiques du ou des modes de protection concerné(s) :
Inchangées

Le marquage doit être modifié comme suit :

EXHEAT au lieu de HEATEX

HFT :
Ex II 2 G
Ex d IIC T6

II 2 G/D

AFT :
Ex II 2 G
Ex d IIC T6

II 2 GD

Ex II 2 G
Ex d IIC T6AVERTISSEMENT - NE PAS OUVRIRE SOUS TENSION
NE PAS OUVRIRE EN PRÉSENCE D'UNE ATMOSPHERE
POUSSIÈREUSE EXPLOSIVE

16 DOCUMENTS DESCRIPTIFS

Ce dossier comprend 15 rubriques (16 pages).

17 CONDITIONS SPECIALES POUR UNE UTILISATION SURE

-60°C ≤ Tamb ≤ +60°C

18 EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE

Conformité aux normes européennes EN 60079-0 (2006), EN 60079-1 (2004), EN 61241-0 (2006) et EN 61241-1 (2004).

19 VERIFICATIONS ET ESSAIS INDIVIDUELS

Néant

19 ROUTINE VERIFICATIONS AND TESTS

None

Fontenay-aux-Roses, le 1^{er} octobre 2008

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EC DECLARATION OF CONFORMITY

Issued in accordance with the

ATEX Directive 94/9/EC

EXHEAT LIMITED

of

Thrextton Road Industrial Estate, Walton, Norfolk, IP25 6NG, UK.

Declare that, in compliance with the above Directive, the product detailed below has been

manufactured in conformity with

EC Type Examination Certificate Number LCIE 99 ATEX 6017 X

Issued by LCIE (Notified Body Number 0081)

of 33, Avenue du Général Leclerc, 92260 Fontenay-aux-Roses, France

Product description:

HFT Type Flameproof Thermostat

Protection concept(s):

Flameproof 'd'

Marking:

II 2 G
Ex d IIC T6 Gb

Harmonised standards applied:

EN 60079-0: 2009
EN 60079-1: 2007

Other applicable Directives:

2004/108/EC Electromagnetic Compatibility Directive

Other standards applied:

EN 60519-2: 2006 (Safety)
EN 61000-6-4: 2007 (Emissions)
EN 61000-6-2: 2005 (Immunity)

Harmonised standards applied:

EN 60079-0: 2009

EN 60079-1: 2007

EN 60079-31: 2009

Other applicable Directives:

EN 60519-2: 2006 (Safety)

EN 61000-6-4: 2007 (Emissions)

EN 61000-6-2: 2005 (Immunity)

2004/108/EC Electromagnetic Compatibility Directive

Other standards applied:

EN 60519-2: 2006 (Safety)

EN 61000-6-4: 2007 (Emissions)

EN 61000-6-2: 2005 (Immunity)

2004/108/EC Electromagnetic Compatibility Directive

EC DECLARATION OF CONFORMITY

Issued in accordance with the

ATEX Directive 94/9/EC

EXHEAT LIMITED

of

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manufactured in conformity with

EC Type Examination Certificate Number LCIE 99 ATEX 6017 X

Issued by LCIE (Notified Body Number 0081)

of 33, Avenue du Général Leclerc, 92260 Fontenay-aux-Roses, France

Product description:
HFT Type Flameproof Thermostat
(Aluminium / externally adjustable variant)

Protection concept(s):

Flameproof 'd'
Enclosure 't'

Marking:

II 2 G D
Ex d IIC T6 Gb
Ex t IIC T85°C Db
IP6X

Harmonised standards applied:

EN 60079-0: 2009

EN 60079-1: 2007

EN 60079-31: 2009

Other applicable Directives:

EN 60079-0: 2009

EN 60079-1: 2007

EN 60079-31: 2009

Other standards applied:

EN 60519-2: 2006 (Safety)

EN 61000-6-4: 2007 (Emissions)

EN 61000-6-2: 2005 (Immunity)

2004/108/EC Electromagnetic Compatibility Directive

Other standards applied:

EN 60519-2: 2006 (Safety)

EN 61000-6-4: 2007 (Emissions)

EN 61000-6-2: 2005 (Immunity)

2004/108/EC Electromagnetic Compatibility Directive

Authorised signature:

P Alford

Name:

Date:

20 December 2012

Authorised signature:

P Alford

Name:

Date:

20 December 2012

IECEx Certificate of Conformity



Certificate No:
Date of Issue:

Issue No: 1
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Schedule

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

Thermostat contained in a flameproof enclosure with an external air temperature sensing probe contained in a suitable housing. An optional externally adjustable version is included. This equipment is designed to operate in an ambient temperature of -60°C to +60°C.

