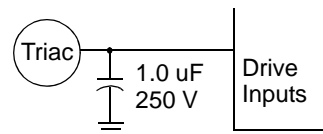
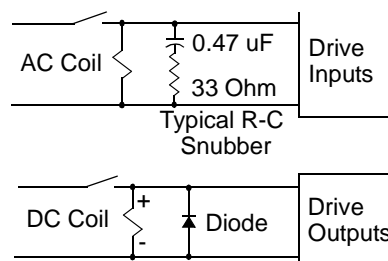


Note: Triacs used as sources for drive inputs, may have excessive leakage current in the OFF state, enough to read as ON to drive inputs. Driving two or more inputs, divides the leakage current, reducing or eliminating the problem. An alternative is to add a small capacitive load – see figure.



WARNING! Relay coils generate noise spikes in response to steps in applied power. To avoid drive damage from such spikes, all AC relay coils mounted across drive inputs require R-C snubbers, and all DC relay coils mounted across drive outputs require diodes – see figure.



Analog cables

Recommendations for analog signal runs:

- Use double shielded, twisted pair cable.
- Use one individually shielded pair for each signal.
- Do not use a common return for different analog signals.

Digital cables

Recommendation for digital signal runs: A double shielded cable is the best alternative, but single-shielded, twisted, multi-pair cable is also usable.

Control panel cable

If the control panel is connected to the drive with a cable, use only Category 5 Patch ethernet cable.

Drive's control connection terminals

The following table provides specifications for the drive's control terminals













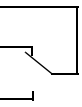
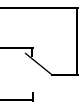
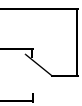
Frame Size	Control			
	Maximum Wire Size		Torque	
	mm ²	AWG	Nm	lb-ft
All	1.5	16	0.4	0.3

Control terminal descriptions

The following full-page diagram provides a general description of the control terminals on the drive. For specific application details, see the [Application macros](#) on page 1-49.

Note: Terminals 3, 6, and 9 are at the same potential.

Note: For safety reasons the fault relay signals a “fault” when the ACH550 is powered down.

	X1	Drive Control Terminal Description	
Analog I/O	1	SCR	Terminal for signal cable screen. (Connected internally to chassis ground.)
	2	AI1	Analog input channel 1, programmable. Default ² = external reference. Resolution 0.1%, accuracy $\pm 1\%$. J1:AI1 OFF: 0(2)...10 V ($R_i = 312\text{ k}\Omega$)  or, for OFF  for ON 
			J1:AI1 ON: 0(4)...20 mA ($R_i = 100\text{ }\Omega$)  or, for OFF  for ON 
	3	AGND	Analog input circuit common (connected internally to chassis gnd. through 1 M Ω).
	4	+10 V	Potentiometer reference source: 10 V $\pm 2\%$, max. 10 mA ($1\text{ k}\Omega \leq R \leq 10\text{ k}\Omega$).
	5	AI2	Analog input channel 2, programmable. Default ² = PID feedback. Resolution 0.1%, accuracy $\pm 1\%$. J1:AI2 OFF: 0(2)...10 V ($R_i = 312\text{ k}\Omega$)  or, for OFF  for ON 
			J1:AI2 ON: 0(4)...20 mA ($R_i = 100\text{ }\Omega$)  or, for OFF  for ON 
	6	AGND	Analog input circuit common (connected internally to chassis gnd. through 1 M Ω).
	7	AO1	Analog output, programmable. Default ² = frequency. 0...20 mA (load < 500 Ω). Accuracy $\pm 3\%$ full scale.
	8	AO2	Analog output, programmable. Default ² = current. 0...20 mA (load < 500 Ω). Accuracy $\pm 3\%$ full scale.
	9	AGND	Analog output circuit common (connected internally to chassis gnd. through 1 M Ω).
Digital Inputs ¹	10	+24V	Auxiliary voltage output 24 VDC / 250 mA (reference to GND), short circuit protected.
	11	GND	Auxiliary voltage output common (connected internally as floating).
	12	DCOM	Digital input common. To activate a digital input, there must be $\geq +10\text{ V}$ (or $\leq -10\text{ V}$) between that input and DCOM. The 24 V may be provided by the ACH550 (X1-10) or by an external 12...24 V source of either polarity.
	13	DI1	Digital input 1, programmable. Default ² = start/stop.
	14	DI2	Digital input 2, programmable. Default ² = not configured.
	15	DI3	Digital input 3, programmable. Default ² = constant (preset) speed.
	16	DI4	Digital input 4, programmable. Default ² = safety interlock.
	17	DI5	Digital input 5, programmable. Default ² = not configured.
	18	DI6	Digital input 6, programmable. Default ² = not configured.
Relay Outputs	19	RO1C	 Relay output 1, programmable. Default ² = Ready Maximum: 250 VAC / 30 VDC, 2 A Minimum: 500 mW (12 V, 10 mA)
	20	RO1A	
	21	RO1B	
	22	RO2C	 Relay output 2, programmable. Default ² = Running Maximum: 250 VAC / 30 VDC, 2 A Minimum: 500 mW (12 V, 10 mA)
	23	RO2A	
	24	RO2B	
	25	RO3C	 Relay output 3, programmable. Default ² = Fault (-1) Maximum: 250 VAC / 30 VDC, 2 A Minimum: 500 mW (12 V, 10 mA)
	26	RO3A	
	27	RO3B	