PAE-SCM-1

Introduction

The signal converter module PAE-SCM-1 allows the connection of signal sources such as Hall effect Joysticks and 4..20mA control signals to electro-hydraulic Proportional Amplifers that do not have provision for simple connection to such signals.

In addition to signal conversion, upto 16 different modes of operation can be configured to achieve many common control solutions that usually require multiple and cumbersome external components to achieve the same result.

While the PAE-SCM-1 was intended mainly for use with the Bosch Rexroth RA2-2 and VT11118 series proportional amplifers, it may also be used with amplifiers from other manufacturers. Please contact Pneumatic & Automation Equipment to discuss your requirements.

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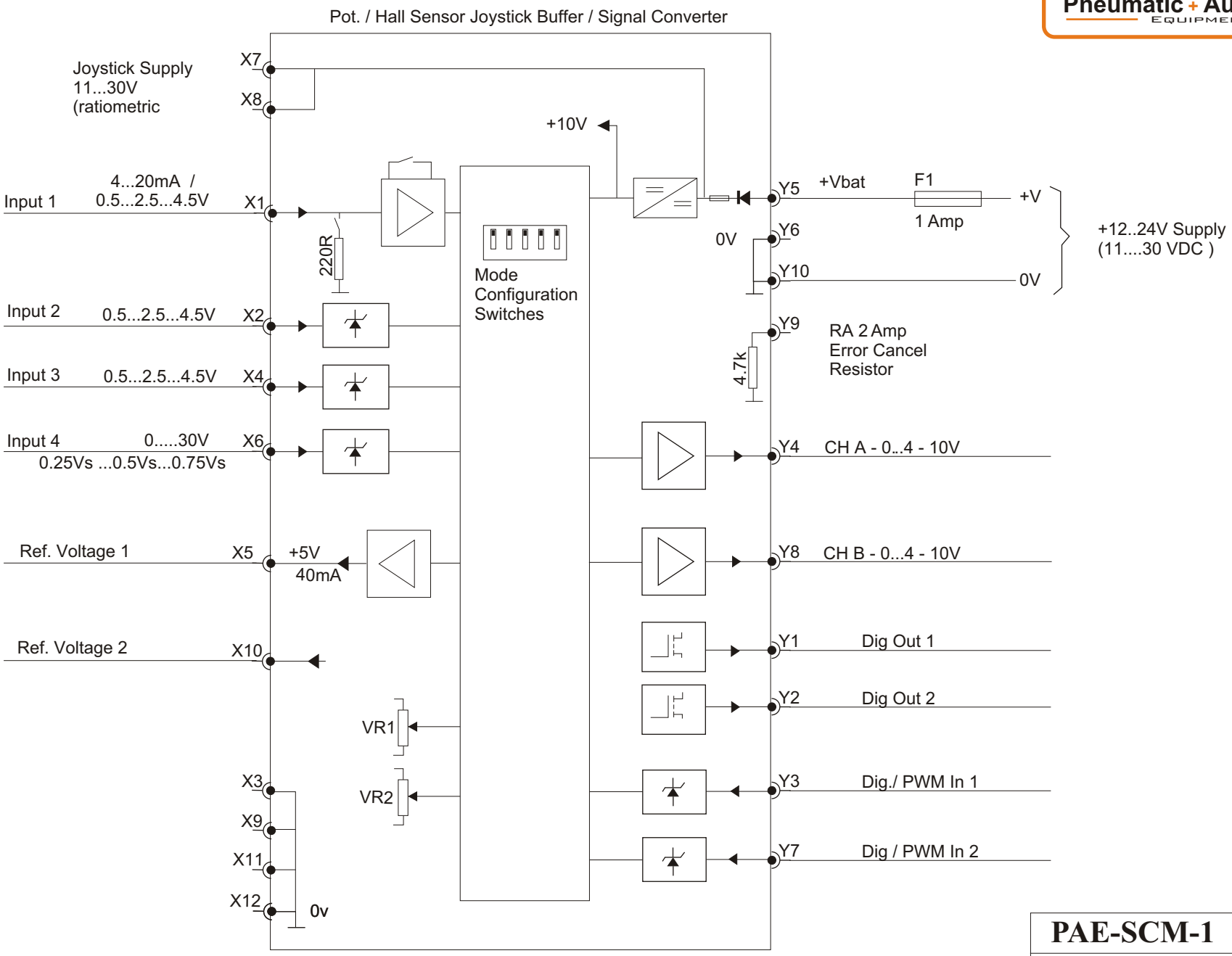

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Wiring Block Diagram	09/2013 -1

Pin Description

X1 - Configurable input. Depending on the mode selected, this input provides a high resistance input (1Megohm) for potentiometer joysticks that require high resistanceload to work reliably and within manufacturer's parameters.
This inputcan be configured by a mode select switch to accept a 4...20 mA signal for 0..100% control. The input signal is monitored for cable break. (Input < 3mA).
The output signal is set to 0% when cable break is detected. This input can also be used as 0.5...2.5...4.5V input from typical Hall effect Joysticks. The signal is monitored and if out of range, the output is set to 0% for safety.
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X2 - Depending on the mode selected, this input can be used to accept an additional Hall effect sensor when using Joysticks with dual axis sensors fitted for safety redundancy.

