CONTRIVE

ZERO
FLAME DETECTOR RELAY

Flame Detector Relay ZERO is a switch which can signal the presence or absence of a flame by means of ionization or UV control.

ZERO could be used to monitor burners flame in conjunction with automatic flame safeguards, it can also be used where manual or semiautomatic control is allowed.

ZERO could be used also like fire alarm system to detect any flame, spark or electric arc when used with UV4sh ultraviolet sensor (up to 10 detectors allowed).

When a flame is detected the flame output contact and the red led turns on.

When a failure is detected, including detector and detector line short circuit, the failure output contact turns on and the green led is turned off.

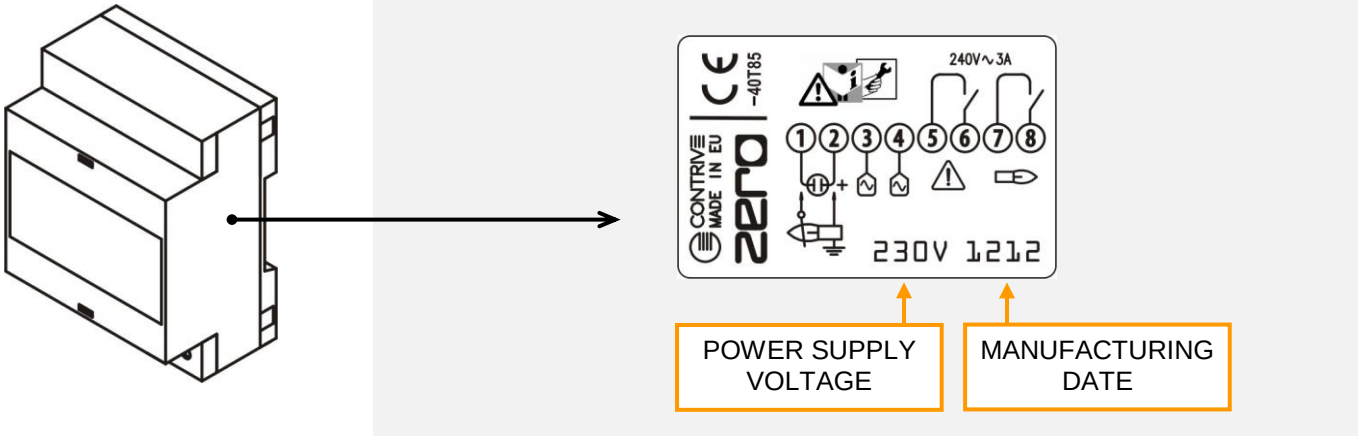
CE

SAFETY INFORMATION

Read and understand this manual before installing, operating, or servicing this unit. This unit must be installed according to this manual and local regulations. The drawings may show units without covers or safety shields to illustrate details. Disconnect power supply and follow all usual safety precautions before carrying out any operation on the device. Be sure to reinstall covers or shields before operating any devices.
The device is not user serviceable, a faulty device must be put out of order and sent back for servicing.

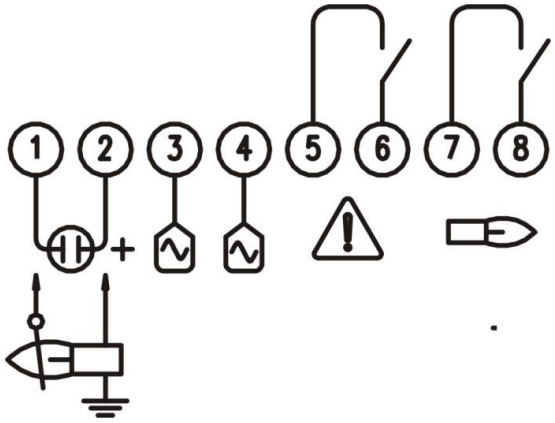
CONTRIVE manufactures products used as components in a wide variety of industrial systems and equipment. The selection and application of products remain the responsibility of the equipment manufacturer or end user.
CONTRIVE accepts no responsibility for the way its products are incorporated into the final system design. All systems or equipment designed to incorporate a product manufactured by CONTRIVE must be supplied to the end user with appropriate warnings and instructions as to the safe use and operation of that part.
Any warnings provided by CONTRIVE must be promptly provided to the end user.

CONTRIVE guarantees for two years from the date of manufacture of its product to replace, or, at its option, to repair any product or part thereof (except fuses and with some limitations for tubes and photocells) which is found defective in material or workmanship or which otherwise fails to conform to the description of its sales order. CONTRIVE makes no warranty of merchantability or any other warranty express or implied. CONTRIVE assumes no liability for any personal injury, property damage, losses, or claims arising from misapplication of its products.



