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Supplied by Customer

Fused External +24VDC Isolated Power Supply Typical 2 Amp

+24 VDC
+24 VDC COM

Connections made to male 4-pin Weidmuller connector located on top edge of ACR2000 board.

Power consumption of one ACR2000 board without analog output, encoder output power, or Digital I/O usage.

+5VDC @ 1.5 Amp
+12VDC @ 0.15 Amp
-12VDC @ 0.15 Amp

Suggested Standalone power supply ratings for use with one ACR2000 card.

+5VDC @ 4 Amp
+12VDC @ 1/2 Amp
-12VDC @ 1/2 Amp

GND
+5VDC
-12VDC
+12VDC

Connections made to male 4-pin Weidmuller connector located on right edge of ACR2000 Communications Plug-in Module.

Fusing supplied on the ACR2000 Communications Plug-in Module for standalone power inputs.

+5VDC fused at 4 Amps
+12VDC fused at 0.250 Amps
-12VDC fused at 0.250 Amps

NOTE: PWR2 IS PART OF ACRCOMM PLUG-IN OPTION MODULE

NOTE: P5 IS PART OF ACRCOMM PLUG-IN OPTION MODULE

ENCODER INPUT

Encoder Inputs to the ACR2000 are capable of handling various types of open-collector and line driver encoders DO NOT USE WITH CMOS DRIVERS

TYPICAL ENCODER

CHA+ BROWN
CHA- BRN/WH
CHB+ GREEN
CHB- GRN/WH
ZR+ ORANGE
ZR- ORN/WH
+5V RED
GND BLACK

CAUTION: Before hook-up consult manual for jumper settings required on ACR2000. Improper settings may cause PERMANENT DAMAGE to encoder

See sheet 2 for Digital I/O wiring examples

ACR2000	ACR2000	ACR2000	ACR2000
PWR2-1	GND	EXT GND	PWR1-1
PWR2-2	+5V	EXT GND	PWR1-2
PWR2-3	-12V	EXT +5 OR +24V	PWR1-3
PWR2-4	+12V	EXT +5 OR +24V	PWR1-4
P1A-1	CHA0 +	RXD1	P5-1
P1A-2	CHA0 -	TXD1	P5-2
P1A-3	CHB0 +	GND	P5-3
P1A-4	CHB0 -	MUX1	P5-4
P1A-5	MRK0 +	TXD1A	P5-5
P1A-6	MRK0 -	TXD1B	P5-6
P1A-7	VCC	RXD1A	P5-7
P1A-8	GND	RXD1B	P5-8
P1A-9	CHA1 +	RXD2	P5-9
P1A-10	CHA1 -	TXD2	P5-10
P1A-11	CHA2 +	GND	P5-11
P1A-12	CHA2 -	MUX2	P5-12
P1A-13	CHB1 +	TXD2A	P5-13
P1A-14	CHB1 -	TXD2B	P5-14
P1A-15	MRK1 +	RXD2A	P5-15
P1A-16	VCC	RXD2B	P5-16
P1A-17	GND	RXD2B	P5-17
P1A-18	CHA2 +	STB	P5-18
P1A-19	CHA2 -	AFD	P5-19
P1A-20	CHB2 +	ERR	P5-20
P1A-21	CHB2 -	INIT	P5-21
P1A-22	MRK2 +	SLIN	P5-22
P1A-23	MRK2 -	GND	P5-23
P1A-24	VCC	PD0	P5-24
P1A-25	GND	PD1	P5-25
P1A-26	CHA3 +	PD2	P5-26
P1A-27	CHA3 -	PD3	P5-27
P1A-28	CHB3 +	PD4	P5-28
P1A-29	CHB3 -	PD5	P5-29
P1A-30	MRK3 +	PD6	P5-30
P1A-31	MRK3 -	PD7	P5-31
P1A-32	VCC	ACK	P5-32
	GND	BUSY	P5-33
		PE	P5-34
		SLCT	P5-34