X4 - Depending on the mode selected, this input can be used to accept an additional potentiometer as an alternate command value input.

X6 - This input is designed to accept Danfoss type joysticks where the signal is a ratio of the power supply, to the joystick. The ratio is typically 25% ...50%...75% of the supply voltage. This represents a control range of -100%...0%...+100% of joystick movement.

X5 - +5V reference supply voltage. This can be used to power joystick Hall sensors or command signal potentiometers

X10 - +10V reference supply voltage. This can be used to power command signal potentiometers and used to control proportional amplifiers requiring a 0...+10V control signal.
Eg: Rexroth VT 11118 -1x

X7, X8 - Danfoss type joysticks must be powered from this power supply source for correct operation when used with input at **X6**

X3, X9, X11, X12 - 0V terminals for Joytsticks, potentiometers and other sensors / signal sources

Y1, Y2 - Digital switch outputs. Can be used for Joystick Forward -Reverse indication, Brake release or fault detection. Functionality depends on mode selected.

Y3, Y7 - Digital switch inputs. Can be used for Joystick Forward -Reverse movement confirmation, High speed, low speed selection, Joystick or potentiometer selection. Input can also accept PWM signals from PLC's and other controllers and converted to control signals suitable for controlling proportional amplifiers. Functionality depends on the selected mode.

Y4, Y8 - Analog output control signals connected to proportional amplifiers. The voltage signal out for a 0...100% range, depends on the selected mode. 0...4V or 0...10V can equate to 0...100%.

Y5 - Main power supply input. Opearating range is +11....+30VDC

Y6, Y10 - Main power supply 0V input.

Y9 - Special connection when using Rexroth RA 2 amplifiers. Connect to this terminal when no potentiometers are connected directly to the RA2, to extinguish the error light.

Specifications - Electrical

Power Supply: 11V.....30 VDC (10% ripple max).
Protected against reverse polarity
Current consumption: 45mA Max. (Standby) .

+5V Ref: 5V +/- 5%, 40mA max. Protected against short to ground. Do not connect to higher voltages !

+10V Ref: 10V +/- 5%, 50mA max. Protected against short to ground. Do not connect to higher voltages !

Analog Inputs X1, X2, X4, Working range 0...5V. Protected against connection to 30V and reverse polarity. Rin - X1 = 1 MegOhm / 220 Ohm
Rin - X2, X4 = 12 kOhm

Analog Input X6 Working range 0...30V. Ri = 5.6K
Protected against reverse polarity.

Digital Inputs Y3, Y7 Working range 0...30V.
Protected against reverse polarity. Rin = 6.8kohm
- Input Low < 1.5V
- Input High < 3V
- PWM Frequency 20...200 Hz

Analog Outputs Y4, Y8 Working range 0.05..10V.
Protected against reverse polarity.
- Output High +Vs -0.7V
- Output current 200mA per output

Digital Outputs Y1, Y2 Working range 5...30V.
Protected against reverse polarity.
- Output High +Vs -0.7V
- Output current 200mA per output
- Short circuit protected.

RA2 LOAD Y9 - Internal resistor 4.7kOhm.

Specifications - Environment

Temperature Range Working: 0....50 Deg C

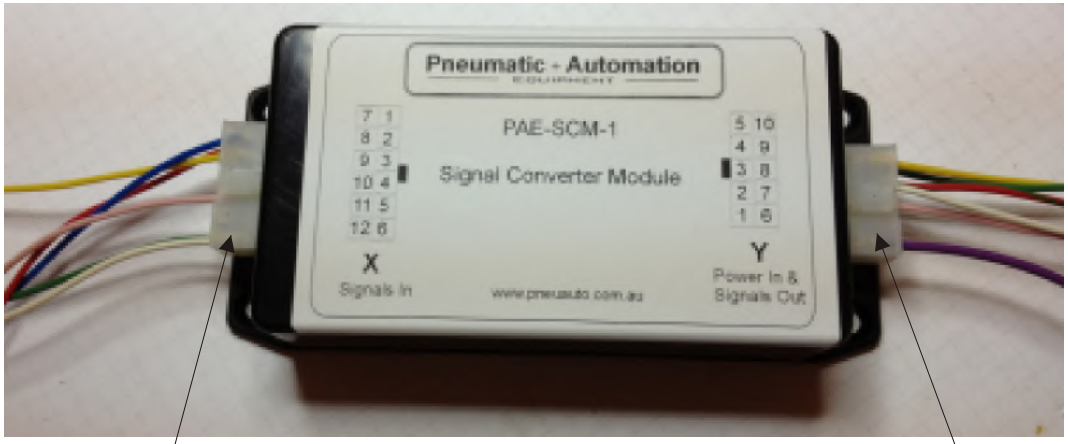
Temperature Range Storage: -10....85 Deg C

