

Please contact Setra (1-800-257-3872 or 978-263-1400) before returning unit for repair to review information relative to your application. Many times, only minor field adjustments may be necessary.

When returning a product to Setra, the material should be carefully packaged and shipped prepaid to:

Setra Systems, Inc.
159 Swanson Road
Boxborough, MA 01719
Attn: Repair Department

To assure prompt handling, please return a fully completed repair form located at www.setra.com/tra/repairs/pdf/webrepair.pdf. On the repair form you must provide the following information.

1. Name and phone number of person to contact.
2. Shipping and billing instructions
3. Full description of the malfunction.
4. Identify any hazardous material used with product.

Notes: Please enclose any required mating electrical connectors and wiring diagrams.

Allow approximately 3 weeks after receipt at Setra for the repair and return of the unit.

Non-warranty repairs will not be made without customer approval and a purchase order to cover repair charges.

LIMITED WARRANTY AND LIMITATION OF LIABILITY

SETRA warrants its products to be free from defects in materials and workmanship, subject to the following terms and conditions: Without charge, SETRA will repair or replace products found to be defective in materials or workmanship within the warranty period; provided that:

- a) the product has not been subjected to abuse, neglect, accident, incorrect wiring not our own, improper installation or servicing, or use in violation of instructions furnished by SETRA;
- b) the product has not been repaired or altered by anyone except SETRA or its authorized service agencies;
- c) the serial number or date code has not been removed, defaced, or otherwise changed; and
- d) examination discloses, in the judgment of SETRA, the defect in materials or workmanship developed under normal installation, use and service;
- e) SETRA is notified in advance of and the product is returned to SETRA transportation prepaid.

Unless otherwise specified in a manual or warranty card, or agreed to in a writing signed by a SETRA officer, SETRA pressure and acceleration products shall be warranted for one year from date of sale.

The foregoing warranty is in lieu of all warranties, express, implied or statutory, including but not limited to, any implied warranty of merchantability for a particular purpose.

SETRA's liability for breach of warranty is limited to repair or replacement, or if the goods cannot be repaired or replaced, to a refund of the purchase price. SETRA's liability for all other breaches is limited to a refund of the purchase price. In no instance shall SETRA be liable for incidental or consequential damages arising from a breach of warranty, or from the use or installation of its products.

No representative or person is authorized to give any warranty other than as set out above or to assume for SETRA any other liability in connection with the sale of its products.



OPERATING INSTRUCTIONS 409 ON TARGET RELAY BOX

GENERAL INFORMATION

There are two versions of the relay box: The Indicator version and the Control Version. The Indicator Version has a stacked LED indicator light mounted on top and is used to indicate the weight range on the scale. The indicator displays a red, green or yellow light when an alarm is activated. The Control Version is used to isolate the Checkweigher from the harsh conditions of the factory floor as well as allowing the scale to control electrical equipment that operates a different voltage than the scale. The Control Relay Box has an electrical signal output. The relay box consists of an enclosure box, a circuit board, three relay modules, one or two modular jacks and a power jack. The Indicator Relay Box also includes the indicator light.

The circuit board has screw terminals for wiring as well as four slots for relay modules. The relay box has three slots populated with relay modules. The relay modules are DC output type, allowing a 5 VDC signal to control 5-60 VDC output signal. There are two rows of screw terminals on the circuit board, the inputs ('CONTROL') and the outputs ('FIELD').

The inputs generally come from the scale and the outputs go to process equipment or a Setra indicator light. The input is a voltage signal that is either 0 volts (low) or 5 volts (high). On the top of each relay module is a small red LED that lights when the input is high (separate from the indicator light). The LED can only be seen when the cover of the relay box is removed. The output is a switch that is open when the input is low and closed when the input is high.