P3	INP	P2	INP
P3-1	INP-00	P2-1	WATCHDOG-NO
P3-2	INP-01	P2-2	SVCC
P3-3	INP-02	P2-3	ASIG-0/STEP-0
P3-4	INP-03	P2-4	ASIG-1/STEP-1
P3-5	INP-04	P2-5	SVCC
P3-6	INP-05	P2-6	ASIG-2/STEP-2
P3-7	INP-06	P2-7	ASIG-3/STEP-3
P3-8	INP-07	P2-8	NC
P3-9	INP-08	P2-9	NC
P3-10	INP-09	P2-10	NC
P3-11	INP-10	P2-11	AIN-0
P3-12	INP-11	P2-12	AIN-1
P3-13	INP-12	P2-13	AIN-2
P3-14	INP-13	P2-14	AIN-3
P3-15	INP-14	P2-15	NC
P3-16	INP-15	P2-16	WATCHDOG-COM
P3-17	NC	P2-17	SVCC
P3-18	OUT-32	P2-18	AGND-0/DIR-0
P3-19	OUT-33	P2-19	AGND-1/DIR-1
P3-20	OUT-34	P2-20	SVCC
P3-21	OUT-35	P2-21	AGND-2/DIR-2
P3-22	OUT-36	P2-22	AGND-3/DIR-3
P3-23	OUT-37	P2-23	NC
P3-24	OUT-38	P2-24	NC
P3-25	OUT-39	P2-25	NC
P3-26	OUT-40	P2-26	AIN-COM
P3-27	OUT-41	P2-27	AIN-COM
P3-28	OUT-42	P2-28	AIN-COM
P3-29	OUT-43	P2-29	AIN-COM
P3-30	OUT-44	P2-30	NC
P3-31	OUT-45	P2-31	WATCHDOG-NC
P3-32	OUT-46	P2-32	SVCC
P3-33	OUT-47	P2-33	MISC0/LCUR-0
P3-34	NC	P2-34	MISC0/LCUR-1
		P2-35	SVCC
		P2-36	MISC2/LCUR-2
		P2-37	MISC3/LCUR-3
		P2-38	NC
		P2-39	NC
		P2-40	NC
		P2-41	AIN-4
		P2-42	AIN-5
		P2-43	AIN-6
		P2-44	AIN-7

CON44

SERIAL COMMUNICATIONS

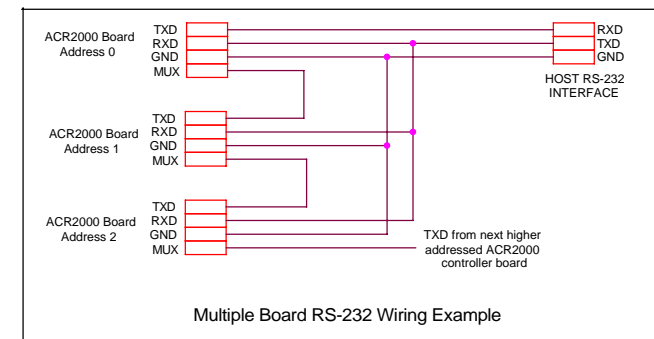
(ACRCOMM Module Option)

RS-232 Serial Connection for COM1 and COM2 Autobaud detects the following formats

Parity	Data	Stop Bit
ODD	7	1
NO	8	1
EVEN	7	1

Baud Rates from 300 to 38400

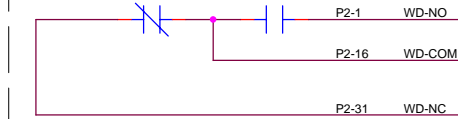
XON/XOFF Control must be used



Multiple Board RS-232 Wiring Example

WATCHDOG CIRCUIT

Relay contacts shown is state when ACR2000 is without power, or in a processor fault condition.



Watchdog Relay contact rating
1.0 Amp @ 30 VDC

See sheet 2 for analog/stepper interface information.

See sheet 4 and 5 for P2 Analog Input connector wiring examples.

See sheet 3 for P2 DAC/Stepper connector wiring examples.

Connections made to high density mate 44-pin D-plug supplied.

