

Dresser Chatterbox-e LED Pulse Isolation Unit

Model 123 Operating and Installation Handbook



Model 123 chatterbox-e LED
Ⓢ II (1)G [Ex Ia Ga] IIC
Baseefa03ATEX0429
BAS21UKEX0072
Natural Gas Solutions (UK) Ltd.
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ML430 / 3-4035

UK CA 1180 CE 0598

THESE INSTRUCTIONS PROVIDE THE CUSTOMER/OPERATOR WITH IMPORTANT PROJECT-SPECIFIC REFERENCE INFORMATION IN ADDITION TO THE CUSTOMER/OPERATOR'S NORMAL OPERATION AND MAINTENANCE PROCEDURES. SINCE OPERATION AND MAINTENANCE PHILOSOPHIES VARY, DRESSER NATURAL GAS SOLUTIONS (NGS) DOES NOT ATTEMPT TO DICTATE SPECIFIC PROCEDURES, BUT TO PROVIDE BASIC LIMITATIONS AND REQUIREMENTS CREATED BY THE TYPE OF EQUIPMENT PROVIDED.

THESE INSTRUCTIONS ASSUME THAT OPERATORS ALREADY HAVE A GENERAL UNDERSTANDING OF THE REQUIREMENTS FOR SAFE OPERATION OF MECHANICAL AND ELECTRICAL EQUIPMENT IN POTENTIALLY HAZARDOUS ENVIRONMENTS. THEREFORE, THESE INSTRUCTIONS SHOULD BE INTERPRETED AND APPLIED IN CONJUNCTION WITH THE SAFETY RULES AND REGULATIONS APPLICABLE AT THE SITE AND THE PARTICULAR REQUIREMENTS FOR OPERATION OF OTHER EQUIPMENT AT THE SITE.

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Overview

Building on the success of the Chatterbox-e series, the Model 123 Dresser Utility Solutions Chatterbox-e LED offers greater current sinking capability for compatibility with modern AMR and BMS loggers. Configuration has been simplified for the installer by means of a “Push to Test” button. With the button held during an input pulse, LEDs operate for each active output channel confirming the correct switch position for the desired output channel(s).

The Chatterbox-e provides the necessary safety isolation between equipment generating electrical pulses in a hazardous area and non-intrinsically safe equipment located in a safe area.

The unit is comprised of four (4) independent circuits that provide safe isolated current sinking pulses. Each input can be connected to up to four (4) isolated outputs or a combination of them, configurable by means of internal switches SW1, SW2 and SW3. Figure 2 refers to location. During an input pulse, a “push to test” button can be operated to show the channel(s) selected by way of an LED.

Certification and operation parameters

Compliance to the following EU Directives, UK Statutory Instruments, and standards thereof:


2014/30/EU
EMC


2014/34/EU
ATEX


SI 2016/1091
EMC

SI 2016/1107
Explosive Atmospheres

Explosive Atmospheres Markings:
Temperature Rating:

 II (1)G [Ex ia Ga] IIC
Tamb -20C to +40C

EU Notified Body: SGS Fimko Oy, Finland. Registration Number: 0598
Certificate Number(s): Baseefa03ATEX0429 and supplements thereof  0598

UK Approved Body: SGS Baseefa, UK. Registration Number: 1180
Certificate Number(s): BAS21UKEX0072  1180

Non-Hazardous Area Connections (Terminal Blocks TB3 to TB6)

Um = 253V rms

Hazardous Area Connections (Terminal Blocks TB1)

Uo = 3.9V Ui = 7.4V

Io = 17mA

Po = 17mW


Co = 100 μ F Ci = 0

Lo = 122mH Li = 0.5mH

Lo/Ro = 1500 μ H/ Ω

Technical Specifications

Intrinsic safety

Baseefa03ATEX0429, BAS21UKEX0072  II (1)G [Ex ia Ga] IIC. The Chatterbox-e must be installed in the safe area and is suitable for connection to equipment in hazardous areas Zone 0, 1 or 2.

