

## Datasheet and Mounting Instruction

**IU 400**



### DESCRIPTION

**IU 400** is an analyzer for glass break detector GD 475 and vibration detector CD 475. It has three relays: one for Intrusion, one for Fault and one for Tamper. Max 10 units in a combination of GD 475 and CD 475 detectors can be connected to one IU 400 unit.

**IU 400 together with GD 475 and/or CD 475 is tested and approved according to SSF1014:5 class 3, EN 50131-2-7-2:2013/EN 50131-2-8:2016 Grade 3 and EN 50130-5 Environmental class II.**

### FUNCTION

The IU 400 measures the current in a balanced alarm loop without end of line resistance, simplifying the installation. No need to keep track of the end of the loop. The detectors make up a balance under the control of the IU 400 processor. A 2.2kohm end of line resistor is only required if the number of detectors is 3 or less. Changing the current in the loop of +/- 0.8 mA for at least 200 ms. opens the IU 400 alarm relay for 2-3 seconds (in AUT mode) or stays open (Latch mode) until reset depending on how it is programmed.

The loop in IU 400 operates in the current range of 3 mA to 50 mA corresponding to about 160 ohms to about 2600 ohms. Outside this area the LED will flash, and alarm- and fault relays are open and the device cannot be reset or programmed.

Reset can be done in three ways:

- With the pushbutton on the device
- Power supply interruption remote controlled by the control panel
- Change from DAY to NIGHT connection on terminal no. 5 or no. 15

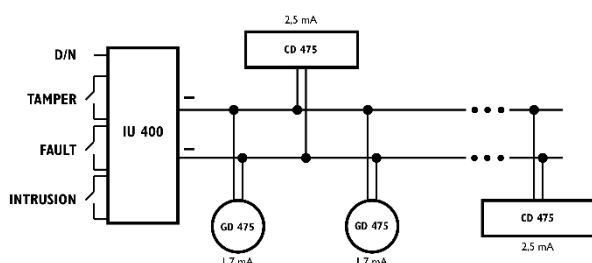
DAY and NIGHT control of the detectors is done by changing the voltage on the loop and determined by terminal 5 or 15. At DAY, the loop has 8V and at NIGHT 6V regardless of supply voltage to IU 400 (8-30V DC).

IU 400 has two tamper switches, one for opening the cover and one for breaking the IU 400 from the attachment.

To ensure the detector function, it monitors the voltage on the loop and signals FAULT if the voltage exceeds or falls below the programmed voltage.

### CONNECTING THE DETECTORS

GD/CD 475 are polarity independent connected to a 2 core cable. Picture below shows how the detectors are connected to the balanced loop. At 3 or less detectors, a 2.2 kOhm resistor must be connected, with more detectors it is not necessary.



### SCREW TERMINAL DESCRIPTION

1. 0 VDC
2. 10-30 VDC
3. (-) loop
4. (+) loop
5. DAY/NIGHT/Reset. DAY=0V or open
6. Intrusion relay NC
7. Intrusion relay NC
8. Spare
9. Fault relay NC
10. Fault relay NC
11. Spare
12. Tamper relay NC
13. Tamper relay NC
14. Spare
15. DAY/NIGHT/Reset. DAY=V<sub>in</sub> or open

### PROGRAMMING LOOP CURRENT

Programming quiescent loop current for IU 400 is done in two steps after connecting power and the number of detectors needed.

1. First set the quiescent current
2. Second set the relay mode

The IU 400 has only one jumper for programming the normal loop current in quiescent state and the Relay mode. The quiescent current depends on how many GD 475/CD 475 there are on the loop and the end of line resistor used. Recommended is 2,2 kOhm (only necessary at 3 or less detectors).

Changing the Jumper S1 from Open-Close-Open is telling the processor to sense and remember the current draw. After that you can program IU 400 relays to either Momentary mode with jumper inserted or latching mode with jumper removed. At power down the unit remembers the recent settings and no reprogramming is needed of loop current at power up.

S1	Open Closed Open	Programming quiescent current on the loop by changing S1 from Open to Closed to Open in a short while (approx. 0.5 sec)
S1	Open	S1 open is LATCH mode. The relays stay open at alarm and LED is lit until manual or remote reset.
S1	Closed	If S1 remains closed, the alarm relay will open for 2-3 seconds and then close (AUTO mode). However, LED is lit until manual or remote reset.

**Notice: The small red Micro-match contact is for production programming and reading the built-in log using Alarmtech IU-Link software.**

