

# Universal Signal Conditioner v1 USC701

#### DESCRIPTION

The **USC701** is a *universal* signal conditioner that combines measurement and control functions in a single instrument to provide user selectable solutions for most signal conditioning applications. The USC701 can be programmed directly using the Access Module or a personal computer. The user can also adjust basic calibration functions such as zero, span and trip point via a function switch and digital encoder accessible on the lid. The USC701 has a comprehensive range of *user selectable hardware options*. These include dual analogue inputs, dual digital inputs, current or voltage retransmission, sensor supply and isolated trip relays. The USC701 provides a substantial range of software functionality. These include maximum demand control, dual input functions with A\*B, A/B, A+B, A-B, largest of A and B, average of A and B, 100 point linearise, PID control, speed measurement, digital filter options.



## **General Specifications**

Size: 80W x 70H x 110D mm.

Housing material: Polycarbonate, aluminium.

Mounting: DIN-Rail, gear plate.

Termination: Plug in screw terminals.

Weight: 0.3 kg.

Protection class: IP40 (IP65 Enclosure opt.)

Electromagnetic

compatibility: Complies with AS/NZS

4251.1 (EN 50081.1) **©** 

Operating temp. range: 0...+70°C. Storage temp. range: -20...+70°C.

Isolation: 1000Vac r.m.s. /1500Vdc.

Temperature effect: 0.02% per °C.

Measurement Linearity: ±0.01% of range

Measurement Accuracy: typ ±0.05%dc, ±0.2%ac

input range

Resolution: ±0.0025% of range Update time: 16.6 msec minimum Filtering/averaging: programmable

Power Supply -1: 80-300Vdc / 80-280Vac Power Supply -2: 10 - 60Vdc / 16 - 42Vac

Power requirement: 4VA

## **Auxiliary Excitation Output**

Voltage source: 3V to 18V @ 50 mA max Current source: 1 x 100µA external,

1 x 100µA internal.

#### **Mathematical functions**

+, -, \*, /, absolute value, minimum, maximum, scaling, taring; plus logical functions

# **Application Functions**

Minimum and maximum hold, multiple one hundred and one point linearisation plus alarm functions.

## **Analogue Inputs**

Number of channels: either 2 single ended or one

differential pair.

Input resistance: 15k to  $4.4M\Omega$  (V),  $83\Omega$  (I)

## **Programmable ranges**

Voltage dc:  $\pm (400, 100, 30, 10, 4.5, 1 \text{Vdc})$ 

mV dc:  $\pm$ (300, 100, 30mV) Current dc:  $\pm$ (75, 30, 10, 1mA)

Voltage ac: 300, 75, 25, 7, 3Vac (25-70 Hz) mVac: 700, 250, 75, 20mV (25-70 Hz) 50, 20, 7, 0.7mA (25-70 Hz). Resistance 30, 10, 3, 1, 0.3k□ (2, 3, or 4

wire).

Potentiometer: 100 ☐ minimum RTD (Pt100) linearised to ±0.1°C

850°C ±0.2°C, 600°C ±0.1°C)

Thermocouple: linearised to  $\pm 0.1^{\circ}$ C

types: B, E, J, K, N, R, S, T accuracy depends on Type &

range

cold junction comp ± 1°C

±0.05°/°C

Up/downscale burn-out by

external resistor

#### **Accessories**

Order Code	Unit Type
AM702-02	Access Module
AIII 02-02	Access Module

For input / output combinations refer to TYPE NO. DESIGNATION overleaf.

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#### **Two Relay Outputs**

Contacts: N/O 8A/250Vac resistive,

3.5A/250Vac Inductive

Action: Programmable: direct,

Reverse, window, latch

Dead band: Programmable.
Delays: on/off up to 1 hour

Contact isolation: 2kV.

**Digital Inputs** 

Number of channels: 2 Range: +/-30V, Input resistance: 20k

Trigger level: 0 to 28V adjustable

Programmable ranges

Frequency: 1pulse/hr to 5kHz

resolution:

0.002%, accuracy:

±0.005%

Mains Frequency transducer:

ranges as required e.g.

48-52Hz

Phase: ±180° (for frequencies to

100Hz)

Other functions: hold, reset, enable

## **Isolated Analog/Open Collector Output**

Open-collector: 45V, 150mA

Current dc: 0 to 22 mA (20V drive) Voltage dc: 0 to 20V range (20mA

drive)

Accuracy: 0.1% of range. Linearity: 0.05% of range

Response time: 50msec

Output

load change effect: less than 0.2%

## **Isolated Digital Output**

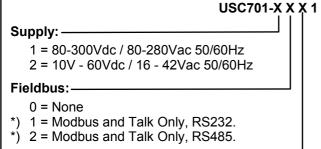
Physical: RS485, RS232 (factory

set)

Protocol: Modbus (RTU, ASCII),

talk only.

# **Order Code**



#### Option: -

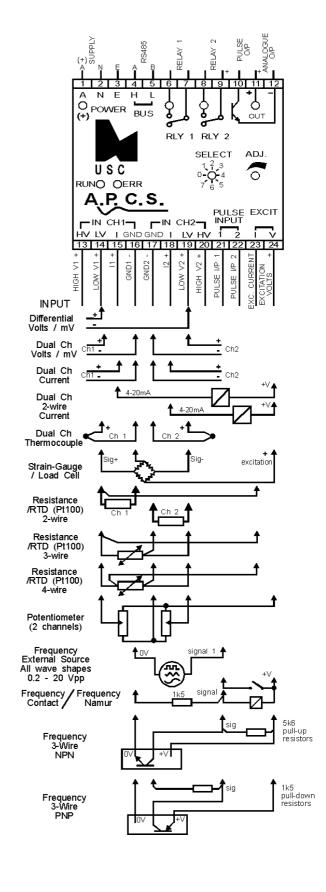
0 = None

\*) 1 = Custom labelling (min order 50).

\*) = Price Extra.

Specifications are typical after 30-minute warm-up.

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