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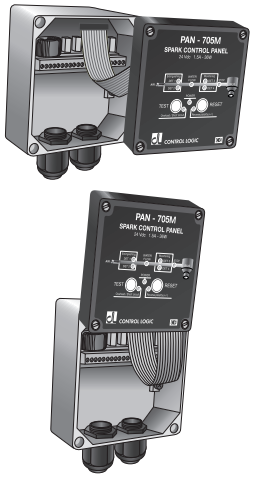
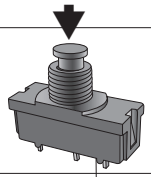
ISO 9001
CONTROL LOGIC S.r.l.

# SYSTEMS TYPE “E1” AND “E” electrical wiring

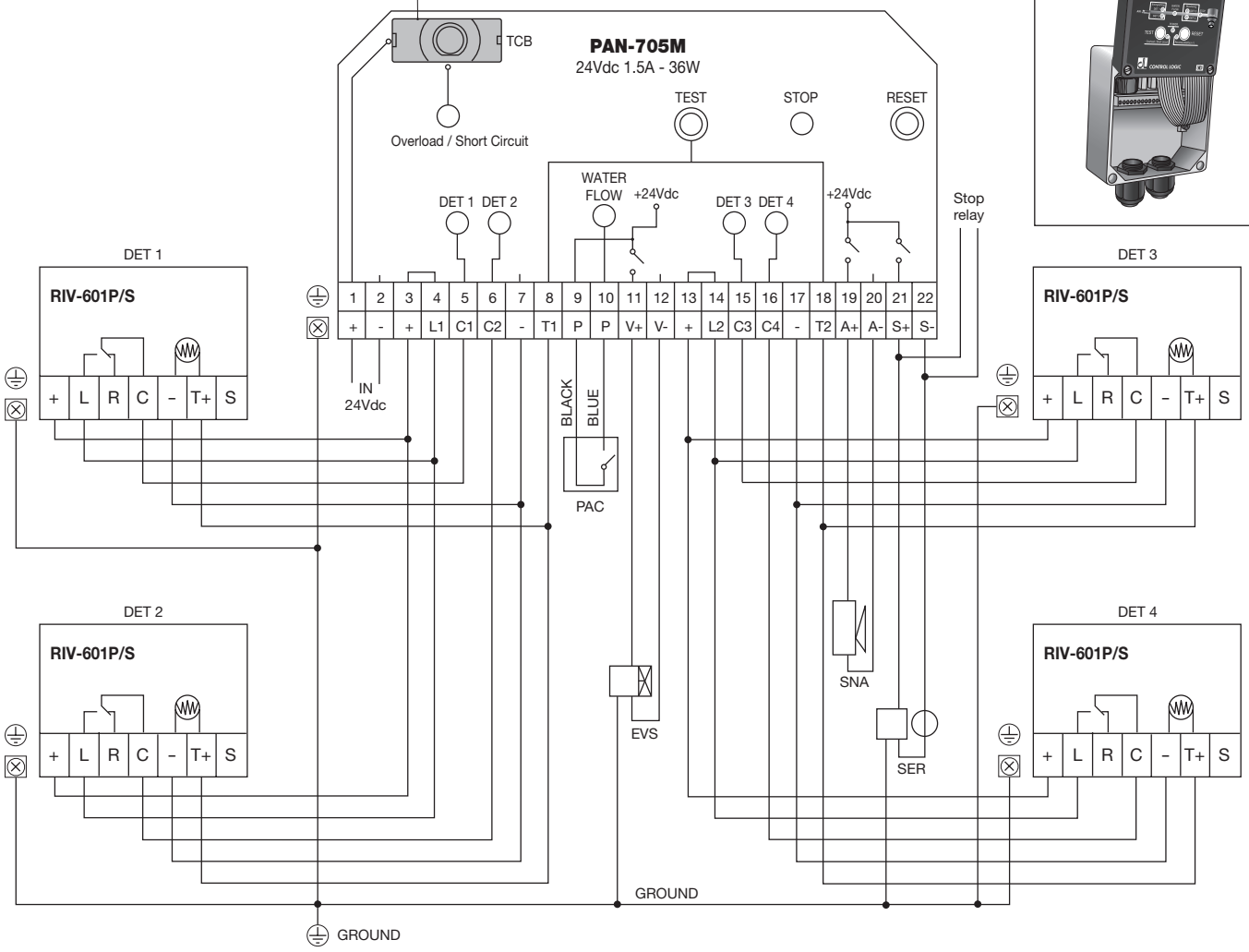
System type “E1” comprises only one extinguishing detector, one monitoring detector and one nozzle. It is used for “small” ducts up to 500mm diameter.
System type “E” comprises 2 extinguishing detectors, 2 monitoring detectors and 2 spray nozzles. It is used for “large” ducts with over 500mm diameter.

