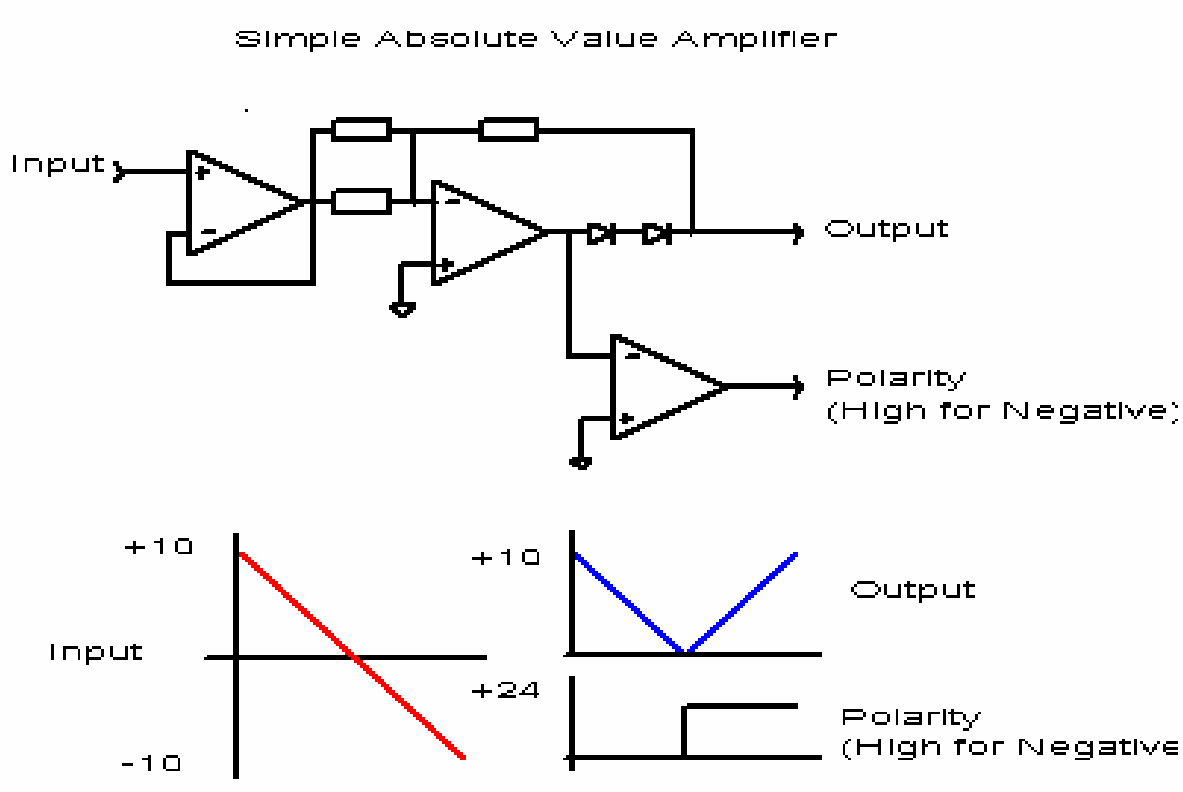
Application Note
CTAN #276

The Application Note is pertinent to the Commander SK and SE Families

Applications requiring a Bi-polar Reference

In general, a majority of motor / drive applications only require a single direction of rotation. Many of those that do require bi-directional operation select the reverse direction via a switched logical input to the drive (for example, jog reverse to un-jam a machine). The commonality between the two situations above is that they both use a single polarity speed reference (usually 0 to +10vdc). The Commander SK and SE only have uni-polar speed reference and if reversing is required it must be accomplished by logically selecting reverse. In some reversing applications this is not acceptable and a means of following a bi-directional reference must be found. This can be achieved by using an absolute value circuit with a logic output that changes state when the input polarity is negative. Below is a simple absolute value amplifier. Note that when the input voltage crosses through 0 and goes negative, the output goes positive and the polarity detector goes “high” (which is used to select reverse). The **SE51 Option Card**, which was designed for the Commander SE and the **SM-Bipolar Card** (SM-I/Olite also has a bipolar input) was designed for the Commander SK size B and larger. In addition to the bi-polar input, this option also has a relay (form a, normally open relay contact), which can be controlled by the Commander SK’s digital output. The function of this relay output can be set by parameter #35. Unfortunately to change the function of this additional relay on the SE51 card for the Commander SE you will need to use the ct-comms cable and SEsoft.