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Digital I/O Wiring

WARNING:

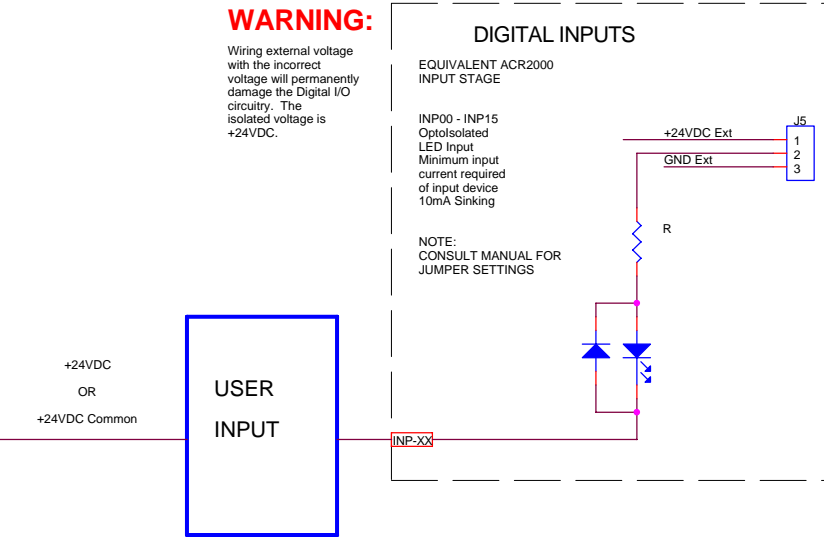
Wiring external voltage with the incorrect voltage will permanently damage the Digital I/O circuitry. The isolated voltage is +24VDC.

DIGITAL INPUTS

EQUIVALENT ACR2000 INPUT STAGE

INP00 - INP15 Optoisolated LED Input
Minimum input current required of input device 10mA Sinking

NOTE: CONSULT MANUAL FOR JUMPER SETTINGS



DIGITAL OUTPUTS

EQUIVALENT ACR2000 SINKING OUTPUT STAGE (Part No. ULN2803)

NOTE: CONSULT MANUAL FOR JUMPER SETTINGS

Ext. Gnd

OUT32 - OUT47 Optoisolated Open Collector

Maximum current 125mA per output if total number of outputs used does not exceed 7.

WARNING:

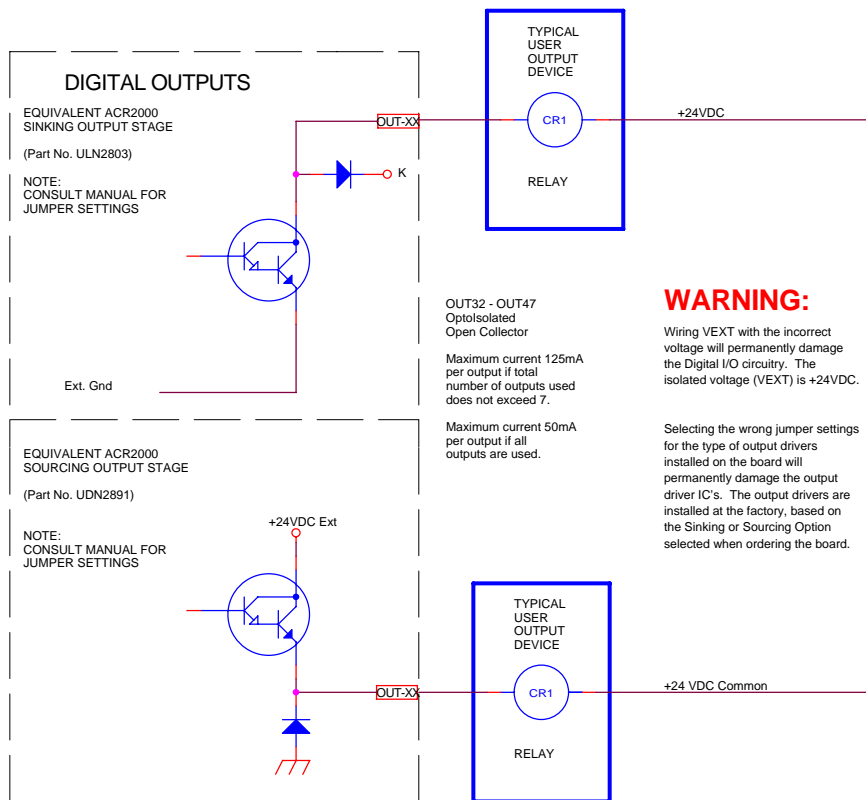
Wiring VEXT with the incorrect voltage will permanently damage the Digital I/O circuitry. The isolated voltage (VEXT) is +24VDC.