The front panel should not be hung by the internal electrical connections. When you open the control panel it is suggested to place the front panel as represented by the pictures below.



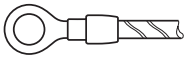
**1.5A THERMAL CIRCUIT BREAKER (TCB)**
In the event of overload or short circuit it automatically interrupts the current flow. Yellow LED on front panel lights up.
Solve the problem and push the switch to resume normal operation.




No connection on spark detectors terminal “S”.
Voltage 24Vdc – max 1,5A output current.
All wiring and grounding must be done in accordance with local and national rules and regulations.

Notes:

1) It is highly recommended to connect the enclosure base to a good ground line using the ground terminal provided inside lower on the right.
   Then, connect base and cover using the ground terminal provided inside the base lower on the left and the ground terminal provided inside the cover lower on the right.
   All the ground terminals are signalled by ground label. ⏚
   The ground connection must be done using a yellow-green conductor and a M4 double crimp eyelet.
   The yellow-green conductor must be longer than the other conductors.



2) In order to ensure an **IP66 protection grade** the cover must be tightly closed turning the four screws provided. The suggested closing torque value is 1 ÷ 1.5 Nm.

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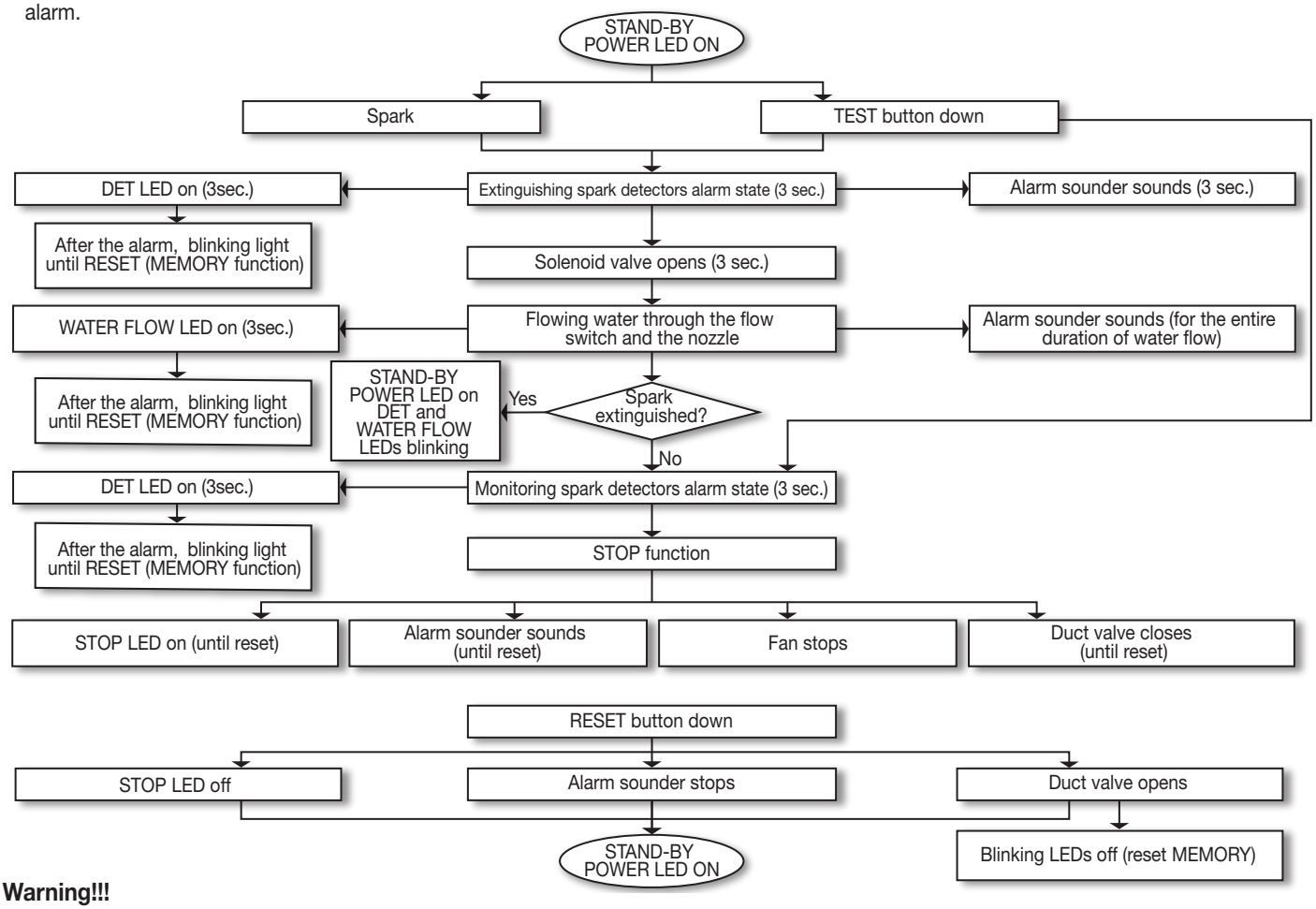
# SYSTEMS TYPE “E1” AND “E”
## general functions