Specifications - Mechanical

Dimensions L x W x H : 138 x 62 x 32

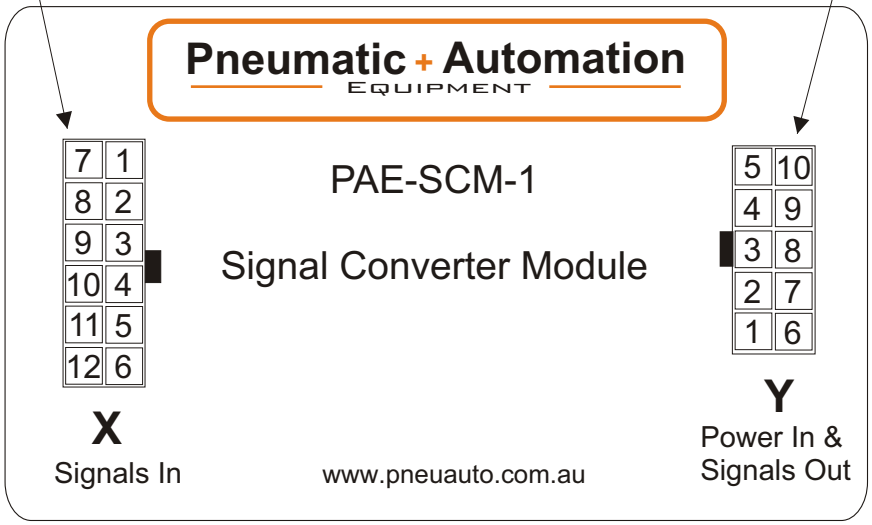
Enclosure : ABS Flame Retardant UL94 V-0.

Connectors : Molex Mini-fit series. 10pin & 12pin
Clear Nylon UL94V-2



12 pin Molex Mini-Fit connector.
(Mating Connector and pins included in scope of supply)

10 pin Molex Mini-Fit connector.
(Mating Connector and pins included in scope of supply)



Attention! Connector Pin allocation above differs from markings on connector !!