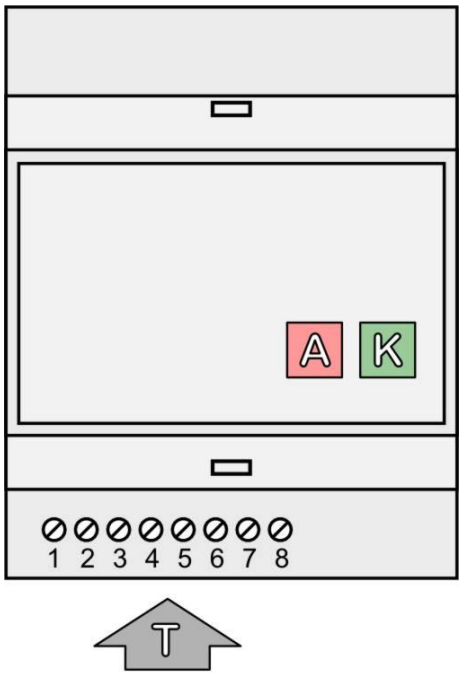
Please perform the following tasks after receiving the product:

- Inspect the unit for damage. If the product appears damaged upon receipt, contact the shipper immediately.
- Verify receipt of the correct power supply voltage option by checking the label.
- If you have received the wrong model or the device does not function properly, contact your supplier.



WIRING DIAGRAM

01	FLAME DETECTOR NEGATIVE	(ROD, UV-)
02	FLAME DETECTOR POSITIVE	(GROUND FRAME, UV+)
03	POWER SUPPLY	
04	POWER SUPPLY	
05	SYSTEM FAILURE OUTPUT CONTACT	
06	SYSTEM FAILURE OUTPUT CONTACT	
07	FLAME DETECTED OUTPUT CONTACT	
08	FLAME DETECTED OUTPUT CONTACT	



LAYOUT

T	TERMINAL BOARD
A	RED LED INDICATOR FLAME DETECTED
K	GREEN LED INDICATOR SYSTEM WORKING PROPERLY

USE POWER, SIGNAL AND CONTROL CABLE COMPLYING WITH ALL REGULATIONS, SUITABLE FOR THE TYPE OF OPERATION DO NOT ROUTE CONNECTIONS TOGETHER WITH FREQUENCY CONVERTER CABLES OR CABLES EMITTING STRONG FIELDS. PROVIDE RELIABLE CONNECTION TO PE (PROTECTION EARTH) AND BURNER FRAME, RECOMMENDED WIRE GAUGE: 4 mm^2. ELECTRONIC SYSTEMS MUST BE SUPPLIED BY A DEDICATED TRANSFORMER IN A TN-S EARTHING SYSTEM.

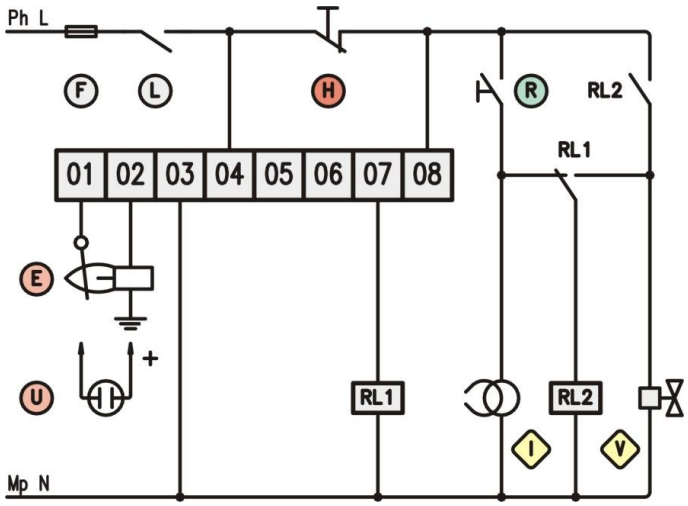
USE UNSCREENED HIGH-VOLTAGE CABLE FOR IGNITION AND IONIZATION ROD LINES, LAYING CABLES INDIVIDUALLY, AVOIDING METAL CONDUITS. KEEP HIGH VOLTAGE IGNITION CABLES AS SHORT AS POSSIBLE, AVOIDING LOOPS AND KEEP ALL OTHER CABLES, ESPECIALLY THOSE OF UV OR IONIZATION ROD, AS FAR APART AS POSSIBLE.

POWER SUPPLY AND CONTACTS MUST BE PROTECTED AGAINST SHORT CIRCUIT AND OVERLOADS BY MEANS OF QUICK BLOW FUSES.

