

Gemini Analogue Measurement Module



Analogue Measurement Module

The Analogue Measurement Module (AMM) is part of the Gemini 3 Platform providing advanced 3 phase measurement of power system currents, voltages, power, energy, sequence components, power quality; and directional fault passage indication.

Power and load monitoring

Load flow monitoring provides an essential understanding of the electrical load on the network avoiding overloading lines and primary plant. Power and energy monitoring to help improve network efficiency, losses and capacity, allowing more effective operation and better power factor management.

Fault detection - reducing outages and revenue loss

The directional Fault Passage Indicator (FPI) provides rapid fault detection for single and three phase faults. Combined with the remote control and automation capabilities of Gemini 3, the outage time and resulting loss of revenue are minimised. Additionally, the FPI will co-ordinate with upstream reclosers to avoid unnecessary outages due to temporary faults such as clashing conductors.

Network condition monitoring - early detection of network issues

Power quality measurements help understand if the electricity supply is suitable and compatible for use by the network operator's customers. Many of these factors are difficult to identify, and usually require observation over time. The AMM will capture power quality disturbances with preconfigured trigger points and provide essential information for improved decision making.

Measurements

- 3 phase voltages (RMS & fundamental)
- Neutral voltage displacement
- 3 currents (RMS & fundamental)
- Derived neutral current

Power and energy measurements

- Active & reactive power
- Aggregated active & reactive power
- Maximum and average energy demand
- Power factor
- Frequency

Power quality

- Over voltage
- Under voltage
- Under frequency
- Current unbalance
- Voltage unbalance
- Current & voltage THD
- Sags, swells & interruptions

Fault passage indication

- 3 phase & earth fault indication
- Inrush restraint
- Directional / non-directional
- Voltage memory & cross-polarised

Applications

- Power quality
- Power measurement
- Fault passage indication
- Overhead and ground mount applications

General features

- No batteries
- Ethernet communications
- CAN bus communications
- Compliant with IEC 60255, IEC 61000 and IEC 680068 tests

Available models

AUT0004141

Measurement Inputs

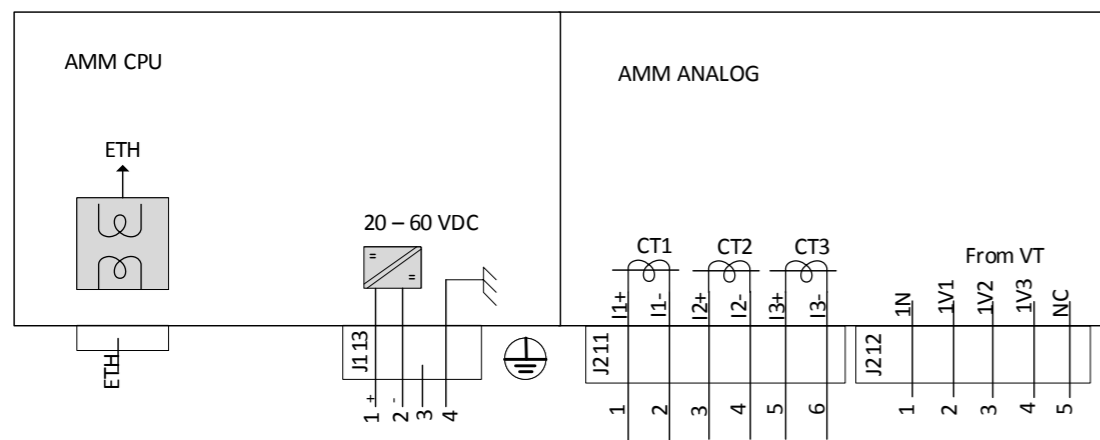
Current inputs: 1 / 5 A AC
Voltage inputs: 110 V AC, Ph - N