Maximum current 50mA per output if all outputs are used.

Selecting the wrong jumper settings for the type of output drivers installed on the board will permanently damage the output driver IC's. The output drivers are installed at the factory, based on the Sinking or Sourcing Option selected when ordering the board.

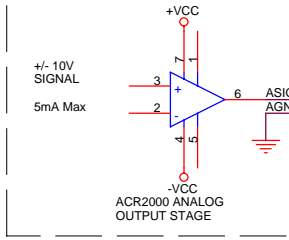
EQUIVALENT ACR2000 SOURCING OUTPUT STAGE (Part No. UDN2891)

NOTE: CONSULT MANUAL FOR JUMPER SETTINGS

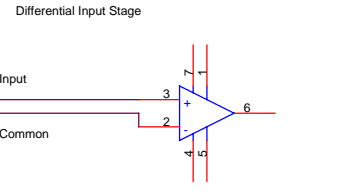


Analog/Stepper Wiring

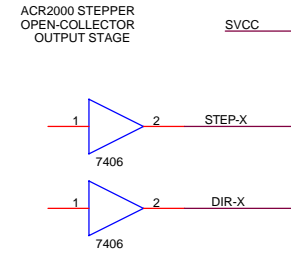
ANALOG OUTPUTS



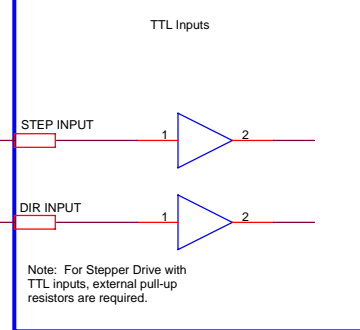
SERVO AMPLIFIER



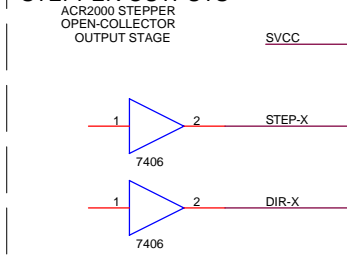
STEPPER OUTPUTS



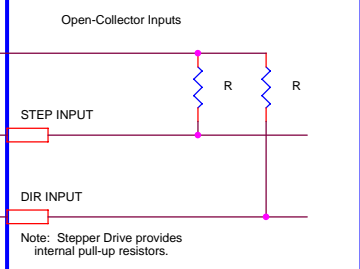
STEPPER DRIVE



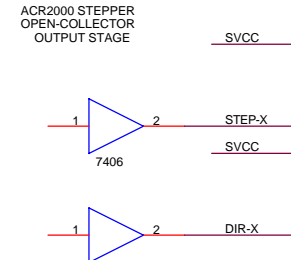
STEPPER OUTPUTS