GAS BURNER

When automatic control is not required, ZERO can be configured as a simple semiautomatic burner controller using both an ionization electrode or a phototube for the flame detection.
Pushing the manual start button R the ignition transformer and the gas valve are turned on, the button must be kept pressed until a stable flame is formed.
When R button is released the ignition transformer is turned off and the burner remains in operation until:

- the power supply is switched off
- the external limits contact is open
- the push button H is pressed
- a flame failure occur
- a failure of the system or a short circuit of detector line occurs

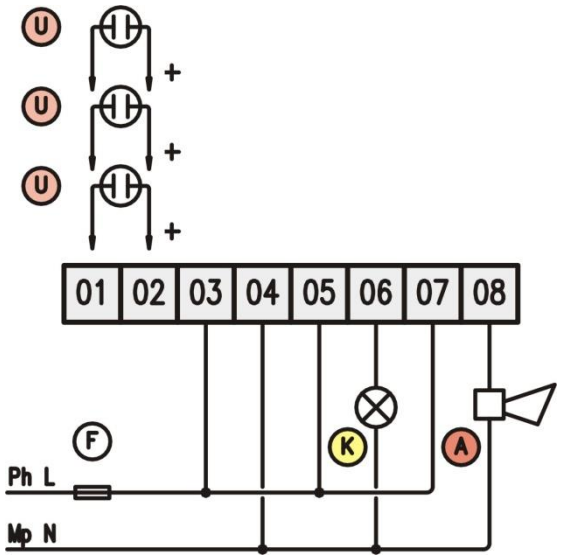


F	LINE FUSE
L	EXTERNAL LIMITS
H	HALT PUSH BUTTON
R	RUN PUSH BUTTON
E	ELECTRODE
U	UV SENSOR
I	IGNITION TRANSFORMER
V	GAS VALVE

ALL SAFETY SWITCHES SHOULD BE APPROVED AS LIMIT CONTROLS
THE USE OF ELECTRONIC SWITCHES MAY CAUSE ERRATIC OPERATIONS

FIRE ALARM

ZERO can be used to detect fire or electric arc by means of UV phototubes; up to 10 detectors can be connected at the same flame relay. The contact at terminals 07|08 will close once a flame is detected.
When a device failure or sensor line short circuit occurs, the contact at terminals 05|06 is closed.
The whole system must be verified periodically: a simple cigarette lighter can be used for this purpose.



F	LINE FUSE
U	UV SENSOR
K	SYSTEM FAILURE
A	FIRE ALARM

TECHNICAL DATA

POWER SUPPLY

VOLTAGE	115 or 230 V +10-15%
FREQUENCY [1]	50/60 Hz
POWER CONSUMPTION	3 VA MAX
POWER DISSIPATION	2 W MAX

[1] SINEWAVE, QUASI-SINEWAVE, SQUAREWAVE

FLAME DETECTION

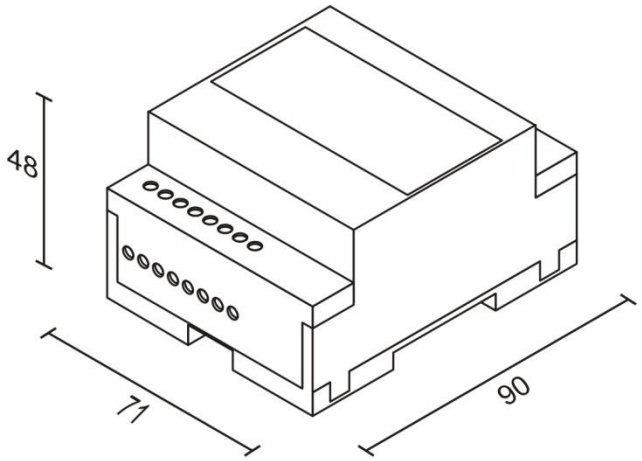
MINIMUM IONIZATION CURRENT	> 1 µA
CURRENT LIMITATION	2 mA
UV DETECTORS ALLOWED	10 MAX
DETECTOR LINE LENGTH	< 50 m
DETECTOR VOLTAGE	250 Vac
DETECTOR INSULATION	> 50 MΩ

OUTPUTS

SWITCHING VOLTAGE	250 VAC MAX 220 VDC MAX
RATED CURRENT	3 A MAX
LOAD CURRENT	1 A @ 250VAC 1 A @ 30VDC
MINIMUM CURRENT	10 mA @ 5 V
MECHANICAL ENDURANCE	15 x 10^6 OPERATIONS

ENVIRONMENT

OPERATING TEMPERATURE	-40…85 °C
STORAGE TEMPERATURE	-40…85 °C
RELATIVE HUMIDITY	NON CONDENSING 90% MAX
MOUNTING POSITION	ANY
ENCLOSURE	Polycarbonate UL94-V0
OVERALL DIMENSIONS	71 x 90 x 58 mm
PROTECTION CLASS (EN 69529)	IP40
WEIGHT	300 g



DIMENSIONS [mm]

This unit can be installed on any standard EN-50022 rail by simple snap-in.

CONTRIVE S.r.l. I-24040 SUISIO (Bergamo) via Enrico Fermi 18