

SA 32

Analogue data acquisition module
with 8 / 32 channels in 2 or 4 wires

SA 32 analogue data acquisition system is dedicated to measurement, monitoring and recording of analogue signals on 32 channels in 2 wires or 8 channels in 4 wires.

- Voltage: 0-10 V
- Current: 0-20 and 4-20 mA with external shunts
- Thermocouples: Type K/T/J/S/B/N with or without cold junction compensation
- Resistance: 3000 Ω
- RTD: Pt100 in 3 or 4 wires
- Dry contacts

Description

SA 32 analogue data acquisition system is dedicated to measurement, monitoring and recording of analogue signals on 32 channels in 2 wires or 8 channels in 4 wires.

Designed with flexibility and precision, this system can be used in numerous applications, on site or in laboratory.

SA 32 allows 100 addresses to be programmed, which can be defined to measure real channels (up to 32 channels) or virtual channels used to perform calculations / maths functions.

Input channels are scanned by a CMOS logic circuit.

Scanning is organised in «tasks» or scanning procedures, defining what to scan (channels), how to scan (scanning start and stop, scanning rate), and how to process the results (mass storage, RS 232 output). The user has access to 16 tasks, therefore 16 different scanning subgroups.

The datalogger is completely programmable via keyboard and help menu on screen, or via RS 232 interface using LTC 32W software supplied with the unit.

Backlit LCD display shows 2 channels simultaneously either under digital or graphical format (150 points definition) on a time base adjustable between 1 s to 1 min. It also enables stored valued to be recalled on screen for display under digital or graphic format.

SA 32 perform measurement, monitoring and recording of analogue signals coming from sensors of physical or electrical values. These signals can be:

- Voltage: 0-10 V
- Current: 0-20 and 4-20 mA with external shunts
- Thermocouples: Type K/T/J/S/B/N with or without cold junction compensation
- Resistance: 3000 Ω
- RTD: Pt100 in 3 or 4 wires
- Dry contacts

Specifications

Specifications and performances in temperature @23°C ±1°C

Uncertainty is given in % of reading + fixed value.

Resistive probes: Measurement

Type	Range	Resolution 7 samples / s	Resolution 20 samples / s	Resolution 50 samples / s	Accuracy / 1 year 7 samples / s	/ 1 year 20 samples / s	/ 1 year 50 samples / s
Pt100	-220°C to +850°C	0.01°C	0.1°C	1°C	0.025% RDG + 0.1°C	0.025% RDG + 0.15°C	0.04% RDG + 0.6°C

Accuracies are given for 4-wire mounted probes
Admissible measuring current: 1 mA
Admissible line resistance: 100 Ω per wire
Temperature coefficient: < 0.003% /°C

Thermocouples: Measurement

Type	Range	Resolution 7 samples / s	Resolution 20 samples / s	Resolution 50 samples / s	Accuracy / 1 year 7 samples / s	Accuracy / 1 year 20 samples / s
K	-250 to -200°C -200 to -100°C -100 to +1370°C	0.5°C 0.2°C 0.1°C	0.5°C 0.2°C 0.1°C	1°C 1°C	0.01% RDG + 1°C 0.01% RDG + 0.4°C 0.01% RDG + 0.2°C	0.02% RDG + 1.4°C 0.02% RDG + 0.5°C 0.02% RDG + 0.3°C
T	-250 to -200°C -200 to -100°C -100 to +400°C	0.5°C 0.2°C 0.1°C	0.5°C 0.2°C 0.1°C	1°C 1°C	0.01% RDG + 0.8°C 0.01% RDG + 0.4°C 0.01% RDG + 0.2°C	0.02% RDG + 1°C 0.02% RDG + 0.5°C 0.02% RDG + 0.3°C
J	-210 to -120°C -120 to1100°C	0.2°C 0.1°C	0.2°C 0.1°C	1°C 1°C 1°C	0.01% RDG + 0.3°C 0.01% RDG + 0.2°C	0.02% RDG + 0.4°C 0.02% RDG + 0.3°C
S	-50 to +120°C +120 to +1768°C	1°C 1°C	1°C 1°C	1°C 1°C	0.01% RDG + 1.2°C 0.01% RDG + 0.7°C	0.02% RDG + 1.7°C 0.02% RDG + 1°C

B	+400 to +900°C +900 to +1820°C	1°C 1°C	1°C 1°C	1°C 1°C	0.01% RDG + 1.5°C 0.01% RDG + 0.8°C	0.02% RDG + 2°C 0.02% RDG + 1°C
N	-250 to -200°C -200 to -120°C -120 to +1300°C	1°C 0.2°C 0.1°C	1°C 0.2°C 0.1°C	1°C 1°C 1°C	0.01% RDG + 1.5°C 0.01% RDG + 0.6°C 0.01% RDG + 0.3°C	0.02% RDG + 2°C 0.02% RDG + 0.9°C 0.02% RDG + 0.4°C

Accuracy is given for reference @ 0°C.

