



# Gemini AI

DC Analogue Input Module

Engineering intelligent solutions

Innovation.  
Excellence.  
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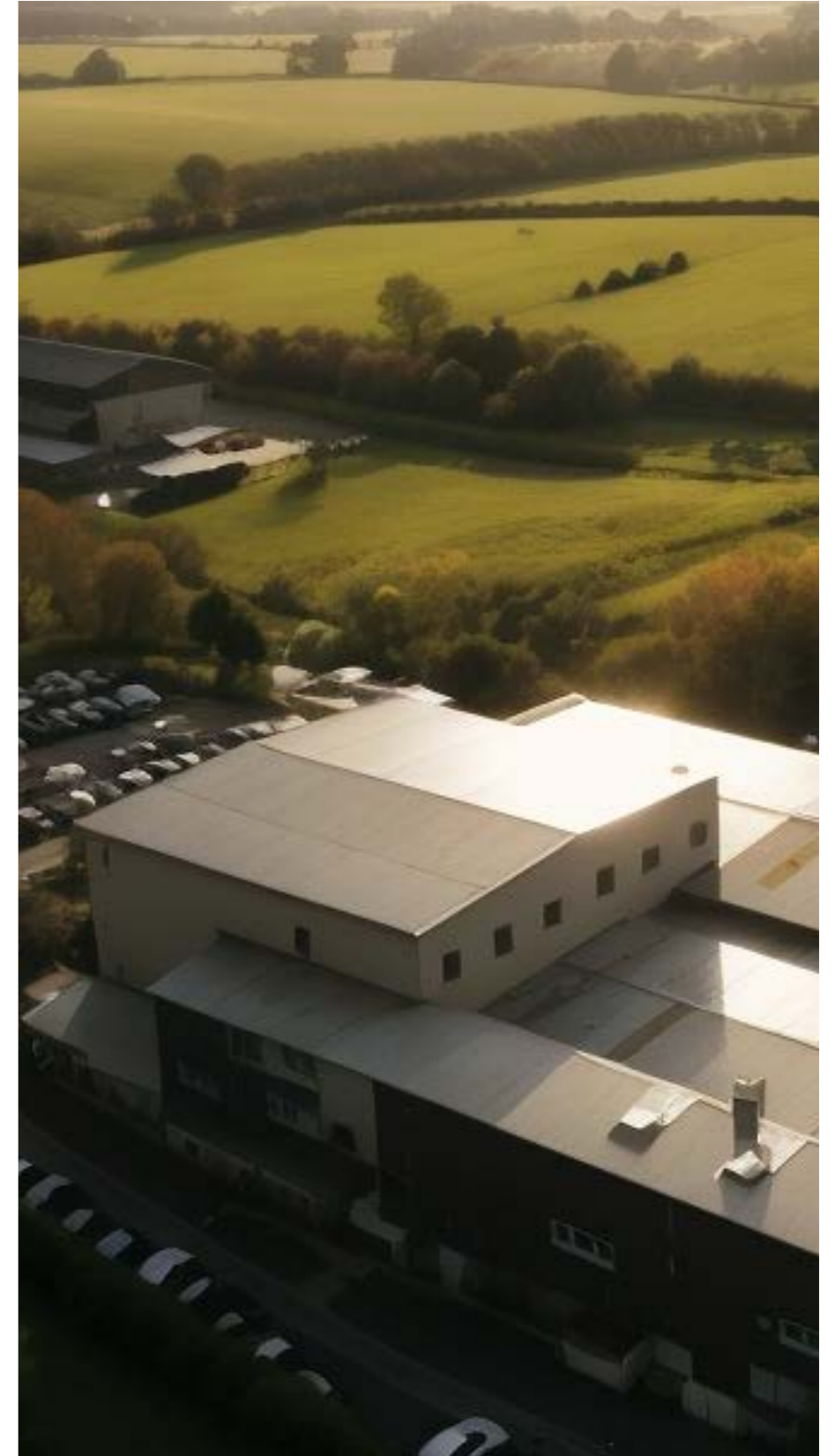
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This commitment to progress makes us an international leader in switching, protection and automation solutions for electrical distribution systems. We are a specialist in secondary power distribution, engineering high performance medium voltage (MV) switchgear for utility, industrial and commercial applications, as well as overhead line equipment, and providing retrofit and automation solutions to customers internationally.

Our excellence, expertise, and experience mean we can deliver truly bespoke solutions to our customers, even when the requirements are highly demanding. We can manufacture units for any location, climate or situation and offer dedicated after-sales support through the product lifecycle.



A blue vertical infographic. At the top, there is a white icon of three stylized human figures. Below it is the large white number '100'. Underneath '100' is the text 'people dedicated to research and innovation'. Below that is a white icon of a globe with three orbital lines around it. Underneath the globe icon is the large white number '2'. At the bottom is the text 'international research centres'.



# Gemini DC Analogue Input Module



The Gemini DC Analogue Input Module is part of the Gemini Platform providing DC analogue measurement inputs for the Gemini 3 and Gemini 4 RTUs. Gemini DC Analogue Input Module supports up to four configurable DC analogue inputs and up to two PT100 inputs along with serial port for communication with Modbus Master devices.

