

INTRODUCTION

Small signal amplifier that enables 2 programmable alarms to the values desired in each case. Each alarm level has an output for a voltage-free contact normally open (when unit is powered) that withstands maximum 250V and 5A. It admits input signals from 5 mV to 2,500 mV. It has a power supply for Wheatstone bridge applicable to load cells and sensors.

The amplified value can be viewed with a voltmeter, e.g., an ONIX V-12.

APPLICATIONS

In general, all applications requiring small DC signal surveillance with two levels of alarms through voltage-free contacts.

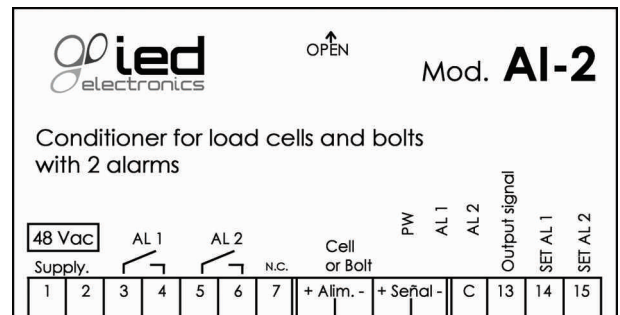
Load and moment limiters for cranes, overhead cranes, elevators, platforms... The signals can come from load cells or pins. Alarm 1 can be used as early warning and Alarm 2 as an overload alarm.



FEATURES

TERMINAL CONNECTIONS

- The unit's power supply : 1 and 2
- Signal input: 10 and 11
- 10 VDC output : 8 and 9 (to power sensor)
- Alarm 1 output : 3 and 4 (N.C. voltage-free contact)
- Alarm 2 output : 5 and 6 (N.C. voltage-free contact)
- Amplified common output and reference for adjustment of Alarms 1 and 2 : 12
- Amplified output signal : 13
- Reference for adjustment of Alarm 1 : 14
- Reference for adjustment of Alarm 2 : 15



NOTE: Input signal connections (terminals 8, 9, 10 and 11) should be done using shielded cable throughout to prevent electrical noise from affecting the unit.

SETTINGS

To access the settings of the unit, you have to raise the lid, prying the lid open where it says "OPEN".

ZERO

Potentiometer. Adjustment of offset signal, the signal's zero.

SPAN.D

4-way switch. It amplifies the input signal. They can be combined up to a maximum coefficient of 377.

SPAN

Potentiometer. Fine adjustment of the value of SPAN.D.

TIM-1 and TIM2

Potentiometers. Timing of Alarm 1 and Alarm 2. From 0 to 10 seconds.

AL-1 and AL-2

Potentiometers. Adjustment of the value of Alarm 1 and Alarm 2.

Green led "pw"

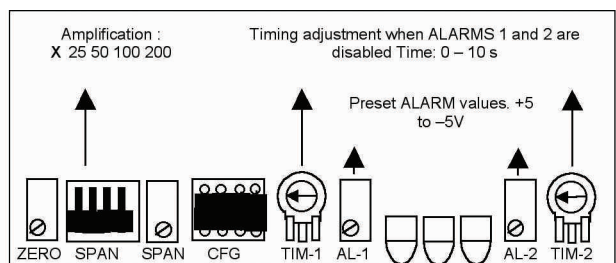
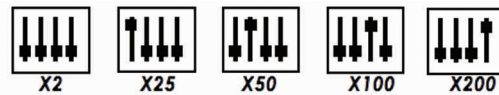
LED indicating the unit's power supply.

Red led al1

LED indicating relay 1 ENABLED.

Red led al2

LED indicating relay 2 ENABLED.



USER'S INSTRUCTIONS

You should first consider the type of sensor and/or signal available. AI-2 includes a 10 VDC output to supply power to sensors if required. Calculate the necessary amplification. The input admits signals ranging from 5 to 2,500 mV, and the adjustment range for alarms is 5 V. Therefore, an amplification value should be chosen so that the maximum working signal does not exceed 5 V at terminals 12-13.

