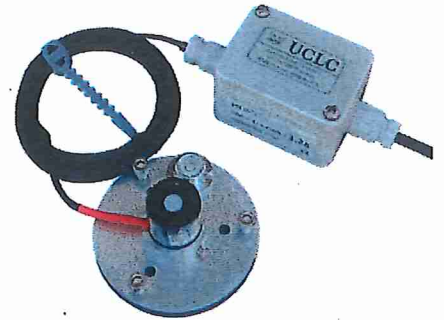


Quick Start Guide

Universal Current Loop Converter Amplifier for LI-COR Sensors

The UCLC is a special purpose amplifier that converts the micro-amp level current output of LI-COR™ light sensors into an industry standard current-loop level. Using the internal switch settings, the UCLC can be configured at the factory (or by the end user) for any one of the standard LI-COR sensors. The UCLC provides a simple interface between LI-COR sensors and current loop signal processing equipment (such as data loggers, PLC's, industrial control equipment, HVAC, and green house control systems). Please visit www.emesystems.com/UCLC_Manual_RevD.pdf for more information and documentation.



Connection Instructions

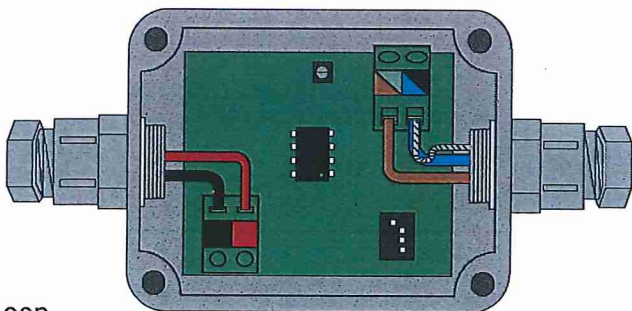
Required tools: (a) Phillips screwdriver for lid. (b) 3.8 mm or 0.15" slot screwdriver.

1) CONNECT LI-COR to UCLC INPUT: (a) Unscrew and remove lid. (b) Pass the LI-COR sensor cable through the UCLC gland closest to the 2-terminal (BROWN/GREEN and BLUE/BLACK) connection block. Loosen the gland nut if necessary. (d) Connect as follows:

R Series

Input

- LI-xxx blue and shield (signal return+shield) to blue/black terminal.
- LI-xxx brown (signal) to brown/light green terminal.



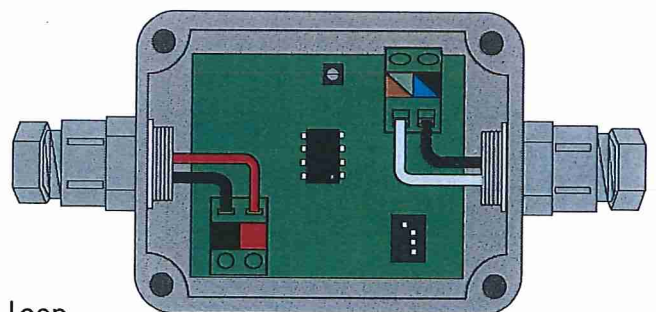
Loop

- loop negative (-) to black terminal.
- loop positive (+) to red terminal.

SZ Series

Input

- LI-xxx shield (signal return) to blue/black terminal.
- LI-xxx core conductor (signal) to brown/light green terminal.