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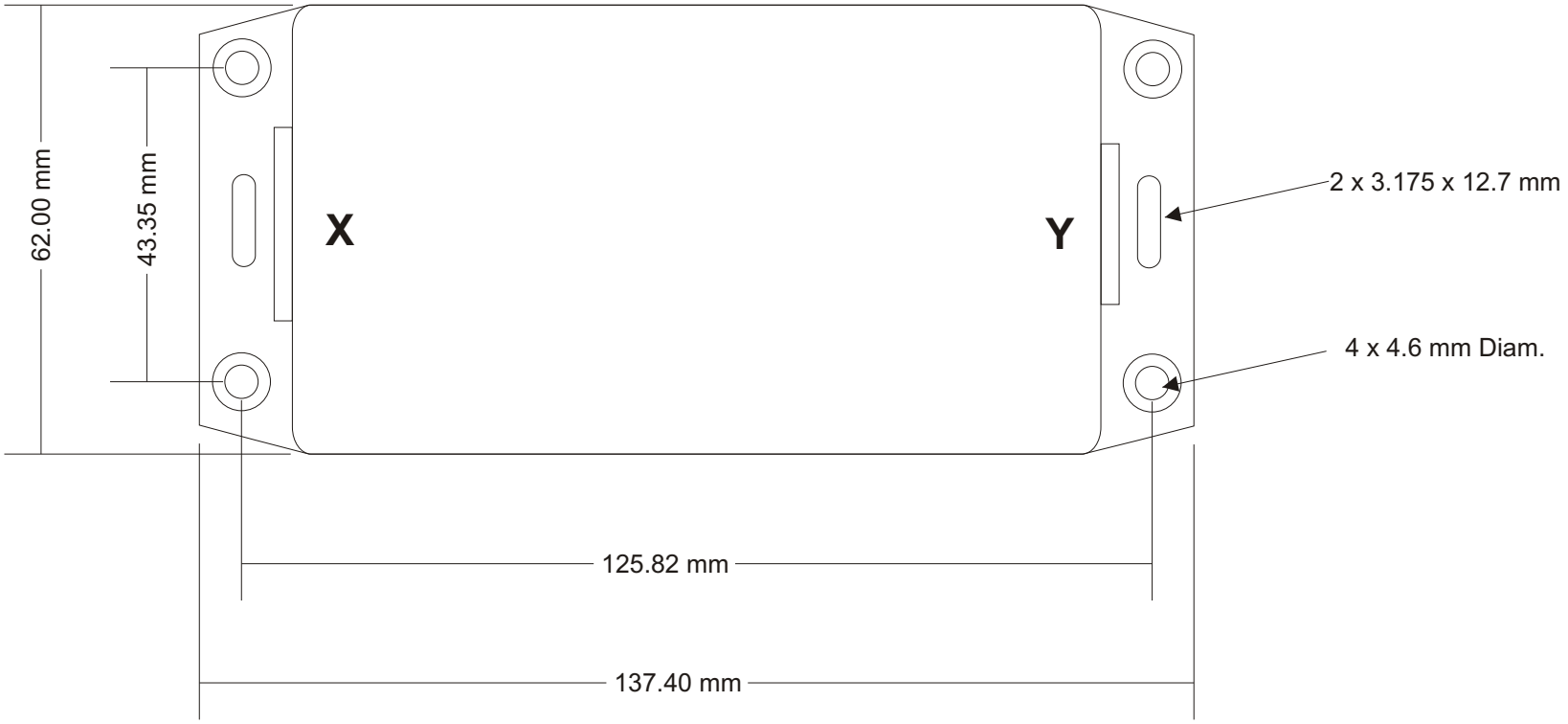
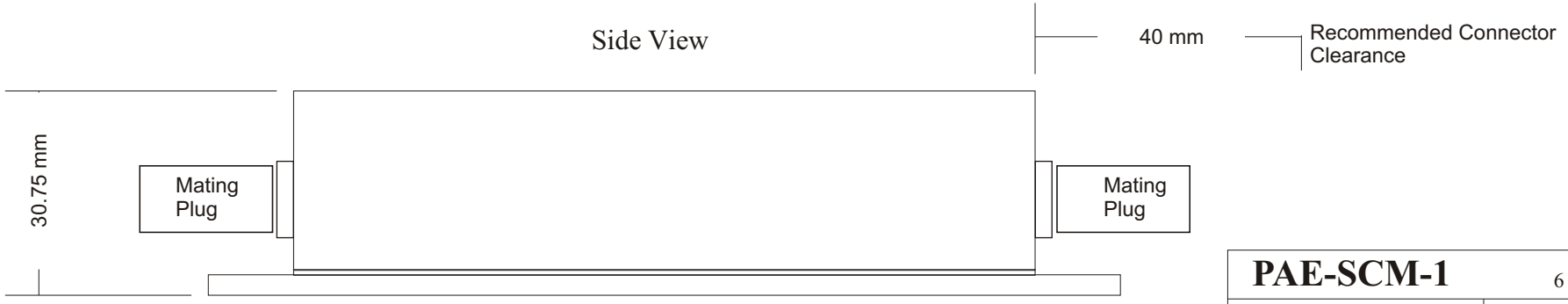
Top View