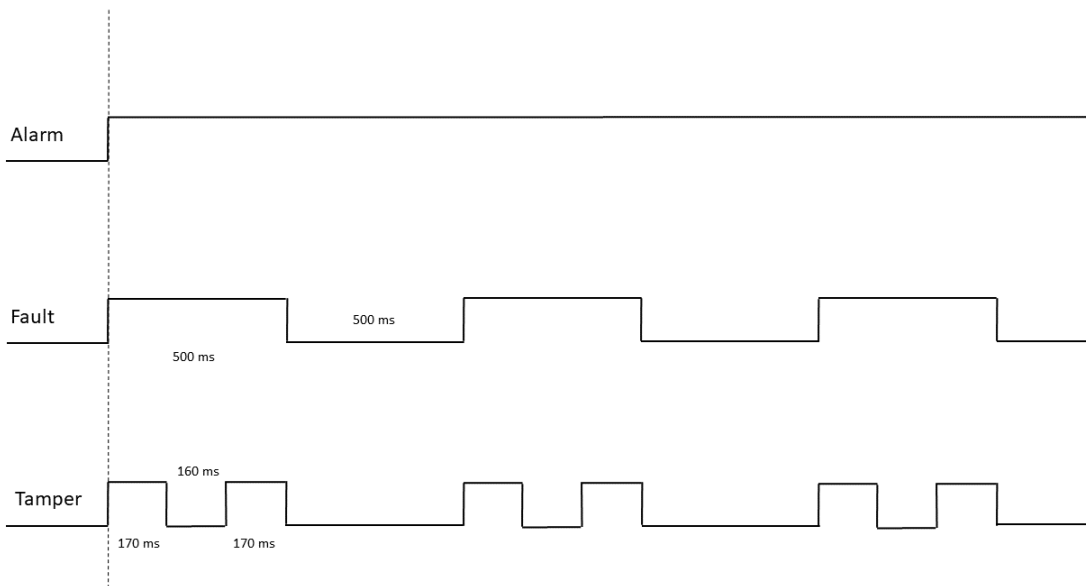
### INSTALLATION

1. The IU 400 is placed within the protected area where the detectors are mounted so that the authorized person will go there and reset the device while inspecting the area.
2. Connect all detectors to the loop and terminate it with a resistance of 2.2 kOhm (at 3 or less GD 475/CD 475).
3. Connect as shown in the figure.
4. After connecting power to IU 400, wait 20 seconds, then change the jumper S1 briefly (approx. 0.5sec) to Open-> Closed-> Open.
5. Select if the alarm relay is to be reset automatically (S1 = Closed) or remain open at alarm (S1 = Open).
6. Trigger the alarm of each detector individually to ensure that they all work correctly. Use the GVT 5000 or GVT 500 tester.

## IU 400 RELAY FUNCTION AND LED INDICATIONS

Event	LED	Intrusion relay	Fault relay	Tamper relay
Normal state, $V_{in} = 10-30V$	Off	Closed	Closed	Closed
Intrusion in DAY mode	On	Open	Closed	Closed
Intrusion in NIGHT mode	Off	Open	Closed	Closed
Low voltage on loop in DAY <7,5V Low voltage on loop in NIGHT <5,5V	Blinking (Fault)	Closed	Open	Closed
Sabotage of loop in DAY mode	Blinking (Fault)	Open	Open	Closed
Sabotage of loop in NIGHT mode	Off	Open	Open	Closed
IU self-test fail in DAY mode	Blinking (Fault)	Closed	Open	Closed
IU self-test fail in NIGHT mode	Off	Closed	Open	Closed
GD self-test fail in DAY mode	Blinking (Fault)	Closed	Open	Closed
GD self-test fail in NIGHT mode	Off	Closed	Open	Closed
Tamper on IU	Off	Closed	Closed	Open
Tamper on CD 475	Blinking (Tamper)	Closed	Closed	Open

## LED INDICATIONS



## TECHNICAL DATA IU 400

Supply voltage	10– 30 VDC
Max. voltage ripple	1 Vpp at 12 V
Stabilizing time	20 sec
Loop quiescent operating area	2600ohm/3mA to 160 ohm/50mA
Low loop voltage FAULT indication	< 7,5V at DAY, < 5,5V at NIGHT
Current in quiescent state at 12V DC in and 2,2k EOLR	Typ. $17.0mA + n \cdot 1.7mA + m \cdot 2.5mA$ (n=no. of GD 475, m=no. of CD 475)
Current in ALARM state at 12V DC in and 2,2k EOLR	Typ. $17.0mA + n \cdot 1.7mA + m \cdot 2.5mA + x \cdot 5.0mA + y \cdot 4.4mA$ (n=# of GD 475, m=# of CD 475 in quiescent mode and x=# of GD 475, y=# of CD 475 in alarm mode)
Alarm output relay	Relay, 23 ohm in series, max 100mA
Loop Voltage in Day	Typ. 8,0 VDC
Loop Voltage in Night	Typ. 6,0 VDC
Fault output relay	Relay, 23 ohm in series, max 100mA
Tamper output relay	Relay, 23 ohm in series, max 100mA
Alarm loop	2,2 kΩ, 1% EOL resistance (3 or less detectors, otherwise omitted)
threshold	>+/- 0,8mA
response time	>200 ms
reset time	>200 ms
Environmental	Class II (EN50130-5:2011)
Operating temperature	-10°C to +55°C
Operating humidity	max. 93% RH
Housing material	ABS plastic(white)
Dimensions:	91x31x23 mm
Certified	EN 50131-1 and EN 50131-2-7-2:2012+A1:2013 and EN 50131-2-8:2016
Security grade	EN Grade 3 , SSF1014:5 Klass 3
Approved by VdS	EN, SBSC

## ORDERING INFORMATION

IU 400	E nr. 63 097 79
GD 475, 6m cable	E nr. 63 097 77
CD 475	E nr. 63 098 92