Power

2 x Tadiran SL750, 1/2 AA Lithium cells. Estimated battery life is in excess of 10 years based on all four channels operating and an input frequency of <1 Hz.

Enclosure

Weatherproof aluminium enclosure IP66 rated (equivalent to NEMA 4x) suitable for wall or panel mounting.

Size: 160mm Wide x 120mm High
(including cable NG12 glands) x 62mm Deep.

Input Signal I/P

Each input is designed for:

Simple LF pulse, volt free contact closure from a gas meter meter, or other utility meter. Contact de-bouncing is standard.

Current sinking telemetry output pulse from Dresser, and other manufacturers of gas volume converters.

WARNING

Only positive voltages are permitted at inputs 1 to 4 when connecting active pulse devices.

Output Signal O/P

Open collector capable of accepting up to 30vdc from the third party logger/BMS/AMR device.

Connection is polarity sensitive.

During operation a 200ms pulse sinks current to drop voltage to Logic Lo, enabling the third party logger/BMS/AMR to register an "ON" signal.

Expected Voltage : 1.5 to 30 vdc

Pulse duration : 200 ms

Resistance OFF : Open (> or equal to 18 M Ohm @ 60°C)

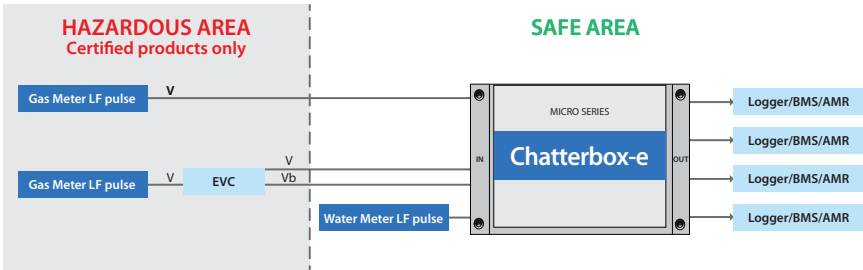
Resistance ON : < or equal to 120 Ohm

Max current sinking capability : 200 mA

Installation

Mounting

The Chatterbox-e **MUST** be installed in the safe area and is suitable for connection to equipment in hazardous areas Zone 0, 1 or 2.



The instrument can be wall or panel mounted. Tapped M6 panel mounting holes can be found on the rear of the enclosure. Mounting Hole Pattern figure 1 refers.

The instrument can also be fixed from the front. Remove the cover (4 off cap head screws, 3mm hex key) and use M4 screws or No.6 screws if fixing to wood, passing them through the tapped holes.

Fixing Dimensions (Standard enclosure)

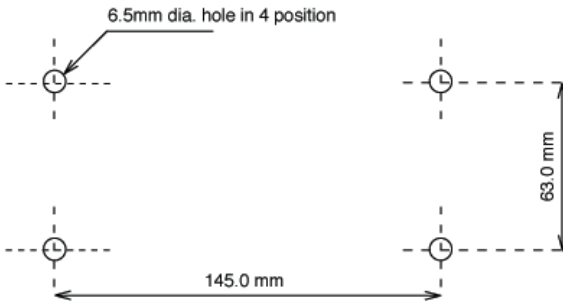


Figure 1 –Fixing dimensions

Electrical Connectivity

Mounted with the cable entry glands to the bottom, pass the multi-way LF pulse signal cable from the meter or converter through the left hand cable gland and connect to the Input (I/P) terminal block. It is recommended to use screened signal cables. Each I/P requires the equivalent of a contact closure between common marked C and one of the I/P signal terminals marked 1 to 4. Unused I/P signal terminals should be left disconnected to minimise battery consumption.