Side View



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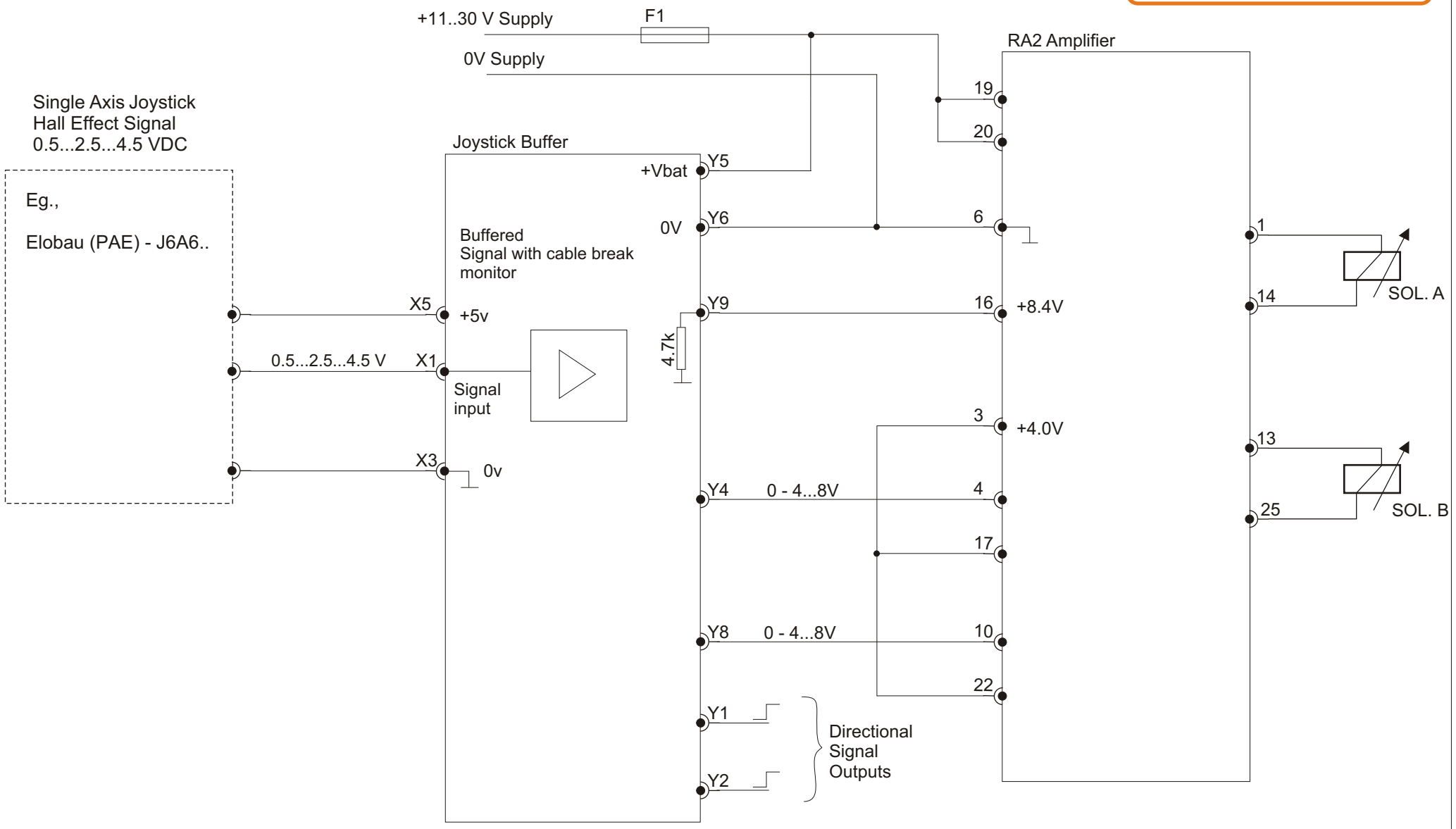
Dimensions and Mounting	09/2013 -1



Joystick with Hall Sensor control of RA2 amplifier

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Typical Application - 1	09/2013 -1

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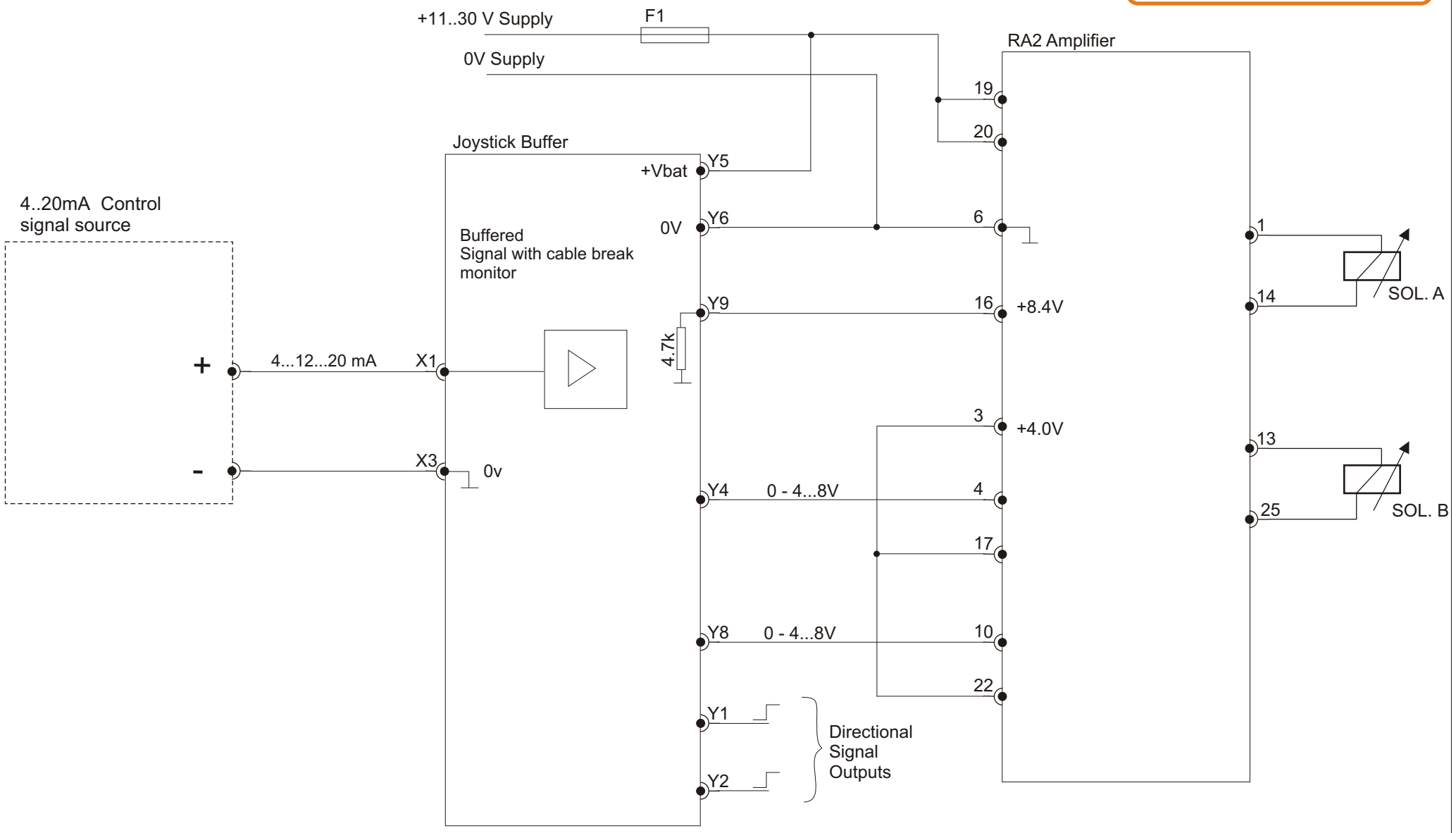