- **OVERLOAD/SHORT CIRCUIT YELLOW LED**
  Indicates overload or short circuit. Check electrical connections and push the white slide switch of the thermal circuit breaker (TCB) to resume normal operation.
- **REVERSE POLARITY RED LED**
  Indicates reverse polarity. Disconnect and reverse power supply connections.
- **POWER GREEN LED**
  Indicates the presence of the 24Vdc power voltage. Must always be on.
- **EXTINGUISHING DET 1 RED LED**
  Steady light indicates that the extinguishing spark detector DET 1 is in alarm state (standard time 3 sec at each spark detected), blinking light (until manual RESET) indicates that there was an alarm.
- **EXTINGUISHING DET 2 RED LED**
  Steady light indicates that the extinguishing spark detector DET 2 is in alarm state (standard time 3 sec at each spark detected), blinking light (until manual RESET) indicates that there was an alarm.
- **WATER FLOW BLUE LED**
  Operated by the nozzle flow switch, indicates a water flow in the spray nozzle during an extinguishing operation, or else a water leakage through a defective solenoid valve. It lights up with a steady light during extinguishing and in case of water leakage due to valve defective, blinks until manual RESET to signal that there was an alarm.
- **MONITORING DET 3 RED LED**
  Steady light indicates that the monitoring spark detector DET 3 is in alarm state (standard time 3 sec at each spark detected), blinking light (until manual RESET) indicates that there was an alarm.
- **MONITORING DET 4 RED LED**
  Steady light indicates that the monitoring spark detector DET 4 is in alarm state (standard time 3 sec at each spark detected), blinking light (until manual RESET) indicates that there was an alarm.
- **STOP RED LED**
  Indicates an alarm for un-extinguished spark and stop circuit activated. This LED lights together with MONITORING DET LED but it turns off only when the RESET button is pressed.
- **TEST BUTTON**
  Used to check the system.
  A short pulse causes a spark to be simulated inside the detectors, that will go in alarm state: they will activate the alarm sounder, will cause the EXTINGUISHING DET, MONITORING DET and STOP LEDs to light on and will stop the fun.
  The WATER FLOW LED is controlled by the flow switch and will therefore light only if water flows through the nozzle. This LED doesn’t turn on only in case of malfunction (jammed nozzles, solenoid valve closed).
  If during the test do not turn on one or more DET LEDs, the related detectors are not connected or are faulty.
- **RESET BUTTON**
  Resets the memory, switches off the STOP LED, turns off the sound alarm and opens the stop circuit.
  The system returns to normal operating conditions.




**Warning!!!**
Fast impulsive electromagnetic noise in the factory can cause false alarms. To avoid them we suggest to take a few measures during wiring of spark detectors such as good ground connection of metallic parts and of shields of shielded cables and to keep separate 24Vdc wiring from higher voltage wiring (A. C. power line).
If possible, run wiring through metallic tubing. Keep spark detectors wiring physically separate from other wiring (motor controls and other high power loads).
For further information see note on false alarms on pages MASP26 and following.