INDICATOR RELAY BOX SETUP

The indicator light version is pre-wired at the factory for easy setup. Simply plug the modular cable into IN port on the relay box, and connect it to the OUT port on the Checkweigher. Then, plug the DC adapter into a wall outlet, and the DC barrel jack on the relay box. The indicator light is now ready for use. When used as configured from Setra, alarm 1 controls the yellow light, alarm 2 controls the green light, and alarm 3 controls the red light. This behavior can be changed fairly easily by rewiring the modular jack inside the box. To switch the color used for two different alarms, switch the + terminal wires. The wiring as received from the factory is shown in Table 1.

CONTROL RELAY BOX SETUP

The version of the relay box used for control of process equipment requires some configuration before it is ready for use. There are two modular jacks on this version. The modular jack on the 'CONTROL' side of the box (same side as the power jack) has already been wired to be controlled by the three alarm outputs of the Checkweigher. When using the factory wiring, the terminal assignment is shown in Table 2. Operation of the box can be verified by viewing the LED lights on the top of the relay modules. Configure the alarm outputs of the Checkweigher and turn them on using the menus in the Checkweigher controller. Remove the cover of the relay box. Then plug the cable into the relay box and into the OUT port of the Checkweigher. As the alarm output state changes the status of the LED lights will change. When alarm state is high the LEDs are lit and the output switch is closed.

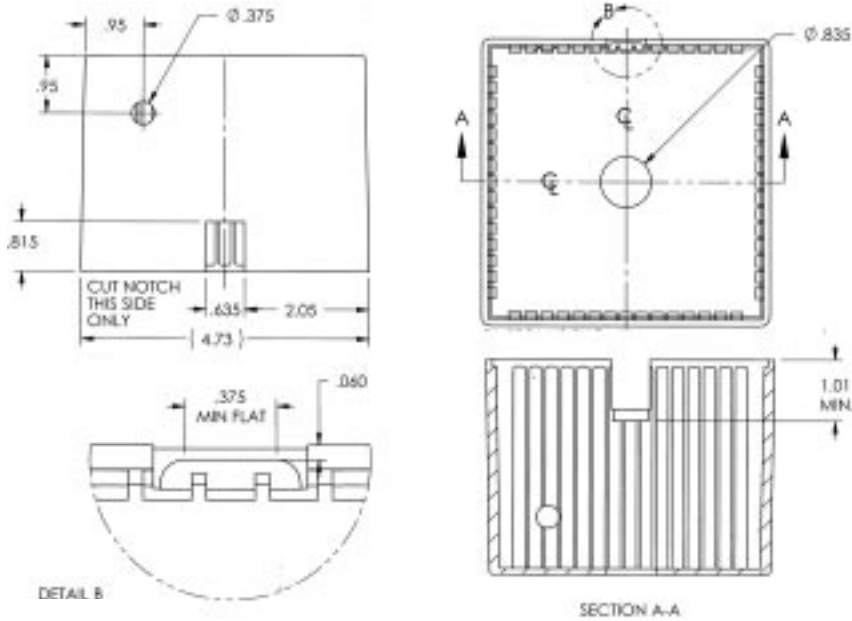
Next wire the second modular jack to the 'FIELD' side of the circuit board. Two examples are provided that show how to wire the second modular jack. If switched output is desired (that is, a normally open switch that closes when the alarm is high) then wire the second modular jack as shown in Table 3. If open drain output is desired, wire the switch as shown in Table 4. The DC jack can be used to provide external power to a contact. Once the relay box has been tailored to your needs, reinstall the cover. Connect the IN port on the relay box to the OUT port on the Checkweigher using the modular plug cable. Then connect the equipment that is being controlled into the OUT port on the relay box.

UPGRADING

The relay box comes equipped from Setra for most control applications. However, some applications will require control of signals outside the specifications tolerable by the stock configuration. In these cases, additional modules or circuit boards can be purchased directly from OPTO22. Different varieties of OPTO22's G4 modules are configured to control different field signals. Some examples are the G40DC5A, which controls up to 200VDC of field voltage and the G40AC5 that controls up to 140VAC of field voltage, as well as many others. The standard circuit board can only accept output type modules, but an input style circuit board, G4PB4, can be used to condition input signals to the scale's digital inputs. The wiring of such a unit is outside the scope of this document, please refer to OPTO22's documentation.