The enclosure is a flameproof enclosure with a spigot flange/panel lid to body joint, made of stainless steel (HFT model) or aluminium (AFT model).

The maximum total capacity of components included is rated to 20A, up to 300V. There are 2 models of enclosures. Each model is equipped with a probe housing. One model can be equipped by an optional external adjuster.

HFT model is suitable for a use in gas explosive atmospheres.
AFT model is suitable for a use in gas and dust explosive atmospheres.

Refer to the manufacturer technical documents for complete description.

CONDITIONS OF CERTIFICATION: YES as shown below:

The calorific transfer of sensor shall not transmit, in any case a heating above 80°C, including ambient temperature, to all thermostat part directly in contact with explosive atmosphere.

IECEx Certificate of Conformity



Certificate No:
Date of Issue:

Issue No: 1
Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

- Change of company name : EXHEAT instead of HEATEX
- Compliance for low ambient temperature -60°C.
- Tamb : -60°C up to +60°C

Certificate No: IECEx LCI 07.0003X

Date of Issue: 2008-11-17

Issue No: 1

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MANUFACTURERS DECLARATION OF CONFORMITY

Expo Technologies Document Number
EXPO 20MDOC1403X

This declaration is issued for the electrical apparatus:

ESE-OP30-003 RTD Sensor (Pipe Plug)
ESE-OP30-004 RTD Sensor (Probe)

Manufacturer

Expo Technologies Ltd
Unit 2 The Summit, Hanworth Road
Sunbury-on-Thames, Surrey
TW16 5DB, UK

This electrical apparatus and any acceptable variation thereto is specified in the Annex to this declaration and the documents therein referred to.

This declaration and schedule confirms compliance of each unit with the following standards:

IEC 60079-0 : 2017 General requirements
IEC 60079-11:2011 Equipment protection by intrinsic safety "i"

In respect of being 'simple apparatus' for the purposes of interfacing with external electrical circuits protected by intrinsically safe interfaces and assessed / installed as intrinsically safe circuits (by others).

This apparatus fulfils all the requirements for 'simple apparatus' under IEC 60079-11:2011 Section 5.7

The design is documented in Expo Technologies Confidential Assessment file number SC050

The apparatus marking (simple apparatus is exempt from IEC 60079-11 marking requirements):

$$C_i = 0 \mu F \quad L_i = 0 \text{ mH}$$

Tested for 500V ac rms isolation

For and on behalf of Expo Technologies Ltd

M. C. O'Neill
Consultant Engineer - Certification
10th August 2020

Annex 10 Declaration of Conformity EXPO 20MDOC1403X

Description

Expo Technologies purge & pressurization Systems may incorporate temperature sensors based on platinum resistance elements type PT 100, which interface between the Expo pneumatic logic environment and the users' monitoring & control system. These sensors are passive devices.

In the Expo application, these sensors are expected to be connected to intrinsically-safe circuits. To that end, the sensors have been assessed by Expo Technologies as meeting the requirements of 'simple apparatus' as defined under IEC 60079-11:2011 Section 5.7.

Special conditions of safe use

The component may only be connected to a circuit made intrinsically-safe via an approved intrinsically-safe interface (by others). Assessment of any such intrinsically-safe circuit is outside the scope of this declaration.

Verifications and tests

The component (or representative sample per batch) has been shown to comply with the circuit insulation requirements of Section 6.3.13 IEC 60079-11:2011.

Expo Test Procedure TP-518-088-WD applies.

Installation Instructions

The installation shall comply with the requirements of IEC 60079-14:2013, in particular Section 16: Additional requirements for types of protection "i" - intrinsic safety. Temperature sensors are generally afforded a T4 rating when installed as part of an intrinsically safe circuit.

The component may be considered to add 0 μF (capacitance) and 0 mH (inductance) to such a circuit.