SE51 Terminal Layout

PL2		PL1	PL3
Pin 1	0V	+10 to –10V bipolar input	Relay - common
Pin 2	0 to +10V output	0V	Relay - normally open
Pin 3	+24V power supply		
Pin 4	Digital input to card		
Pin 5	Run Forward output		
Pin 6	Run Reverse OR Forward/ Reverse output		

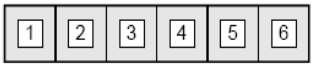
Relay Specification

Voltage Rating: 48VAC/DC
Maximum Current: 2A Resistive
Update Time: 1.5ms

Bipolar Terminal		Drive terminal
1	0V common	Connect to T1
2	0 to 10V Pr **05** = AI.AV, tor, Pid Pr **05** = AV.Pr	 Connect to T4 Connect to T2
	*Unspecified options for Pr **05** are not applicable to the SM-Bipolar module	
3	+24V power supply	Connect to B2
4	Relay drive signal	Connect to B3 (if relay is required)
5	Run forward output Pr **11** = 2, 3, 4 Pr **11** = All other values	 No connection required Connect to B5
6	Run reverse output Pr **11** = 4 Pr **11** = All other values	 Module will not function Connect to B6

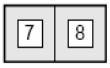
1.1 Terminal layout SM-Bipolar

PL1



PL1	Function
1	0V
2	0 to +10V output
3	+24V power supply
4	Relay drive signal
5	Run Forward output
6	Run Reverse OR Forward/Reverse output

PL2



PL2	Function
7	±10V bipolar input
8	0V

PL3

PL3	Function
21	Relay - common
22	Not used
23	Relay - normally open

1.2 Relay specification

Voltage rating: 48Vac/dc

Maximum current: 2A Resistive

Update time: 1.5ms

	Bipolar Terminal	Drive terminal
1	0V common	Connect to T1
2	0 to 10V Pr **05** = AI.AV, tor, Pid Pr **05** = AV.Pr	 Connect to T4 Connect to T2
	Unspecified options for Pr **05** are not applicable to the SM-Bipolar module	
3	+24V power supply	Connect to B2
4	Relay drive signal	Connect to B3 (if relay is required)
5	Run forward output Pr **11** = 2, 3, 4 Pr **11** = All other values	 No connection required Connect to B5
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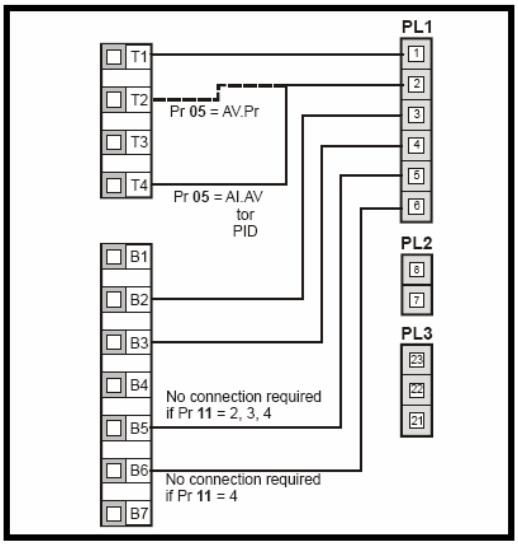

Questions: Ask the author ??
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