Cable glands are for use with cables between 3.5 to 6.5mm OD only. Gland nuts should be tightened to provide water and dust ingress protection. Take care not to over tighten, which could damage the cable.

WARNING

Only positive voltages are permitted at inputs 1 to 4 when connecting active pulse devices.

Please note that some meter manufacturers short unused pins on their pulser unit. It is therefore advised that only the two wires relating to the LF switch are connected to the Chatterbox-e as described above, and any remaining wires from the manufacturers cable assembly are NOT connected, as connecting permanently shorted wiring will significantly decrease the battery life of the Chatterbox-e.

Using either or both of the two cable glands on the right hand side, use multi-way cable to wire to the output (O/P) terminal blocks. Take the O/P signal pulses to the customers logger/BMS/AMR. Each Terminal block O/P 1 to 4 is an open collector type output. One I/P can be connected to up to four (4) isolated circuit O/P or a combination of them, configurable by the customer by means of internal switches SW1, SW2 and SW3. Figures 2 and 3 refer.

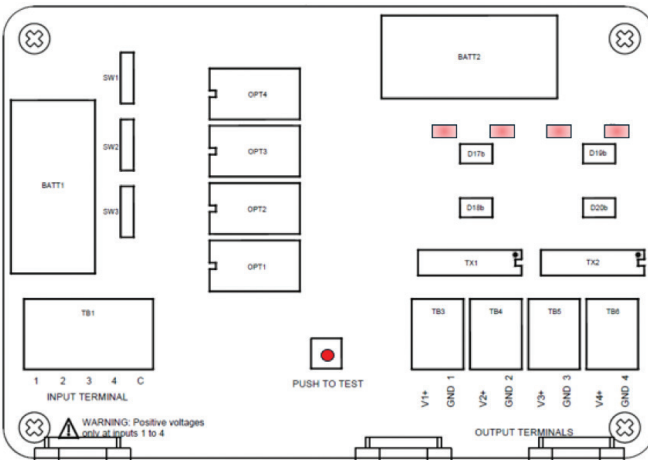


Figure 2 –Electrical Connectivity

		Activated O/P							
IP	1	1	1,2	1,2	1,2,3	1	1	1	1,2,3,4
	2	2	-	-	-	2	2,3	2,3,4	-
	3	3	3	3,4	-	3,4	-	-	-
	4	4	4	-	4	-	4	-	-
Switch	SW1	▼	▲	▲	▲	▼	▼	▼	▲
	SW2	▼	▼	▼	▲	▼	▲	▲	▲
	SW3	▼	▼	▲	▼	▲	▼	▲	▲
		Switch Position							