Drawings

| Description | Doc Reference | Rev | Date |
|--------------------------------------|---------------|-----|------------|
| Low Temp Motor Purge Terminal Layout | AC-E-WC00-248 | 06 | 07/07/2020 |

<END>

EU Declaration of Conformity



Under the sole authority of Expo Technologies Ltd, we hereby declare that the Electro Pneumatic Power Supply (EPPS) models EPW-EPPS-000, -001 & -002 are manufactured in conformity with the following EU Regulations and Directives:

Electromagnetic Compatibility Directive 2014/30/EU

The EPPS was designed to comply with the EMC Directive through application of emissivity and susceptibility tests under EN 61000-6-4:2007 +A1:2011 and EN 6100-6-2:2005. Test results are recorded under Intertek Report No. 102569070LHD-001 (May 2016)

Low Voltage Compatibility Directive 2014/35/EU

EPPS units are intended for use in potentially explosive atmospheres (Hazardous Areas) and are therefore excluded from this Directive.

Pressure Equipment Directive 2014/68/EU

EPPS units are classified as not higher than Category 1 under article 13 of this Directive and also intended for use on potentially explosive atmospheres and are therefore excluded from this Directive.

ATEX Directive 2014/34/EU

EPPS units are designed to conform to the above Directive in fulfilment of the Essential Health & Safety requirements of Annex II and in compliance with:

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-11:2012 EN 60079-34:2014

EPPS units are certified under EU Type-Examination Certificate No. DEMKO 17ATEX1795X by UL International DEMKO A/S, EU Notified Body number 0539, in compliance with:

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-11:2012 EN 60079-34:2014

EPPS units are manufactured under Production Quality Assurance Notification SIRA 99ATEXM043, issued by CSA Group Netherlands B.V., EU Notified Body No. 2318.

EPPS units shall be marked as follows:

2813   II 2 (1) G Ex db [ia Ga] IIC T6 Gb
II 2 (1) D Ex tb [ia Da] IIIC T65°C Db

Technical documentation and assessments are in the Expo Technologies confidential technical file SC040 EPPS.

For and on behalf of Expo Technologies Ltd



John Paul De Beer
Managing Director

Date 2nd November 2021

UK Declaration of Conformity



Under the sole authority of Expo Technologies Ltd, we hereby declare that the Electro Pneumatic Power Supply (EPPS) models EPW-EPPS-000, -001 & -002 are manufactured in conformity with the following UK Regulations and Standards:

Electromagnetic Compatibility Regulations 016 (SI 2016/1091)

The EPPS was designed to comply with EMC Regulations through application of emissivity and susceptibility tests under EN 61000-6-4:2007 +A1:2011 and EN 6100-6-2:2005. Test results are recorded under Intertek Report No. 102569070LHD-001 (May 2016)

Electrical Equipment (Safety) Regulations 2016 (SI 2016/1101)

EPPS units are intended for use in potentially explosive atmospheres (Hazardous Areas) and are therefore excluded from this Regulation.

Pressure Equipment (Safety) Regulations 2016 (SI 2016/1105)

EPPS units are classified as not higher than Category 1 under article 13 of this Regulation and also intended for use on potentially explosive atmospheres and are therefore excluded from this Regulation.

Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres Regulations UKSI 2016:1107 (as amended by UKSI 2019:696) - Schedule 3A Part 1

EPPS units are designed to conform to the above Regulations in fulfilment of the Essential Health & Safety requirements of Annex II and in compliance with:

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-11:2012 EN 60079-34:2014

EPPS units are certified under UK Type-Examination Certificate No. UL 21UKEX2242X by UL International (UK) Limited, UK Conformity Assessment Body number 0843, in compliance with:

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-11:2012 EN 60079-34:2014

EPPS units are manufactured under Production Quality Assurance Notification CSAE 21UKQAN0005, issued by CSA Group Testing UK Limited, UK Conformity Assessment Body No. 0518.

EPPS units shall be marked as follows:

0518  **II 2 (1) G Ex db [ia Ga] IIC T6 Gb**
II 2 (1) D Ex tb [ia Da] IIIC T65°C Db

Technical documentation and assessments are in the Expo Technologies confidential technical file SC040 EPPS

For and on behalf of Expo Technologies Ltd



John Paul De Beer
Managing Director

Date 30th September 2021

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