## Key Features

### DC Analogue Inputs

- 0 to 20mA
- -20 to +20mA
- 4 to 20mA
- 0 to 5V
- 0 to 10V
- -5V to +5V
- -10V to +10V

AD converter resolution: 16 bit

Accuracy:  $\pm 0.1\%$  of Full Scale

### PT100 Inputs

Two PT100 (4 wire) sensor inputs provide accurate temperature measurement. Application examples include Transformer winding temperature measurement.

- Range:  $-25^{\circ}\text{C}$  to  $150^{\circ}\text{C}$
- Accuracy:  $\pm 1^{\circ}\text{C}$

## Sensor Failure detection

The Gemini DC Analogue Input Module supports four failure detection functions:

- Over-range detection
- Under-range detection
- Short circuit detection
- Wire break detection

Sensor failure detection limits are configurable and status of failure detection function is reported using Modbus RTU communication.

## Communications

- Modbus RTU communication

## Power Supply Inputs

- 19.2 – 60V DC

## Key Benefits

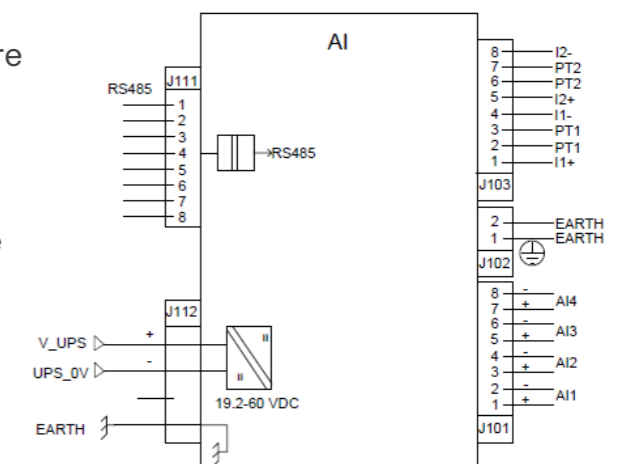
- Easy expansion of DC Analogue inputs with compact hardware
- Application flexibility with DC Analogue & RTD inputs in single module
- Easy integration with standard Modbus RTU communication interface
- Sensor Fault detection and reporting, ensuring data integrity
- Easy interface of distributed signals within substation
- Improved situational awareness of distribution substation with accurate measurement

## Applications

- Transformer Oil/winding temperature monitoring
- Transformer tap changer position indication
- Underground cable oil/gas pressure monitoring
- Humidity measurement

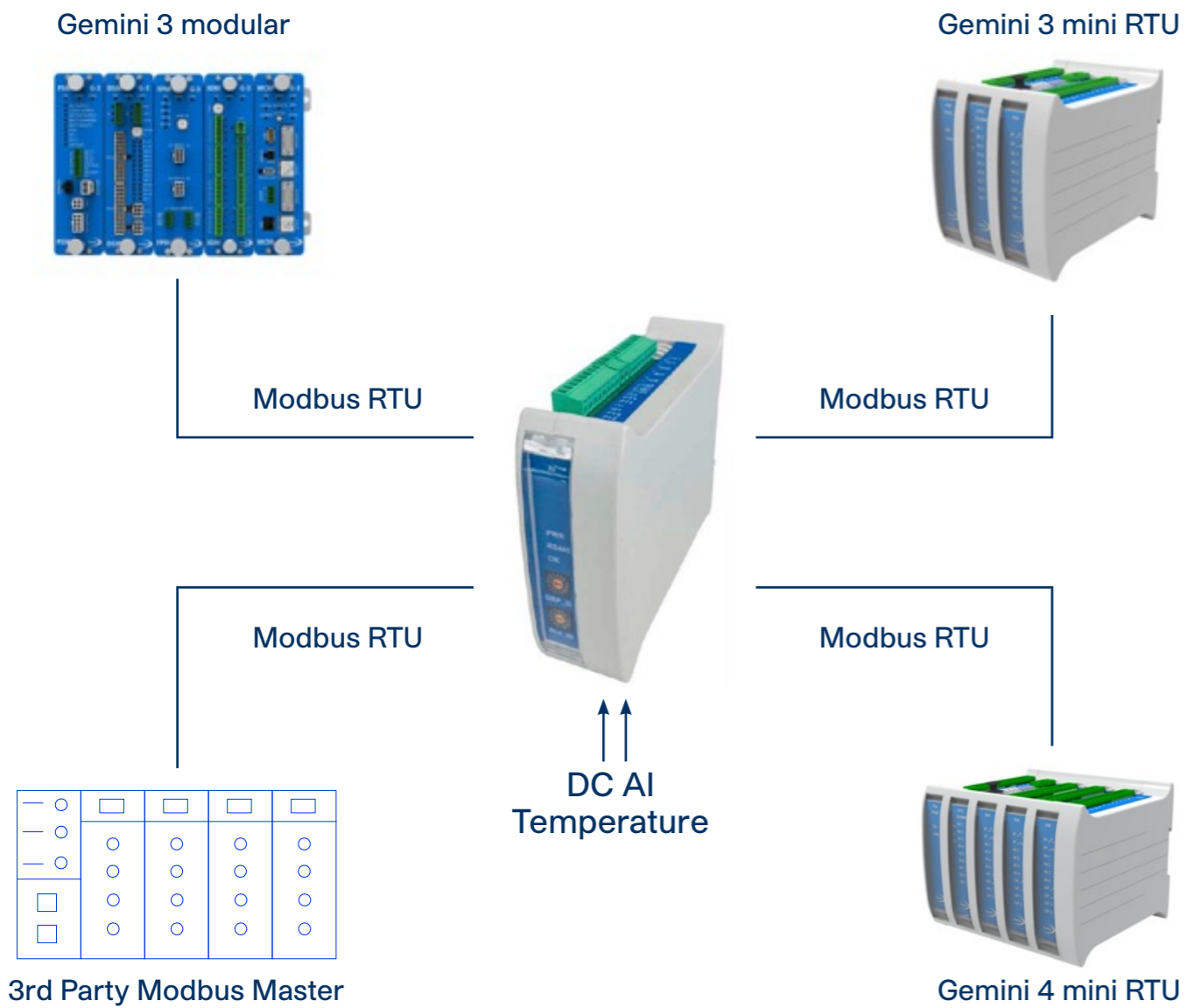
Figure 1 : DC Analogue AI Module connection details