DIMENSIONS



RELAY BOX SPECIFICATIONS

Control Voltage: 4 – 8 VDC
 Control Current: 12mA @ 5VDC
 Field Voltage : 5 – 60VDC
 Field Current: 3000mA @ 25°C, 2000mA @ 70°C
 One Second Surge Current: 5000mA
 Maximum Leakage Current : 1mA @ maximum voltage
 Maximum Field Voltage Drop: 1.6V
 OPTO22's Circuit Board P/N : G4BP4R
 OPTO22's Module P/N: G40DC5

	CONTROL Terminals	FIELD Terminals
ALARM 1	+ Terminal 8	Terminal 8
	- Terminal 9	Terminal 9
ALARM 2	+ Terminal 6	Terminal 6
	- Terminal 7	Terminal 7
ALARM 3	+ Terminal 4	Terminal 4
	- Terminal 5	Terminal 5
EMPTY SLOT	+ Terminal 2	Terminal 2
	- Terminal 3	Terminal 3

Table 2: Screw Terminal Assignments - Plus 5 volts across the + and - control terminals will cause the normally open field terminals to close.

Terminal	Wire
Control 2	None
Control 3	None
Control 4	In Jack, Red
Control 5	In Jack, Blue
Control 6	In Jack, Green
Control 7	buss wire to Control 9
Control 8	In Jack, White
Control 9	In Jack, Brown
Field 2	None
Field 3	Power Jack, Red Stack Light, Yellow
Field 4	Stack Light, Red
Field 5	Buss wire to Field 7
Field 6	Stack Light, Yellow
Field 7	Buss wire to Field 9
Field 8	Stack Light, Green
Field 9	Power Jack, Black

Table 1: Factory Default Wiring for Indicator Light Version

Terminal	Wire
Control 2	None
Control 3	None
Control 4	In Jack, Red
Control 5	In Jack, Blue
Control 6	In Jack, Green
Control 7	buss wire to Control 9
Control 8	In Jack, White
Control 9	In Jack, Brown
Field 2	None
Field 3	None
Field 4	Out Jack, Yellow
Field 5	Out Jack, Green
Field 6	Out Jack, Red
Field 7	Out Jack, Black
Field 8	Out Jack, Orange
Field 9	Out Jack, Blue

Table 3: Wiring Chart for Switched Output Example. Using this diagram - pins 1 and 2 of the modular jack are closed when alarm 1 is high; pins 3 and 4 are closed when alarm 2 is high; pins 5 and 6 are closed when alarm 3 is high.

Terminal	Wire
Control 2	None
Control 3	None
Control 4	In Jack, Red
Control 5	In Jack, Blue
Control 6	In Jack, Green
Control 7	Buss wire to Control 9
Control 8	In Jack, White
Control 9	In Jack, Brown
Field 2	None
Field 3	None
Field 4	Out Jack, White
Field 5	Out Jack, Blue Out Jack, Brown
Field 6	Out Jack, Green
Field 7	Buss wire to Field 5
Field 8	Out Jack, Red
Field 9	Buss wire to Control 7

Table 4: Wiring Chart for Open Drain Output Example. Using this chart, the outputs are high impedance when the alarm is low and connected ground when the alarm is high. The pinout on the OUT port is the same as the IN port.

Modular Jack Pin	Function
1	Ground
2	No Connection
3	No Connection
4	Alarm 1
5	Alarm 2
6	No Connection
7	Ground
8	Alarm 3

Table 5: Pinout of the IN port as wired from the factory.

Wire	Color
1	Blue
2	Orange
3	Black
4	Red
5	Green
6	Yellow
7	Brown
8	White

Table 6: Mod Jack Wire Colors