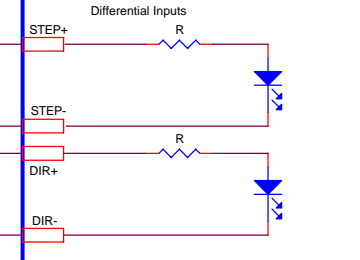
STEPPER DRIVE



STEPPER OUTPUTS

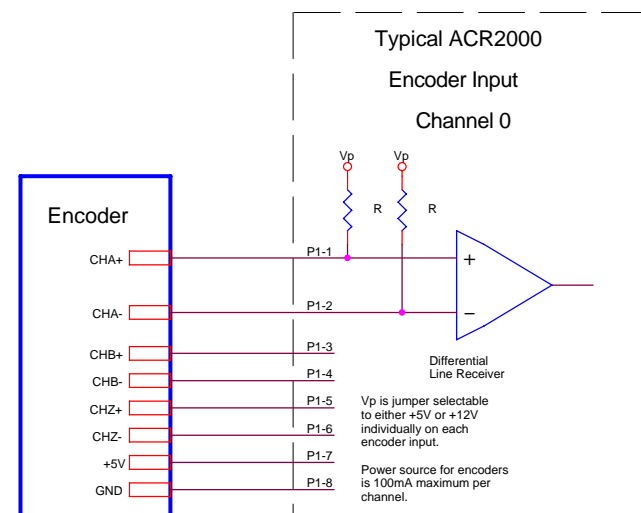


STEPPER DRIVE

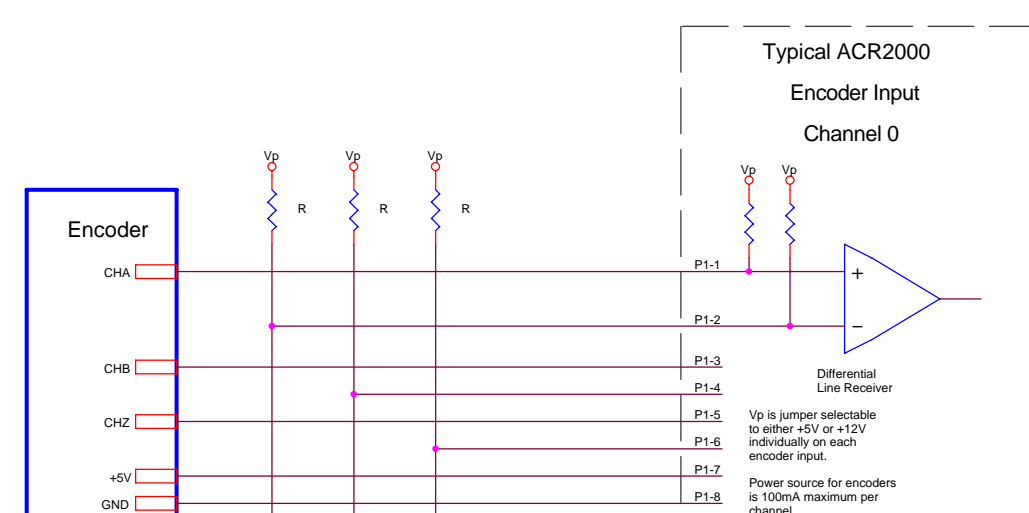


Encoder Wiring

Differential Input



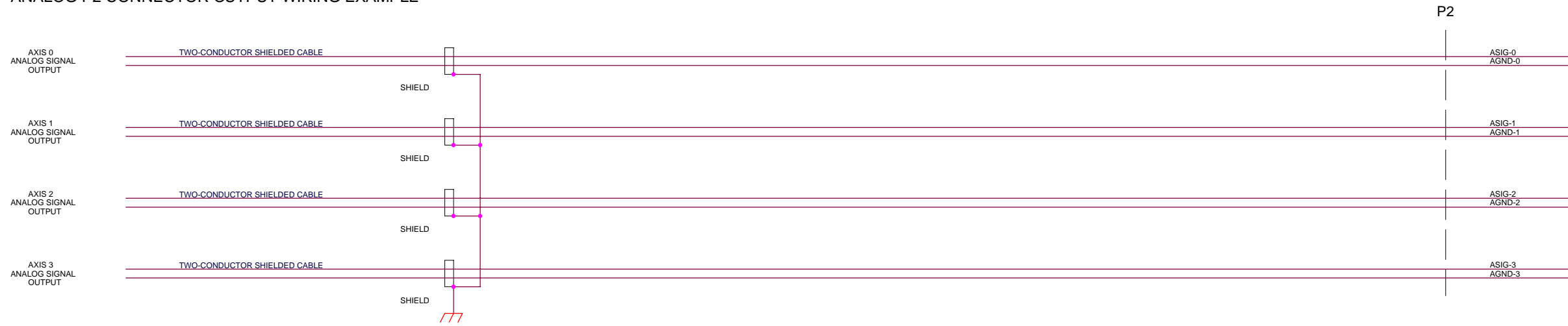
Single-Ended Input



NOTE: External resistor (R) value is:
Vp @ 5V, R = 1K ohm
Vp @ 12V, R = 2K ohm

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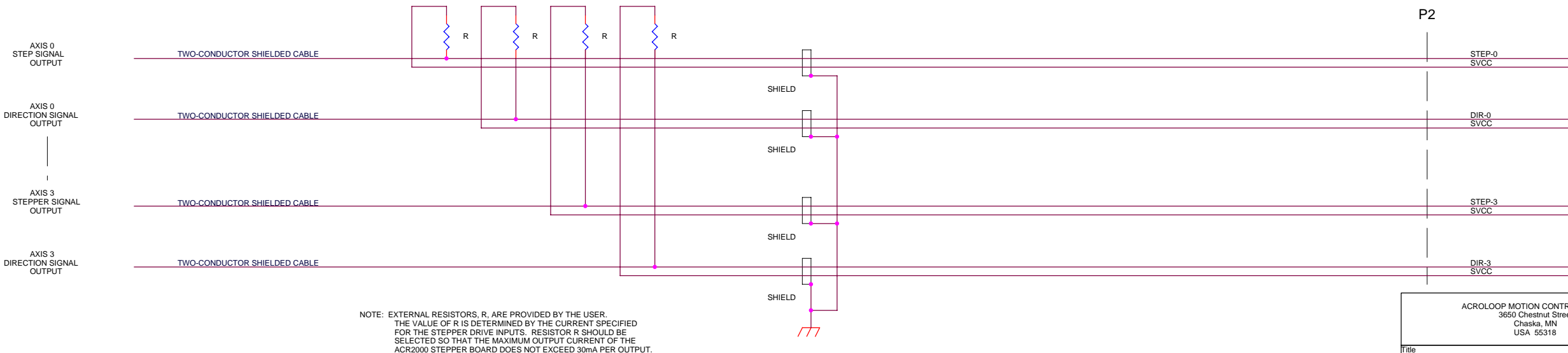
ANALOG P2 CONNECTOR OUTPUT WIRING EXAMPLE



STEPPER P2 CONNECTOR DIFFERENTIAL OUTPUT WIRING EXAMPLE (OPEN-COLLECTOR OUTPUTS PULLED-UP THRU STEPPER DRIVE INPUTS)



STEPPER P2 CONNECTOR SINGLE-ENDED OUTPUT WIRING EXAMPLE (OPEN-COLLECTOR OUTPUTS PULLED-UP TO +5V THRU EXTERNAL RESISTORS)



NOTE: EXTERNAL RESISTORS, R, ARE PROVIDED BY THE USER.