(AUT0005983)



# Gemini DC Analogue Input Module

Seamless integration with Gemini RTUs or any Modbus Master device.



# Technical Data

## Environmental Tests:

Test	Standard	Description
Cold test operation	IEC 60068-2-1	Operational: -25°C ±3°C for 96 hours Storage: -40°C ±3°C for 16 hours
Dry heat test	IEC 60068-2-2	Operational: +70°C ±3°C for 96 hours Storage: +85°C ±3°C for 16 hours
Cyclic temperature	IEC 60068-2-14	5 cycles, dwell time 3 hours -25°C ±3°C/+70°C ±2°C, ramp rate 1°C ±0.2°C/min
Damp heat steady state test	IEC 60068-2-78	10 days 93% ±3% RH at +40°C +2%
Cyclic temperature with Humidity test	IEC 60068-2-30	6 of 24 h (12 h + 12 h) cycles 93% ±3% RH at +55°C and >95% RH at +25°C
Degree of protection provided by enclosure (IP code)	IEC 60255-27 and IEC 60529	IP 20

## Mechanical Tests:

Test	Standard	Description
Vibration test	IEC 60255-21-1	Response Class 1, Endurance Class 1
Shock and bump test	IEC 60255-21-2	Class 1
Seismic test	IEC 60255-21-3	Class 1

## Electrical Safety Tests:

Test	Standard	Description
Dielectric Voltage Strength	IEC 60255-27	Power supply port, current/voltage ports, earth ports: 2kV, 1 minute For Comm. port, 0.5kV AC RMS for 1 minute
Impulse Voltage Strength	IEC 60255-27	Power supply port, current/voltage ports, earth ports: 5kV peak, 1.2/50 µs, 0.5J For Comm. port: 1kV peak, 1.2/50µs, 0.5J
Electrical Safety (insulation Resistance)	IEC 60255-27	Power supply port, current/voltage ports: Comm. port >100 MΩ at 500V d.c

## Electromagnetic Compatibility (EMC/EMI) Tests:

Test	Standard	Description
Electrostatic discharge immunity test	IEC 60255-26, IEC 61000-4-2	Level 3
Radiated, radio-frequency, electromagnetic field immunity test	IEC 60255-26, IEC 61000-4-3	Level 3
Electrical fast transient	IEC 60255-26, IEC 61000-4-4	Level 4
Surge immunity test	IEC 60255-26, IEC 61000-4-5	Level 4
Conducted interference	IEC 60255-26, IEC 61000-4-6	Level 3
Power frequency magnetic field immunity test	IEC 60255-26, IEC 61000-4-8	Level 4
Pulse magnetic field immunity test	IEC 61000-4-9	Level 5
Damped oscillatory magnetic field immunity test	IEC 61000-4-10	Level 5
Damped oscillatory wave immunity test – slow	IEC 60255-26, IEC 61000-4-18	Level 3
Conducted emission	IEC 60255-26, CISPR 22	Class A
Right wave test	IEC 61000-4-12	Level 3
DC voltage interruptions	IEC 60255-26	0% residual voltage, 5s

## Dimensions and Mounting

Test	Standard
Height	101 mm
Width	35 mm
Depth	120 mm
Weight	160 g
Method of mounting	35 mm DIN rail mounting
IP rating	IP20

## ORDERING OPTIONS

AI Variant	Communications	DC Analogue Inputs	PT 100 Inputs
AUT0005983	Modbus RTU	4	2
AUT0006507	Modbus RTU		2
AUT0006509	Modbus RTU	4	



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