When using the internal reference junction, add an additional uncertainty at 0°C of ±0.5 °C in 2-wire measurement and ±1°C in 1-wire measurement.
Input impedance: > 1000 MΩ
Measuring current: < 5 nA (typical: 300 pA)
Admissible line resistance: 100 Ω per wire
Temperature coefficient: < 10% of accuracy /°C

Specifications and performances in process @23°C ±1°C

DC voltage: Measurement

Range	Resolution 7 samples / s	Resolution 20 samples / s	Resolution 50 samples / s	Accuracy / 1 year 7 samples / s	Accuracy / 1 year 20 samples / s
60 mV	1 µV	1 µV	20 µV	0.02% RDG + 6 µV	0.02% RDG + 6 µV
600 mV	2 µV	10 µV	100 µV	0.02% RDG + 10 µV	0.02% RDG + 30 µV
6 V	20 µV	100 µV	1 mV	0.02% RDG + 0.1 mV	0.02% RDG + 0.3 mV
0-10 V	20 µV	100 µV	1 mV	0.02% RDG + 0.1 mV	0.02% RDG + 0.3 mV

Input impedance: > 1000 MΩ
Measuring current: < 5 nA (typical: 300 pA)
Acceptable maximum voltage in common mode: 50 V- or ~ peak
Acceptable maximum voltage between different inputs: 50 V- or ~ peak
Temperature coefficient: < 10% of accuracy /°C

DC current: Measurement

With or without loop supply

Range	Measuring range	Accuracy / 1 year 7 samples / s	Accuracy / 1 year 20 samples / s
0-20 mA	0 mA to 20 mA	0.1% RDG	0.1% RDG

4-20 mA	4 mA to 20 mA	0.1% RDG	0.1% RDG

With 50 Ω external shunt

Resistance: Measurement

Range	Resolution 7 samples / s	Resolution 20 samples / s	Resolution 50 samples / s	Accuracy / 1 year 7 samples / s	Accuracy / 1 year 20 samples / s
60 Ω	1 mΩ	1 mΩ	10 mΩ	0.025% RDG + 6 mΩ	0.025% RDG + 6 mΩ
600 Ω	2 mΩ	10 mΩ	100 mΩ	0.025% RDG + 10 mΩ	0.025% RDG + 30 mΩ
3000 Ω	20 mΩ	100 mΩ	1 Ω	0.025% RDG + 0.1 Ω	0.025% RDG + 0.3 Ω

Uncertainties given for 4-wire measurement
Measuring current: 1 mA
Admissible line resistance: 100 Ω per wire

Dry contacts: Measurement

Measuring current: 1 mA
Level 0: line resistance R0 ³ 100 kΩ
Level 1: line resistance R1 £ 1 kΩ

Relay outputs

Relay breaking capacity on resistance load: 48 V, 1 A or 30 Ω
Switching life: 5.105
Relays are triggered on alarm presence, conditional signal or command from the communication interface.

Analogue output

Range	Measuring range	Accuracy / 1 year
0-2.55 V	10 mV	10 mV

Admissible load resistance: 2.5 kΩ

Further features

Scanning rate

Models and accessories

Instrument:

SA32 C58 Data acquisition system with keyboard and 64,000 memory capacity

Delivered in standard with:

- User manual
- Power cable
- CD with configuration software
- RS 232 cable

Accessories:

ER48358-000 Measurement connector interface

ER48345-004 Four pin connector

ER44007-024 50 Ω shunt for process current measurement

AN 5883 Bracket mounting for panel installation (T2 box type)

AN 5884 Rack mounting kit for rack installation (T2 box type)

AN 5876 RS232 25p printer cable

AN 6901 Case for bench top instruments

ATC061 Converter RS 232 / USB

Software:

VISULOG Monitoring & data processing software full version – 1 licence

VISULOG-ETAL Monitoring & data processing software full version – 1 licence
+ Calibration module

VISULOG-PHARMA Monitoring & data processing software full version – 1 licence
+ Module for advanced management of access rights, 21 CFR Part 11 compliant

VISULOG-ETAL-PHARMA Monitoring & data processing software full version – 1 licence
+ Calibration module
+ Module for advanced management of access rights, 21 CFR Part 11 compliant

Software licences:

LIC VISU Additional license for VISULOG

LIC VISU ETAL	Additional license for VISULOG with ETAL optional module
LIC VISU PHARMA	Additional license for VISULOG with PHARMA optional module
LIC VISU ETAL PHARMA	Additional license for VISULOG with ETAL and PHARMA optional module
LIC VISULOG WEB	License for VISULOG WEB

Certification:

QMC11	COFRAC certificate of calibration
	With all relevant data points where the device has been tested

Packing information:

Size	225 x 88 x 310 mm
Weight	3 kg