Control Wire Types

Table 1.G Recommended Control and Signal Wire(1)

Wire Type(s)	Description	Minimum Insulation Rating
Belden 8760/9460 (or equiv.)	0.8 mm^2 (18 AWG), twisted pair, 100% shield with drain.	300V 60 degrees C (140 degrees F)
Belden 8770 (or equiv.)	0.8 mm^2 (18 AWG), 3 conductor, shielded for remote pot only.	

(1) If the wires are short and contained within a cabinet which has no sensitive circuits, the use of shielded wire may not be necessary, but is always recommended.

I/O Terminal Block

Table 1.H I/O Terminal Block Specifications

Maximum Wire Size (1)	Minimum Wire Size (1)	Torque
1.3 mm^2 (16 AWG)	0.13 mm^2 (26 AWG)	0.5-0.8 N-m (4.4-7 lb.-in.)

(1) Maximum/minimum sizes that the terminal block will accept - these are not recommendations.

Maximum Control Wire Recommendations

Do not exceed control wiring length of 30 meters (100 feet). Control signal cable length is highly dependent on electrical environment and installation practices. To improve noise immunity, the I/O terminal block Common must be connected to ground terminal/protective earth. If using the RS485 (DSI) port, I/O Terminal 16 should also be connected to ground terminal/protective earth.

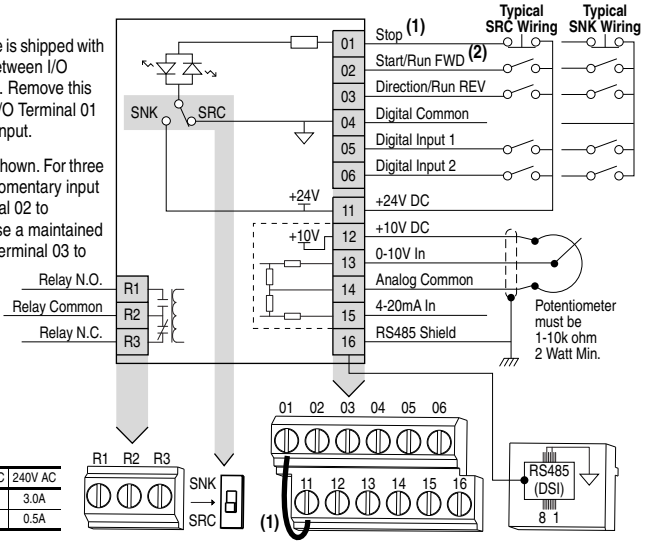
Figure 1.5 Control Wiring Block Diagram

(1) **Important:** I/O Terminal 01 is always a coast to stop input except when P036 [Start Source] is set to "3-Wire" control. In three wire control, I/O Terminal 01 is controlled by P037 [Stop Mode]. All other stop sources are controlled by P037 [Stop Mode].

P036 [Start Source]	Stop	I/O Terminal 01 Stop
Keypad	Per P037	Coast
3-Wire	Per P037	Per P037
2-Wire	Per P037	Coast
RS485 Port	Per P037	Coast

Important: The drive is shipped with a jumper installed between I/O Terminals 01 and 11. Remove this jumper when using I/O Terminal 01 as a stop or enable input.

(2) Two wire control shown. For three wire control use a momentary input on I/O Terminal 02 to command a start. Use a maintained input for I/O Terminal 03 to change direction.



	30V DC	125V AC	240V AC
Resistive	3.0A	3.0A	3.0A
Inductive	0.5A	0.5A	0.5A

No.	Signal	Default	Description	Param.
R1	Relay N.O.	Fault	Normally open contact for output relay.	A055
R2	Relay Common	–	Common for output relay.	
R3	Relay N.C.	Fault	Normally closed contact for output relay.	A055
Sink/Source DIP Switch		Source (SRC)	Inputs can be wired as Sink (SNK) or Source (SRC) via DIP Switch setting.	
01	Stop (1)	Coast	The factory installed jumper or a normally closed input must be present for the drive to start.	P036 (1)
02	Start/Run FWD	Not Active	Command comes from the integral keypad by default. To disable reverse operation, see A095 [Reverse Disable].	P036, P037
03	Direction/Run REV	Not Active		P036, P037, A095
04	Digital Common	–	For digital inputs. Electronically isolated with digital inputs from analog I/O.	
05	Digital Input 1	Preset Freq	Program with A051 [Digital In1 Sel].	A051
06	Digital Input 2	Preset Freq	Program with A052 [Digital In2 Sel].	A052
11	+24V DC	–	Drive supplied power for digital inputs. Maximum output current is 100mA.	
12	+10V DC	–	Drive supplied power for 0-10V external potentiometer. Maximum output current is 15mA.	P038
13	0-10V In (3)	Not Active	For external 0-10V input supply (input impedance = 100k ohm) or potentiometer wiper.	P038
14	Analog Common	–	For 0-10V In or 4-20mA In. Electronically isolated with analog inputs from digital I/O.	
15	4-20mA In (3)	Not Active	For external 4-20mA input supply (input impedance = 250 ohm).	P038
16	RS485 (DSI) Shield	–	Terminal should be connected to safety ground - PE when using the RS485 (DSI) communications port.	

(3) Only one analog frequency source may be connected at a time. If more than one reference is connected at the same time, an undetermined frequency reference will result.