 THE VALUE OF R IS DETERMINED BY THE CURRENT SPECIFIED FOR THE STEPPER DRIVE INPUTS. RESISTOR R SHOULD BE SELECTED SO THAT THE MAXIMUM OUTPUT CURRENT OF THE ACR2000 STEPPER BOARD DOES NOT EXCEED 30mA PER OUTPUT.

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ANALOG P2 CONNECTOR INPUT WIRING

DIFFERENTIAL WIRING EXAMPLE

ANALOG TO DIGITAL INPUTS (ADC)

ANALOG TO DIGITAL INPUTS (AIN0 - AIN7) CAN BE USED AS DIFFERENTIAL OR SINGLE-ENDED INPUTS. ANY COMBINATION MAY BE USED.

IF USED AS DIFFERENTIAL INPUTS, TWO INPUTS ARE USED AS SHOWN USING AIN0-AIN1 & AIN2-AIN3. FOUR DIFFERENTIAL INPUT SIGNALS MAY BE USED WITH AN ACR2000.

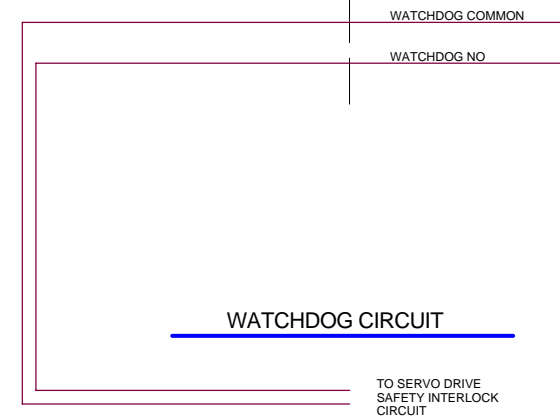
IF USED AS SINGLE-ENDED INPUTS, ONE INPUT IS USED IN CONJUNCTION WITH AIN-COM. EIGHT SINGLE-ENDED INPUT SIGNALS MAY BE USED WITH AN ACR2000. SEE SHEET 4 FOR SINGLE ENDED WIRING EXAMPLE.

