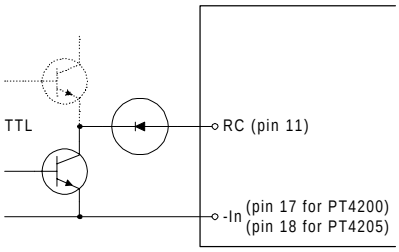
Using the PT4200/4205/4300 DC to DC Converter

Remote Control (RC) Turn-on or turn-off can be realized by using the RC pin. Normal operation is achieved if pin 11 is open. If pin 11 is connected to pin 17 (PT4200/4300) or pin 18 (PT4205), the power module turns off. To insure safe turn-off, the voltage difference between pin 11 and 17 or 18 should be less than 1.0V. RC is compatible with TTL open collector outputs with a sink capacity > 300µA (see figure 28).

Figure 28

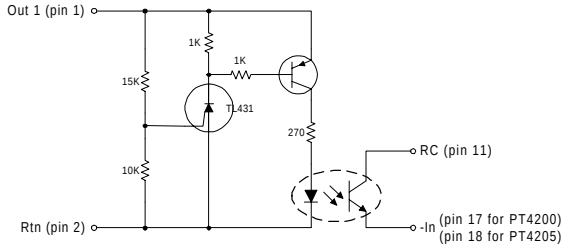
PT4200/4205/4300 REMOTE CONTROL



Over Voltage Protection (OVP) The remote control can also be utilized for OVP by using the external circuitry shown in figure 29. Resistor values are for 5V output applications, but can easily be adjusted for other output voltages and the desired OVP level.

Figure 29

PT4200/4205/4300 OVER VOLTAGE PROTECTION



Turn-on/off Input Voltage The power module monitors the input voltage and will turn on and turn off at predetermined levels set by means of external resistors.

To increase V_{Ion} connect a resistor between pin 11 and 17 (PT4200/4300) or 18 (PT4205) (see figure 30). The resistance is determined by the following equations; (a) PT4200/4300, (b) PT4205:

(a) $R_{Ion} = 100 \times (100.2 - V_{Ion})/(V_{Ion} - 36.5)$ kΩ (for V_{Ion}>37V)

(b) $R_{Ion} = 1000 \times (1110 - V_{Ion})/(V_{Ion} - 18.7)$ kΩ (for V_{Ion}>18.7V)

where 18.7 or 36.5 is the typical unadjusted turn-on input voltage. V_{Ioff} is the adjusted turn-off input voltage and is determined by V_{Ion}-V_{Ioff} = 2V (typical value).

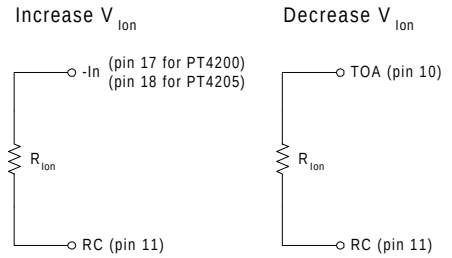
To decrease V_{Ion} connect a resistor between pin 10 and 11 (see figure 30). The resistance is determined by the following equations; (a) PT4200/4300, (b) PT4205:

(a) $R_{Ion} = 364 \times (V_{Ion} - 29.9)/(36.5 - V_{Ion})$ kΩ (for 30<V_{Ion}< 36V)

(b) $R_{Ion} = 25 \times (V_{Ion} - 16.9)/(18.7 - V_{Ion})$ kΩ (for 16.9<V_{Ion}< 18.7V)

Figure 30

PT4200/4205/4300 TURN-ON/OFF INPUT VOLTAGE ADJUSTMENT



Ouput Voltage Adjust (Vadj) Ouput voltage can be adjusted by using an external resistor. Typical adjust range is ±15%. If pin 8 and 9 are not connected together, the output will decrease to a low value. To increase V_O, a resistor should be connected between pin 8/9 and 18. To decrease V_O, a resistor should be connected between pin 8 and 9 (see figure 31).

The typical resistor value to **increase** V_O is determined by:

$$R_{adj} = k_1 \times (k_2 - V_O)/(V_O - V_{Oi}) \text{ kΩ}$$

where: V_O is the desired output voltage

V_{Oi} is the typical output voltage initial setting

and	k_1=0.684	k_2=2.46V	PT4201
	k_1=0.495	k_2=3.93V	PT4202
	k_1=0.495	k_2=5.87V	PT4203
	k_1=0.566	k_2=15.00V	PT4204*
	k_1=3.180	k_2=3.78V	PT4205
	k_1=3.180	k_2=5.85V	PT4206
	k_1=0.495	k_2=5.82V	PT4301
	k_1=0.495	k_2=3.93V	PT4302
	k_1=0.566	k_2=15.00V	PT4303*

The typical resistor value to **decrease** V_O is determined by:

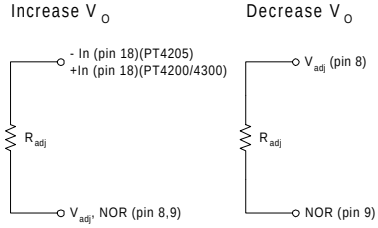
$$R_{adj} = k_1 \times (V_{Oi} - V_O)/(V_O - k_2) \text{ kΩ}$$

where	k_1=2.751	k_2=1.75V	PT4201
	k_1=1.986	k_2=2.59V	PT4202
	k_1=1.986	k_2=4.12V	PT4203
	k_1=2.284	k_2=9.52V	PT4204
	k_1=17.2	k_2=1.70V	PT4205
	k_1=12.5	k_2=4.28V	PT4206
	k_1=1.986	k_2=4.12V	PT4301
	k_1=1.986	k_2=2.59V	PT4302
	k_1=2.284	k_2=9.52V	PT4303

* Over 13.8V output voltage, the input voltage range is limited to 38-65V.

Figure 31

PT4200/4205/4300 OUTPUT VOLTAGE ADJUSTMENT



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