To adjust the unit it will be necessary to view the value of the output with a voltmeter at terminals 12-13.

- Adjustment of ZERO: With the minimum input signal adjust the zero offset with the ZERO potentiometer.
- Adjustment of SPAN: With the maximum input signal adjust the value amplifying it with the switches and with the SPAN potentiometer. The value should be maximum 5 V and minimum 1.88 VDC.
- Adjustment of ALARM 1: Under the conditions that trigger Alarm 1, adjust the alarm with the AL1 potentiometer until LED AL1 just turns off.
- Adjustment of ALARM 2: Under the conditions that trigger Alarm 2, adjust the alarm with the AL2 potentiometer until LED AL1 just turns off.
- The alarms can be timed with the TIM1 and TIM2 potentiometers to between 0 and 10 seconds.

Each of the alarms has a contact that is normally closed which opens when enabled. The red LED on indicates that the alarm is NOT ENABLED. **Example of adjustment. Hoisting load pin in tower crane**

If you wish to limit your crane's load. There is a load pin of 2,000 kg that provides 20 mV maximum. You wish to enable a pre-alarm at 1,500 kg and an alarm at 2,000 kg

- Place the pin at the proper place on the crane.
- The contact of Alarm 1 corresponds to the pre-alarm and Alarm 2 to the alarm. The latter can be used to detain load lifting.
- Connect the load pin to AI-2: Pin signal at terminals 10 and 11 and power supply at 8 and 9.
- Power the unit.
- Amplify x100. SW3 ON.
- At Output Signal, terminals 12-13, place a voltmeter as VDC capable of measuring hundredths of volts. Terminal 12 corresponds to the negative of the voltmeter.
- With the crane hook lifted 1 meter from the ground without load turn the ZERO potentiometer until you see the value 0.00 in the voltmeter (signal on terminal 13).
- Place a 2,000 kg load (maximum load) on the load hook and raise it 1 meter from the ground. Turn the SPAN potentiometer until you see the value 2.00 in the voltmeter (signal on terminal 13).
- Place a 1,500 kg load (pre-alarm) on the load hook and raise it 1 meter from the ground. Turn the potentiometer AL1 until you see the value 1.50 in the voltmeter (signal on terminal 14). Adjust the timing with TIM1.
- Place a 2,000 kg load (alarm) on the load hook and raise it 1 meter from the ground. Turn the potentiometer AL2 until you see the value 2.00 in the voltmeter (signal on terminal 15). Adjust the timing with TIM2.

TECHNICAL CHARACTERISTICS

Power supply

- Power supply voltage: 48 VAC 50/60 Hz. 10%
- Power consumption: typical 6W, maximum 8W

Amplification

- Input signal range: 5 mV 2.5V
- DIGITAL SPAN: x2, x25, x50, x100, x200
- ANALOGUE SPAN: intermediate settings using a multi-turn potentiometer
- Maximum amplification: x377
- Maximum output 10V
- Linearity error in x200 scale: < 0.2%
- Output power supply for sensors: 10 VDC
- Minimum sensor impedance: 300
- Zero setting with multi-turn potentiometer

Alarms

- Two alarms with voltage-free contact output NC.
- When the alarm is triggered, the safety contact opens
- Alarm setting range from 0 to ± 5 VDC.
- Timing of alarm disabling from 0 to 10s
- Maximum contact voltage: 250 Vac
- Maximum contact intensity: 5 A

Operating conditions

- Protection index: IP20
- Working temperature : 0 °C to 55 °C
- Storage temperature : -25 °C to 85 °C
- Non-condensing relative humidity in accordance with IEC 68-2-3 and IEC 68-2-30
- Shocks in accordance with IEC 68-2-27
- Vibrations in accordance with IEC 68-2-6