

BRIDGE BOYP

USER MANUAL

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1. PRELIMINARY PRECAUTIONS DURING SETTING

- Verify the power supply of BRIDGE BOYP :
 - ref. : BRIDGE BOYP 48V : 48 Vac and 230Vac available
 - ref. : BRIDGE BOYP 110V : 110Vac and 230Vac available
- Install the BRIDGE BOYP in a metallic box correctly connected to the ground.
- When mounted in a casing, be sure the BRIDGE BOYP is not installed too close to devices which could give out too many electromagnetic emissions (ex : power contactors).
- If there are many disturbances on the system, it would be preferable to prevent problems with a filter ("Schaffner" type).
- The cable of the 4-20mA signal should never pass along power cables. It may cross them perpendicularly.
- Do not twist the cable.

2. CONNECTING THE BRIDGE BOYP (RECOMMENDED TIGHTNING TORQUE : 0.4NM)

P - 1 0V

P - 2 48Vac (not present on the version 110V)

P - 3 110Vac (not present on the version 48V)

P - 4 230Vac

P - 5 ground

C - 1 normally closed contact 5A /250V (NC)

C - 2 COMMON contact

C - 3 normally open contact 5A /250V (NO)

L - 1 load cell excitation + (15V) = brown wire of SENSY load cell

L - 2 4-20mA signal = green wire of SENSY load cell

L - 3 Shield (+ common if 3 wires) (0V) = yellow wire of SENSY load cell + shield

Test 1 point of test (load cell signal)

Test 2 point of test (common)

Test 3 point of test (set point)

3. HOW DOES THE RELAY WORK ?

- In a normal situation (load cell signal lower than set point value adjusted by potentiometer), the relay is closed and the yellow & green LED's are both switched on :
The lifting of the hook is authorised.
- In case of overload, the relay changes its position and the green LED switches off :
The lifting of the hook is unauthorised.
- For safety reasons, when the signal falls under $\pm 3\text{mA}$ (abnormal condition), the relay automatically changes its position, and the green LED switches off :
The lifting of the hook is unauthorised.

CAUTION : for these imperious reasons, the dipswitch MIN OFF/ON must always be set to ON (potentiometer side) when used for lifting purposes. This is the dipswitch that insures security.

- The dipswitch DELAY OFF/ON is by default set to OFF and generates a waiting period of approximately 100 msec before release.

If required for the bridge flexibility, the release delay can be extended by turning the dipswitch ON. In order to avoid untimely jerks in case of visible load oscillating around the point of order, the BRIDGE BOYP allows a hysteresis margin of 2,6 mA compared to the load cell. This involves a hysteresis of 16% at the nominal load level, for a load cell with a signal varying between 4 (0%) and 20 mA (100% of the load). Regarding signal variations of the weaker load cell, this hysteresis on the load is proportionally greater.

4. ADJUSTMENT OF THE BRIDGE BOYP (USING TEST WEIGHTS = 110% OF THE NOMINAL CAPACITY)

Lift a weight representing 110% of the nominal authorised capacity by using test weights. Lift this weight high enough and allow it to settle so that it does not swing. Turn the potentiometer clockwise to the maximum : both LED's are switched on. Carefully adjust the potentiometer counter-clockwise as far as it will go, the relay releases (green LED switches off).

5. ADJUSTMENT OF THE BRIDGE BOYP (USING TEST WEIGHTS BETWEEN 70 AND 110% OF NOMINAL CAPACITY)

Turn the potentiometer clockwise to the maximum (both LEDs are switched on). Without any load on the hook, measure voltage between Load cell Signal test point and the common ($V_0 = \pm 0.4V$)
Apply your test weights (M1) and measure the new voltage (V1)
If M2 = virtual load for cut-off threshold programmed at 110% nominal load.
Corresponding voltage = V2 : this voltage between Set Point and common is reached by adjusting the potentiometer SET anti-clockwise; both LEDs remain switched on :

$$V_2 = \frac{\text{Masse2}}{\text{Masse1}} \times (V_1 - V_0) + V_0$$

Example : Crane with 10t nominal load ; available calibrated weights = 8t (> 70% of the nominal charge)
Maximum overload = 110% of 10t : 11t
Measured voltage without any load on the hook (between load cell signal and common) : 0.42V
Measured voltage with the test weights (8t) on the hook : 1.22 V

$$V_2 = \frac{11t}{8t} \times (1.22V - 0.42V) + 0.42V = 1.52V$$

It is therefore necessary to adjust the potentiometer SET to reach a voltage of 1.52V between Set point and common.

6. WIRING DIAGRAM