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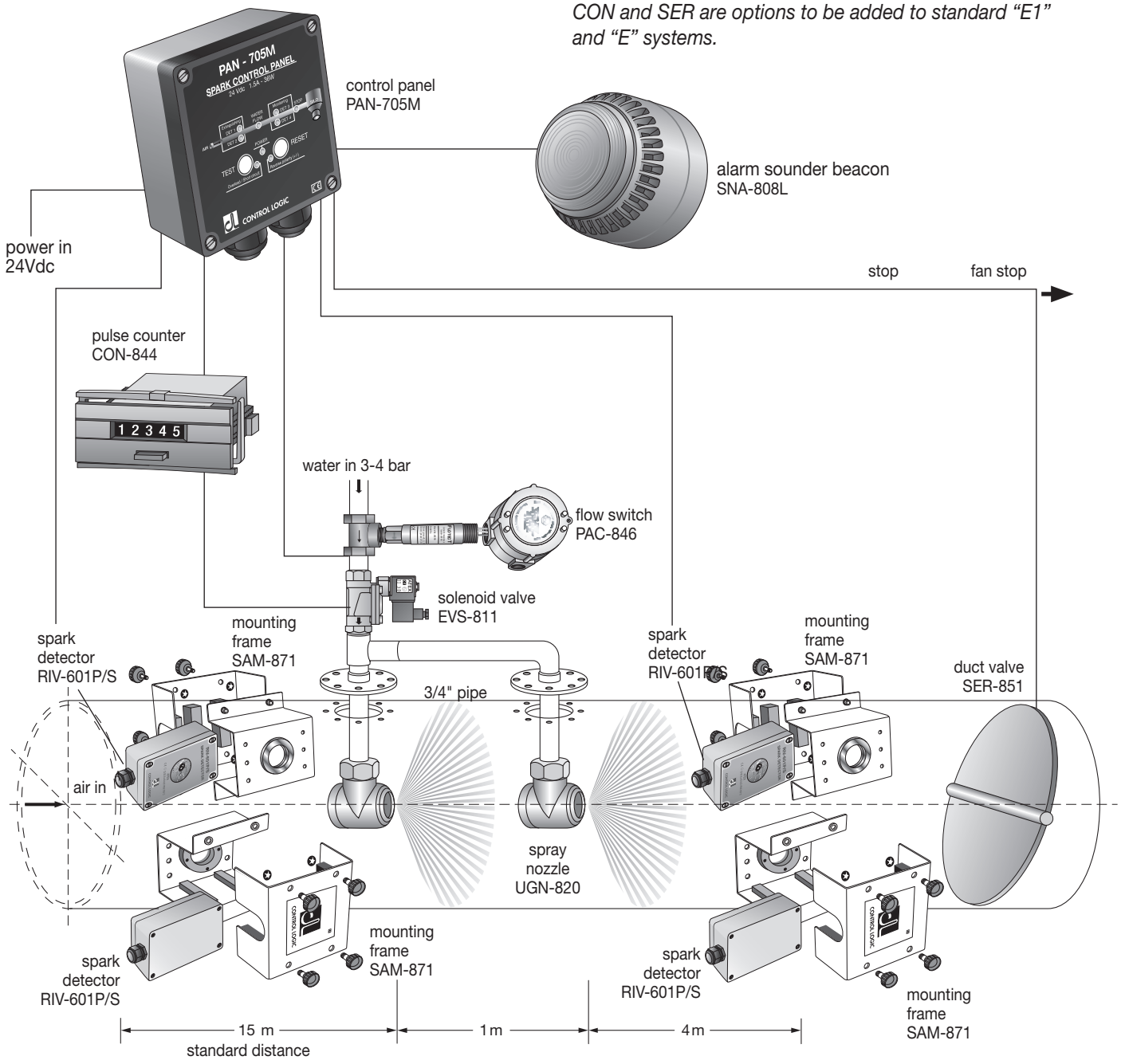
# SISTEMS TYPE “E1” AND “E” system diagram

System type “E1” comprises only one extinguishing detector, one monitoring detector, and one nozzle. It is used for “small” ducts up to 500mm diameter.
System type “E” comprises 2 extinguishing detectors, 2 monitoring detectors and 2 spray nozzles.
It is used for “large” ducts with over 500mm diameter.

