REFLEX® MODEL 213 SIGNAL ISOLATOR
PART NUMBER 12M03-00109-01
APPLICATION NOTES

1. The gain of Input Amplifier 3IC is equal to the ratio of feedback to input resistors Ry and Rx, and can be as low as zero or as high as 1000.

$$GAIN = \frac{Ry}{Rx}$$

Typical values are given below:

Input Voltage	RX	RY	GAIN	Voltage at Pin 3 of 4IC(A)
20V	100K	10K	0.1	2V)
5V	100K	40K	0.4	2V) See
2V	100K	100K	1.0	2V) Paragraph
0.2V	10K	100K	10	2V) 5 below
0.1V	10K	200K	20	2V)
0.002V	100 Ohm	100K	1000	2V

Recommended value limits for Ry are 10K minimum and 500K maximum. Rx should not be zero.

2. Polarities and commons are shown to indicate relative input and output polarities. Both input and output are bipolar.

3. When the input signal is grounded, the maximum recommended voltage at terminal 1 is 240 volts to meet national standards for electrical clearances.

4. When used for feedback isolation in a drive Inner Current Loop, Rx and Ry should be selected so that the output at terminal 7 is 2 volts at the maximum current-limited value.
CAUTION: See Paragraph 6.

5. When a 10 volt output signal is required (at terminal 6 - jumper A to B), Rx and Ry should be selected to provide 2.5 volts at terminal 3 at the maximum input signal level.

CAUTION: IF THE SIGNAL ISOLATOR IS USED IN A FEEDBACK LOOP THE MAXIMUM SIGNAL AT TERMINAL 3 SHOULD BE 2 VOLTS TO AVOID LOSS OF CONTROL DUE TO AMPLIFIER SATURATION!

6. When using the Signal Isolator in situations where the voltage between input common and output common may contain steep wavefronts or other high frequency components, the input-output capacitance of the isolator may cause unexpected results.

Typically, this capacitance may be as high as 50pf. If, for example, the input is connected to a shunt in a 480 volt thyristor armature circuit, the "ripple" voltage across the armature rises sharply at each firing point, and the rate of rise can easily be as high as 1000 volts per microsecond. This rapid voltage rise may cause as much as 50 milliamps of current pulses through the input-output capacitance of the Isolator. Depending on the external path for the current spikes, the connected circuit or the isolator itself may be seriously affected or even damaged.

In circumstances such as this, it is recommended that input and/or output common terminals be connected with low or zero impedance to a path to ground for this capacitive current to flow. In attempting to do this, remember that even a fairly short piece of wire can have significant inductive impedance to pulses of this short duration. Impedance in either common terminal forces capacitive currents to flow through the non-common input or output terminals of the isolator, and if these currents are large enough, inaccuracies, instabilities or even circuit damage can occur.