DIFFERENTIAL INPUT PAIRS

	+	-
AIN0	-	AIN1
AIN2	-	AIN3
AIN4	-	AIN5
AIN6	-	AIN7



P2



WATCHDOG CIRCUIT

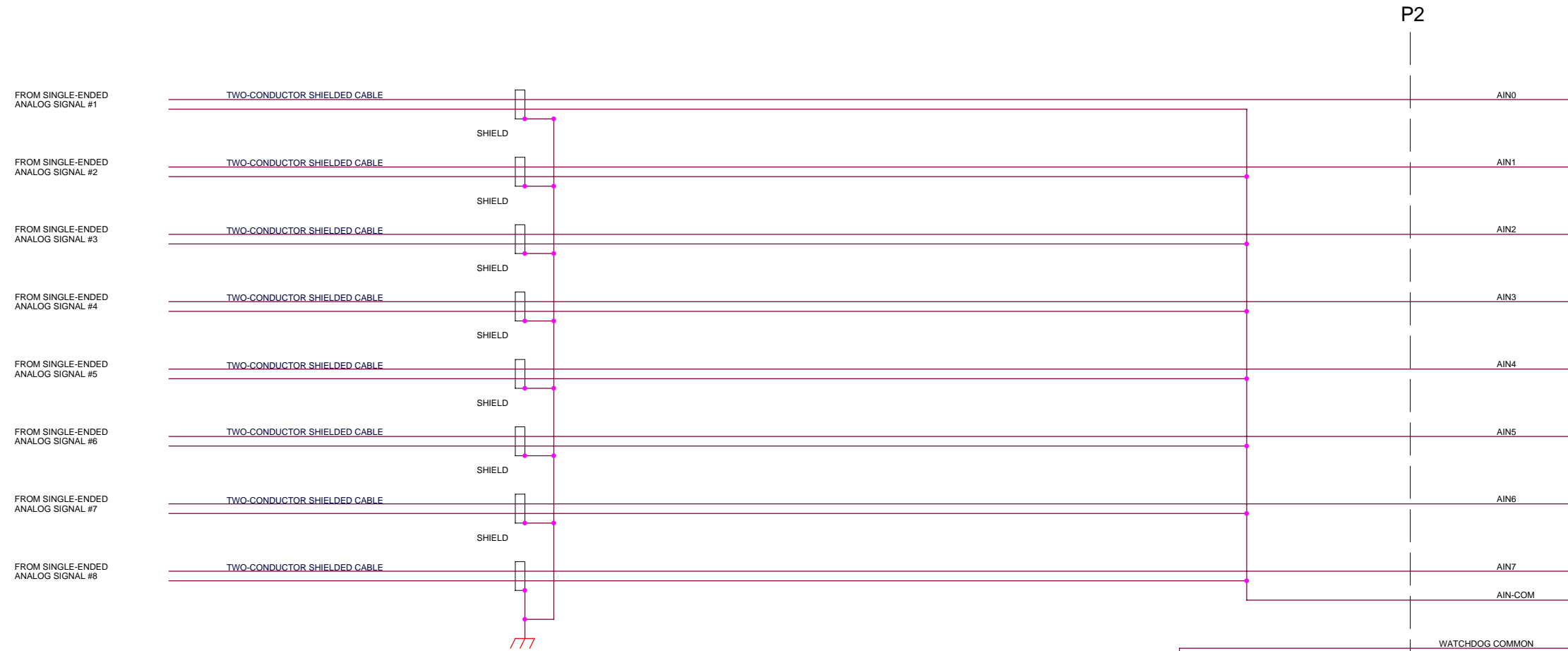
TO SERVO DRIVE SAFETY INTERLOCK CIRCUIT

WATCHDOG CONTACTS USED TO DISABLE SERVO DRIVE UNTIL ACR2000 CONTROLLER HAS FULL CONTROL OF ALL DIGITAL AND ANALOG SIGNALS TO PREVENT POSSIBLE MOTOR SURGE ON INITIAL START-UP

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ANALOG P2 CONNECTOR INPUT WIRING

SINGLE-ENDED WIRING EXAMPLE



WATCHDOG CIRCUIT

TO SERVO DRIVE
SAFETY INTERLOCK
CIRCUIT

WATCHDOG CONTACTS USED TO DISABLE SERVO DRIVE
UNTIL ACR2000 CONTROLLER HAS FULL CONTROL
OF ALL DIGITAL AND ANALOG SIGNALS TO PREVENT
POSSIBLE MOTOR SURGE ON INITIAL START-UP

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