**Component list:**

| Type “E1” | Type “E” | | |
|---|---|---|---|
| n. 2 | n. 4 | RIV - 601P/S | Spark detector |
| n. 2 | n. 4 | SAM - 871 | Mounting frame |
| n. 1 | n. 1 | PAN - 705M | Control panel |
| n. 1 | n. 1 | SNA - 808L | Alarm sounder beacon |
| n. 1 | n. 1 | EVS - 811 | Solenoid valve |
| n. 1 | n. 1 | PAC - 846 | Flow switch |
| n. 1 | n. 2 | UGN - 820 | Spray nozzle |
| *n. 1* | *n. 1* | *CON - 844* | *Pulse counter* |
| *n. 1* | *n. 1* | *SER - 851* | *Duct valve* |

*CON and SER are options to be added to standard “E1” and “E” systems.*




**DETECTION** **EXTINGUISHING** **MONITORING**

See page MASP 13
for minimum distance between
detection and extinguishing

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# SYSTEMS TYPE “E1” AND “E” startup operations

It is advisable to put on the front panel of the PAN-705M Control Panel the “NOT PRESENT” labels positioned on the missed components, e.g. DET 2 or DET 4, etc. (see page DESP 13).

1) Check that the electrical connections are correct. Do not open the water supply.

2) Apply voltage. The POWER LED will light on. All other LEDs should be off. The sound alarm should not sound and the solenoid valve should be de-energized and closed. The STOP circuit (duct valve and/or fan stop) should be off.

3) Execute the TEST operation. A pulse on the TEST button simulates a spark.
The detectors turn active for 3 sec. The EXTINGUISHING DET and the MONITORING DET LEDs light on for 3 sec. When alarm stops DET LEDs blink.
The STOP LED lights on permanently and will require the RESET button to turn off.
The WATER FLOW LED stays off.
The sound alarm sounds permanently and can only be stopped by the RESET button.
The nozzle does not spray because the water supply is closed.
The duct valve and/or fan stop relay (STOP circuit) are permanently activated and can only be reset by the RESET button.
Press the RESET button to switch off all the LEDs and sound alarm, and to de-activate the STOP circuit.
Remember that detectors are inactive for about 3 seconds after power voltage is applied (power-on delay).

4) Open the water supply. Check pressure: should be 3-4 bar at least.

5) Repeat the TEST sequence as per point (3). Check that the WATER FLOW lamp comes on for 3 sec while the nozzle sprays. When alarm stops DET and WATER FLOW LEDs blink, STOP LED is on permanently.

6) Press the RESET button to switch off all the LEDs and sound alarm, and to de-activate the STOP circuit.

To check the sensitivity of detectors, remove them from the mounting frame and direct the front window to a light or a cigarette lighter. In this way each detector can be tested in turn, checking that the system is correctly installed.

## List of possible malfunctions:

1) **The detector fails to operate with TEST.**
Check the 24Vdc voltage on the + and - terminals of the detector and the 24Vdc voltage pulse on the T+ and - terminals when pressing the TEST button.
If voltages are correct, the detector is faulty.

2) **The detector is permanently in alarm.**
Check the 24Vdc voltage on the + and - terminals of the detector and control panel. If it is correct, and provided that no light falls on the detector window, the detector is faulty.
If the voltage is incorrect or unstable, maybe the control panel is faulty. The detector circuits could generate alarm signals in response to intermittent power voltage, even if the power-on delay will eliminate most of this problem.

3) **The WATER FLOW LED** is permanently on and the sound alarm sounds, while all other LEDs are off.
This signals a water leak in the solenoid valve due to rubber diaphragm being jammed by dirt or having a malfunction.
Close the water supply and check. If necessary, open the solenoid valve body.

4) **One or more LEDs do not blink after an alarm.**
Check that the corresponding switches, positioned on the front panel circuit, are in "on" position (DIP switch 1-2-3-4 = DET 1-2-3-4, DIP switch 5 = WATER FLOW).

### Notice

The detector is very sensitive. Movements of lights or sun light penetrating trough openings in the duct may cause false alarms.