4...20 mA control of RA2 amplifier

PAE-SCM-1	8 / 10
Typical Application - 2	09/2013 -1

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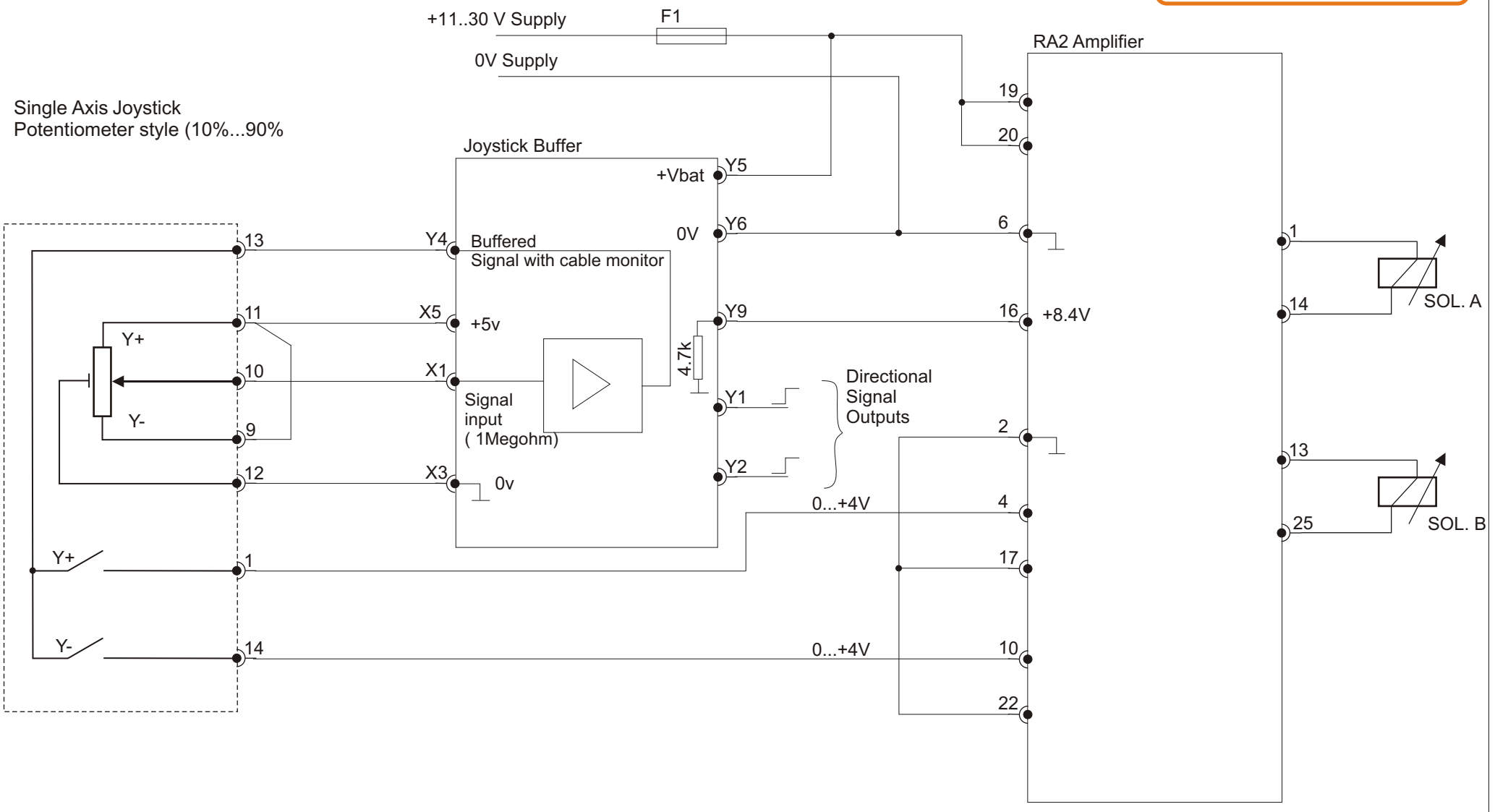