Loop

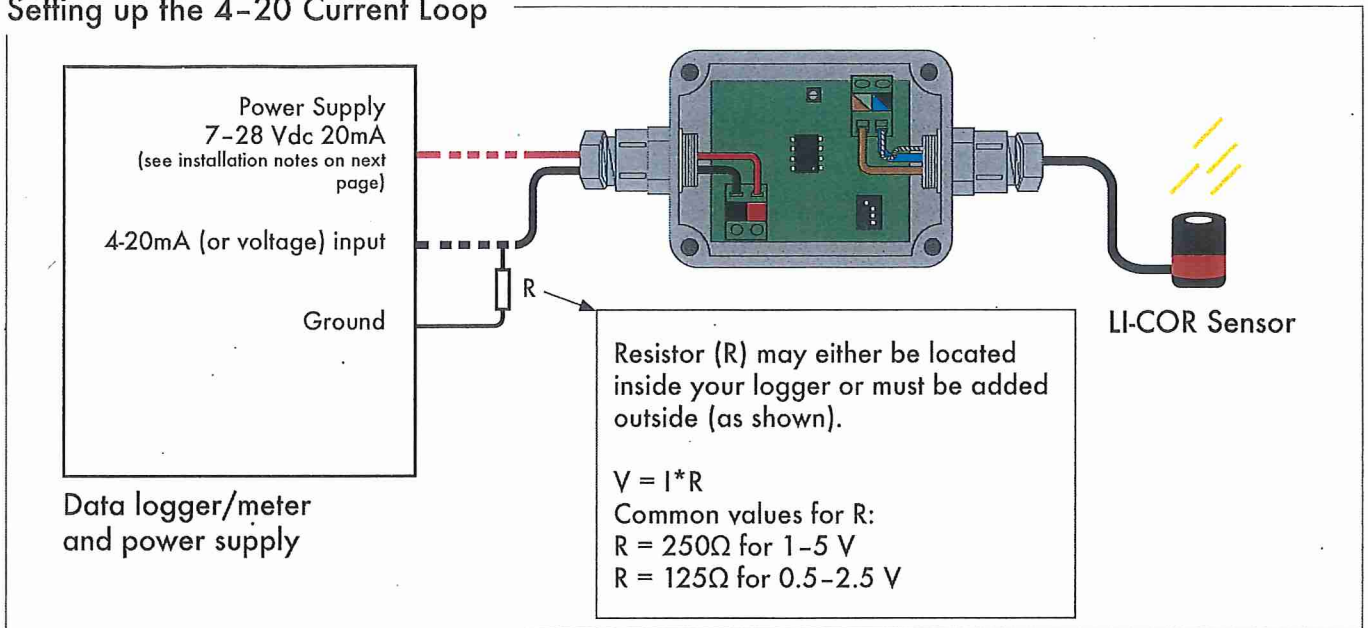
- loop negative (-) to black terminal.
- loop positive (+) to red terminal.

2) CONNECT LOOP to UCLC: (a) Pass a 2-core cable (not included) through the UCLC gland closest to the BLACK/RED 2-terminal connection block. Use up to a 28 volts loop supply. (d) Connect according to diagram above.

(e) Tighten the gland nuts on both ends. (f) Replace the top cover of the enclosure and tighten the corner screws. Take care not to over-tighten the cover screws. Over-tightening may cause the cover to deform or "saddle" which can compromise the seal.



Setting up the 4-20 Current Loop



Calculate Light Level

The UCLC produces a loop current proportional to the light level. In order to convert the units, you will have to program your equipment with the following formula (or enter this formula for post processing in a program such as Microsoft EXCEL™).

$$\text{Light Level} = \frac{(\text{loop current} - 4 \text{ mA}) * (\text{LI-COR multiplier})}{(\text{UCLC current gain})}$$

Each individual LI-COR sensor has a distinct calibration multiplier. You can find the multiplier for your particular sensor on the calibration certificate that accompanies the sensor (in the *For use with LI-COR handheld meters* section). Please refer to the table below for UCLC current loop gain and light level units of measurement.

Sensor	Light Level Units	UCLC current gain
LI-200 Pyranometer	watts/meter ² per μA typical full sun: 1,000 W/m ²	0.128 mA/μA
LI-210 Photometer	klux per μA typical full sun: 100 klux	0.32 mA/μA
LI-190 Quantum PAR	μmoles meter ⁻² sec ⁻¹ per μA typical full sun: 2,000 μM/m ² s	1.0 mA/μA (16 μA FS) or 1.28 mA/μA (12.5 μA FS)
high gain, low light	special for low light levels	4.57143 mA/μA

Example: A pyranometer with a multiplier of 9.8 W/m²/μA is connected to an UCLC. According to the table above, the UCLC current gain for an LI-200 is 0.128 mA/μA. Suppose you have a measured current of 14.5 mA. Using the equation above, your light level is (14.5 - 4) * 9.8 / 0.128 = 804 W/m².