

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: $\pm 0.01\%$ of range
Measurement Accuracy: typ $\pm 0.05\%$ dc, $\pm 0.2\%$ ac input range
Resolution: $\pm 0.0025\%$ 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 100 μ A external,
1 x 100 μ A 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 Ω (V), 83 Ω (I)

Programmable ranges

Voltage dc: $\pm(400, 100, 30, 10, 4.5, 1\text{Vdc})$
mV dc: $\pm(300, 100, 30\text{mV})$
Current dc: $\pm(75, 30, 10, 1\text{mA})$
Voltage ac: 300, 75, 25, 7, 3Vac (25-70 Hz)
mVac: 700, 250, 75, 20mV (25-70 Hz)
Current ac: 50, 20, 7, 0.7mA (25-70 Hz).
Resistance: 30, 10, 3, 1, 0.3k Ω (2, 3, or 4 wire).
Potentiometer: 100 Ω minimum
RTD (Pt100) linearised to $\pm 0.1^\circ\text{C}$
850°C $\pm 0.2^\circ\text{C}$, 600°C $\pm 0.1^\circ\text{C}$
Thermocouple: linearised to $\pm 0.1^\circ\text{C}$
types: B, E, J, K, N, R, S, T
accuracy depends on Type & range
cold junction comp $\pm 1^\circ\text{C}$
 $\pm 0.05^\circ\text{C}$
Up/downscale burn-out by external resistor

Accessories

Order Code	Unit Type
AM702-02	Access Module
COA703-01	Computer Adaptor

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

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:

Mains Frequency transducer:
ranges as required e.g.
48-52Hz
Phase: $\pm 180^\circ$ (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

USC701-X X X 1

Supply:

1 = 80-300Vdc / 80-280Vac 50/60Hz
2 = 10V - 60Vdc / 16 - 42Vac 50/60Hz

Fieldbus:

0 = None

*) 1 = Modbus and Talk Only, RS232.

*) 2 = Modbus and Talk Only, RS485.

Option:

0 = None

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

*) = Price Extra.

Specifications are typical after 30-minute warm-up.