Potentiometer Joystick control of RA2 amplifier

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Typical Application - 3	03/2018 -1

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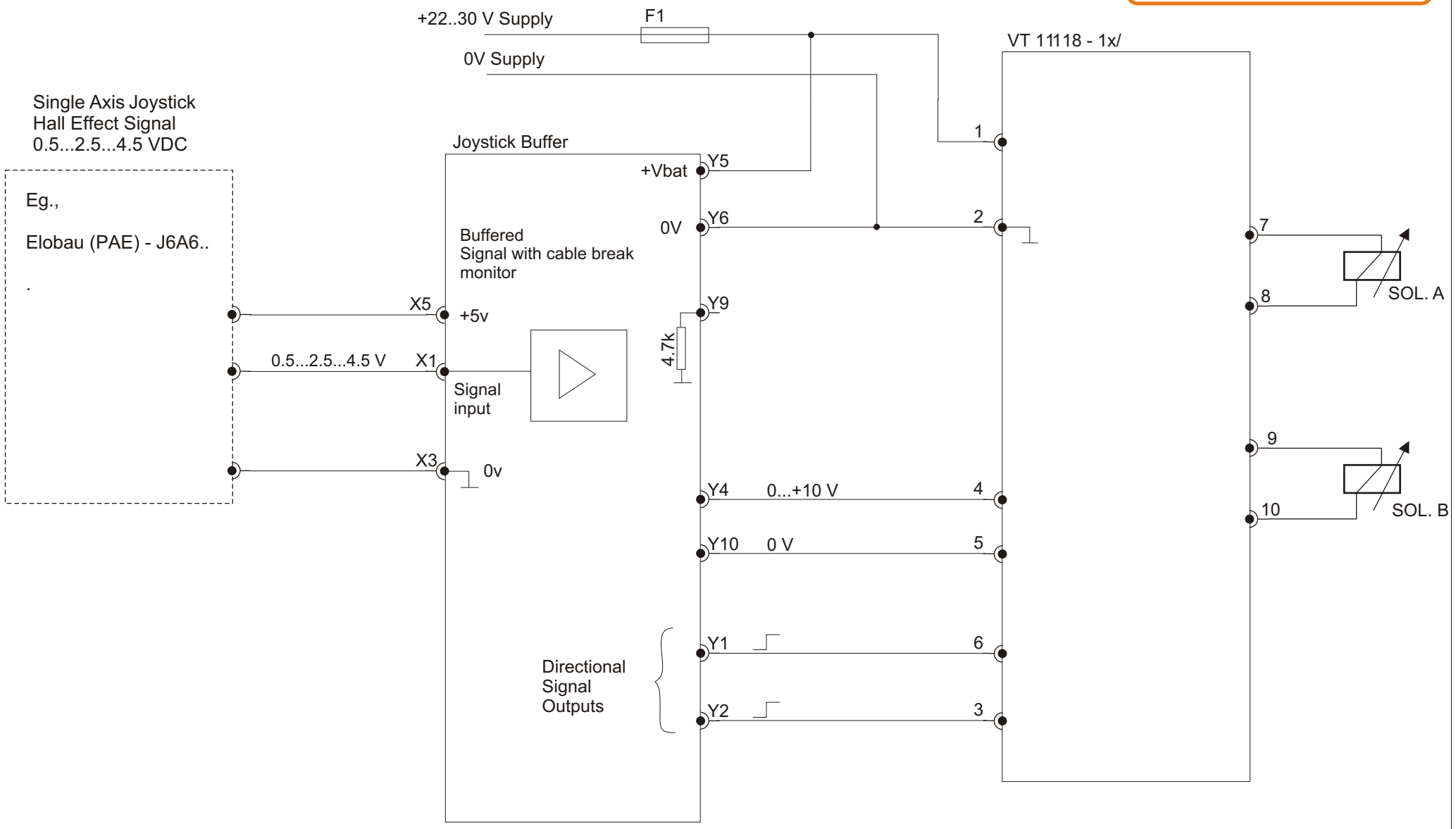

