Introduction

This application note refers to products featuring a current driven remote control circuit. Concerned series contain one of the following sections within the datasheet (incl. link to external circuit proposal):

Remote Control	- Current Controlled Remote	On: open Off: 2 - 4 mA current (internal 1 kOhm resistor)
	- External Circuit Proposal	www.tracopower.com/info/current-remote.pdf

Figure 1: Section within the datasheet for series with internal 1 kOhm resistor

Remote Control	- Current Controlled Remote	On: open Off: 2 - 4 mA current (no internal resistor)
	- External Circuit Proposal	www.tracopower.com/info/current-remote.pdf

Figure 2: Section within the datasheet for series with no internal resistor

Meaning

On State
If the current driven remote control pin is either floating or connected to high impedance, the converter is operating and provides its specified output voltage level.

Off state
If 2 - 4 mA (or another current range specified in the corresponding converter's datasheet) is supplied to the current driven remote control pin, the unit switches off and stops providing the specified output voltage level. Some series contain an internal 1 k serial resistor, some series contain no internal serial resistor. If so or not is specified in the corresponding datasheet. This specification allows the calculations needed to either evaluate the voltage level that has to be applied to activate the remote control or to calculate the external resistors needed to activate the remote control at any input voltage level.

External Circuits

Current source based control

The current driven remote control can be activated by a simple current source. The required input current is specified in the datasheet (usually: 2 - 4 mA).

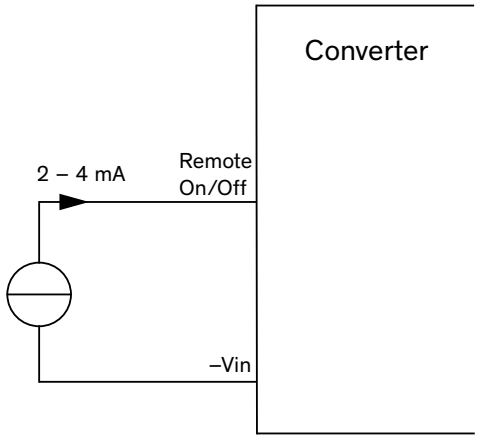

Figure 3: Circuit diagram for current source based control

Input voltage source control (with constant voltage source and switch)

The current driven remote control can also be activated by using an input voltage source. The constant input voltage source shall be applied to the remote control via an external serial resistor to generate the required current. This allows shutting down the unit by a regular switch.

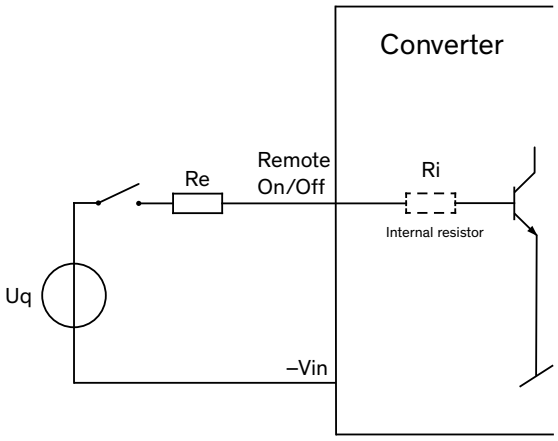

Figure 4: Circuit diagram for voltage level based control

$$Re = \frac{Uq - 0.7\,V}{2 \ldots 4\,mA} - Ri$$

Equation 1: Calculation of the external serial resistor (for 2 ... 4 mA remote current)

External Circuits

Input voltage level control (with logic high/low level control)

Positive logic

The current driven remote control can also be activated by using a specific voltage level (e.g. TTL logic). This example shows how to get a positive logic remote control i.e. logic high switches the unit on while logic low shuts the unit down. As control voltage, the input voltage of the unit has been used so the values of the resistors depend on the voltage level at the input (see table).

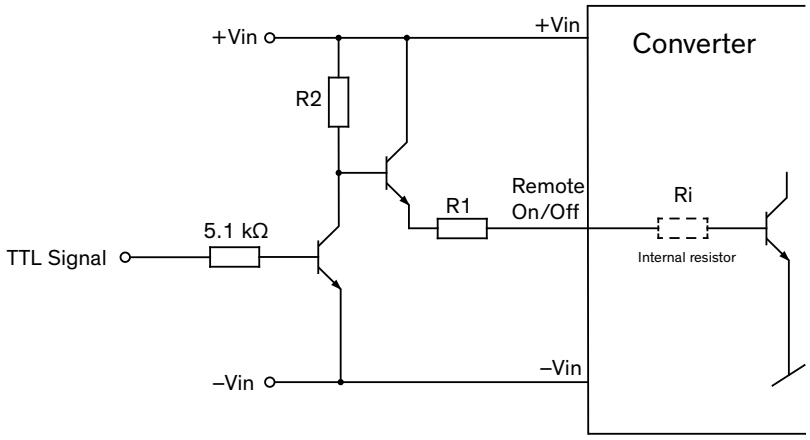

Figure 5: Circuit diagram for positive TTL based control

Input Voltage Vin	R1	R2
4.5 to 9 VDC	1 kΩ – Ri	7.5 kΩ
9 to 18 VDC	3.2 kΩ – Ri	16 kΩ
18 to 36 VDC	7.8 kΩ – Ri	33 kΩ
36 to 75 VDC	16 kΩ – Ri	68 kΩ

Table 1: Resistor values for positive TTL based control

External Circuits

Input voltage level control (with logic high/low level control)

Negative logic

This example shows how to get a negative logic remote control i.e. logic high shuts the unit down while logic low switches the unit on. As control voltage, the input voltage of the unit has been used so the values of the resistors depend on the voltage level at the input (see table).

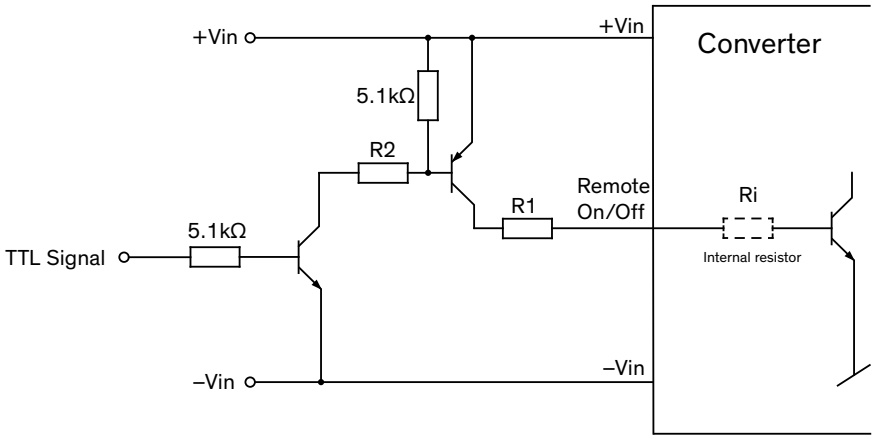

Figure 6: Circuit diagram for negativ TTL based control

Input Voltage Vin	R1	R2
4.5 to 9 VDC	1.36 kΩ – Ri	7.5 kΩ
9 to 18 VDC	3.7 kΩ – Ri	16 kΩ
18 to 36 VDC	8.5 kΩ – Ri	33 kΩ
36 to 75 VDC	17 kΩ – Ri	68 kΩ

Table 2: Resistor values for negative TTL based control