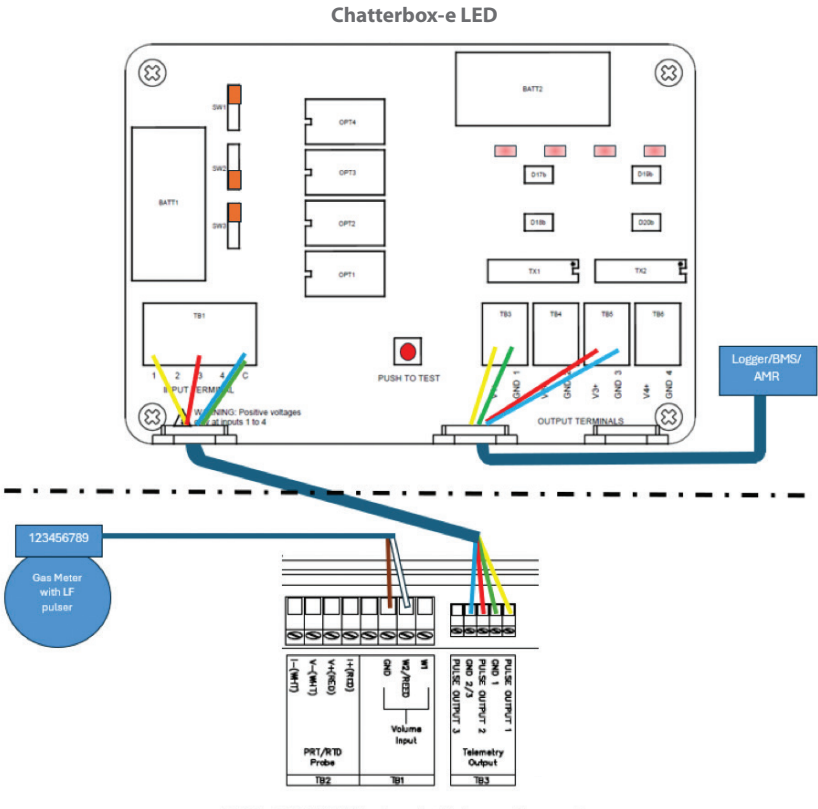
Figure 3 –

Note: Outputs marked “-” maybe active but repeat a connection already made and therefore not shown.

Commissioning

Check that incoming signals are connected correctly and switch positions are set to activate the desired outputs. Figures 2 and 3. Replace the cover. By holding down the “Push to Test” button during an input pulse, LEDs will operate for each active output channel. This confirms correct switch position or otherwise.

Example connection



MC2-197 Electronic Volume Converter

Figure 4 – Example connection

Example connection

Voltage from Logger/BMS/AMR must be from 1.5 to 30 vdc. Positive voltages only.

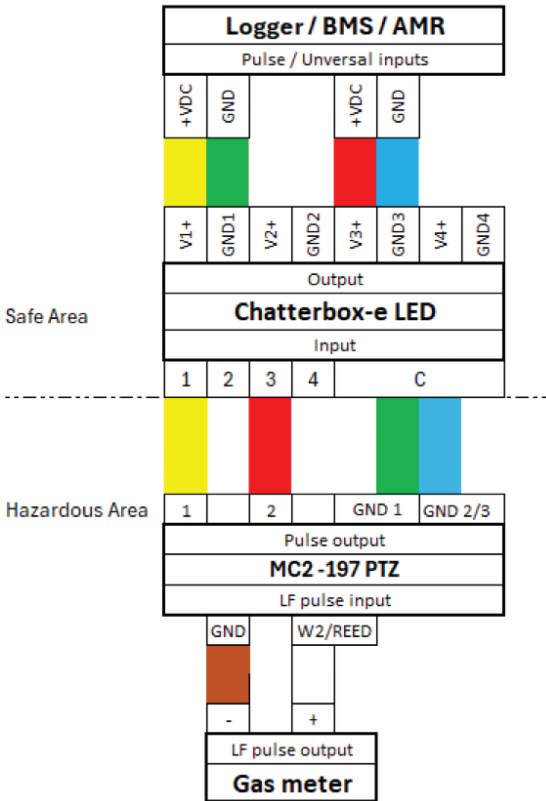


Figure 5 – Alternative representation of example

Maintenance

There are no replaceable / serviceable parts with exception of the batteries.

Battery Type: 2 x Tadiran SL750, 1/2 AA Lithium 3.6V. Observe correct polarity and always replace as a pair.

No alternatives are acceptable as this will invalidate the Intrinsic Safety approval for the device.

Other Dresser Utility Solutions Products

Electronic Volume Converters, Diaphragm, Rotary and Turbine Meters, Regulation and Safety Valves, Pipeline Coupling and Repair Products, Metering and Pressure Reduction Stations

Recycling and Disposal

The Chatterbox-e is designed and manufactured with high quality materials and components, which can be recycled and re-used.

Do not dispose in the general waste bin. Please find out about the local separate collection system for electrical and electronic products marked by this or a similar symbol:

Please use one of the following disposal options:

1. Dispose in designated WEEE collection facilities.
2. Return to Dresser Utility Solutions UK or representative thereof.



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