Joystick with Hall Sensor control of VT 11118 -1x/ amplifier

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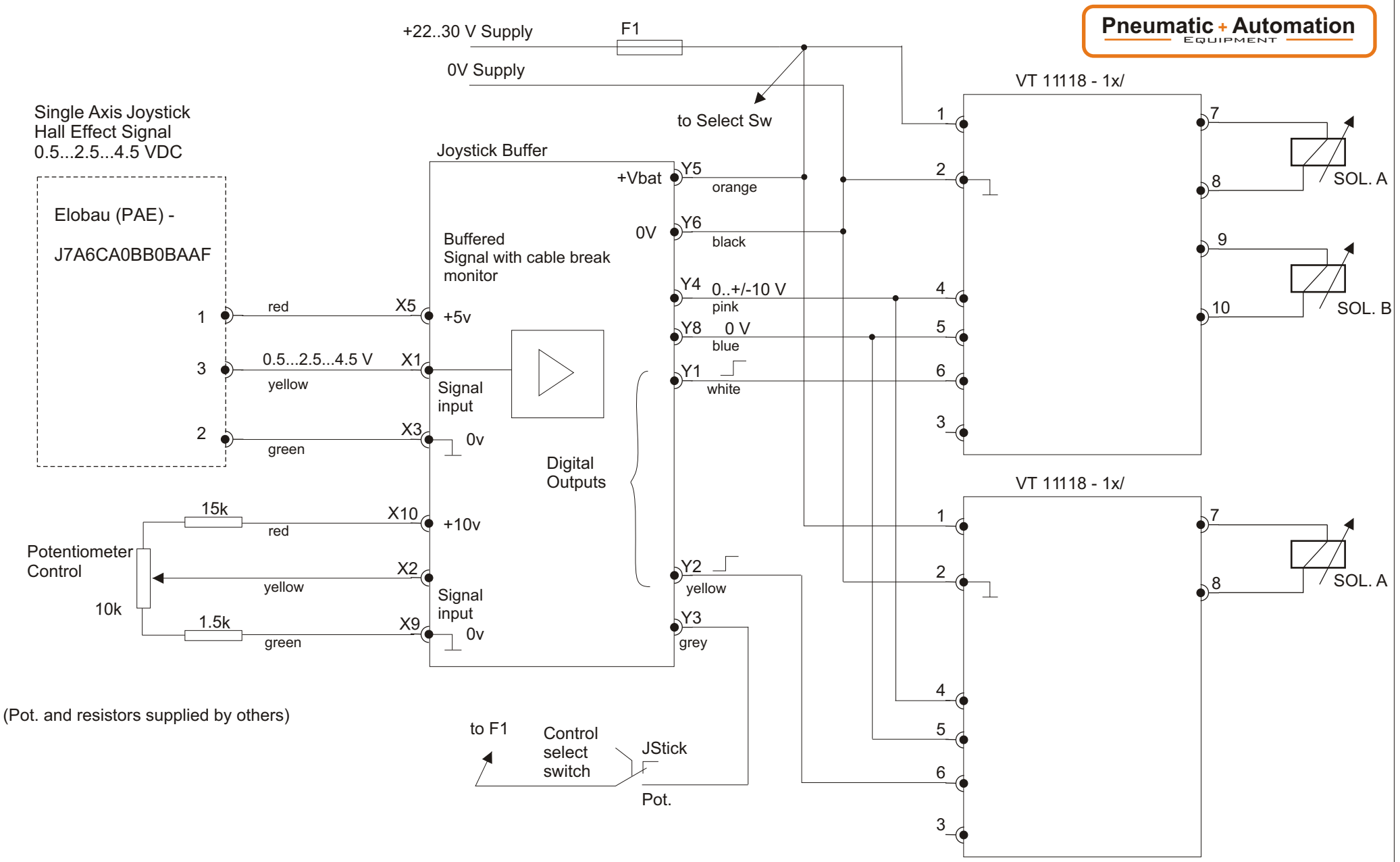
Typical Application - 4	03/2018 -1



Joystick or Potentiometer control of VT 11118 -1x/ amplifier

(Potentiometer control controls Sol. A only of each amplifier)

PAE-SCM-1 MOD3 1/ 1

09/07/2015