Power supply inputs

20-60 VDC

Communications

Ethernet



AUT0004265

Measurement Inputs

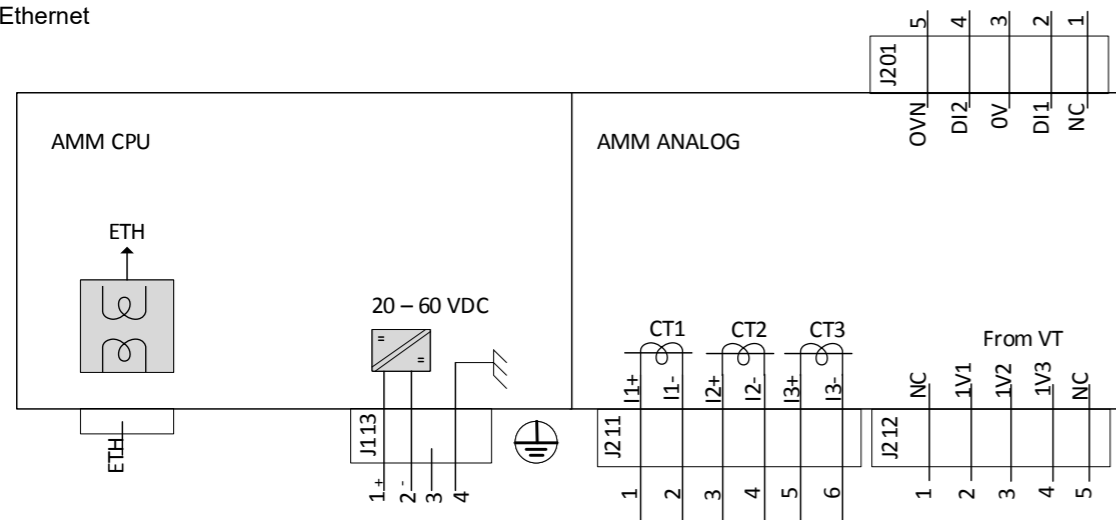
Current inputs: 330mV AC
Voltage inputs: 110 V AC, Ph - Ph

Power supply inputs

20-60 VDC

Communications

Ethernet



Available models

AUT0004267

Measurement Inputs

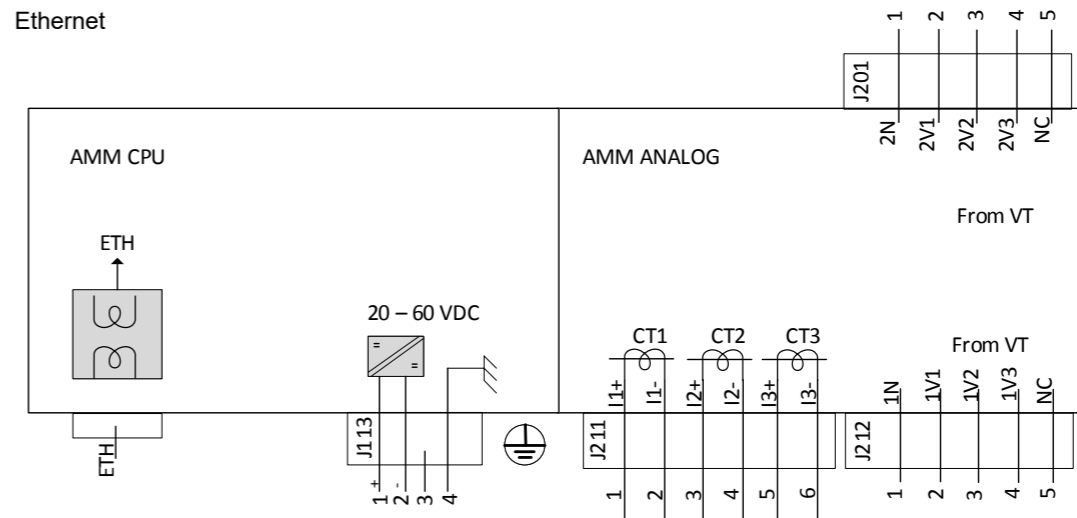
Current inputs: 1 A AC
Voltage inputs: 4 V AC, Ph - N

Power supply inputs

20-60 VDC

Communications

Ethernet



Common to all modules:

Measurement accuracies

Voltage: 0.3% (99-121V)
Current: 0.5%
Power: 2.5%
FPI detection time range : 0.04 - 1600 s

Power supply requirements

The Analogue Measurement Module requires to be powered from a stable DC supply in the range 20-60 VDC, 6W.

Dimensions and mounting

Dimensions and mounting	
Height	105mm
Width	61mm
Depth	120mm
Weight	315g
Method of mounting	35 mm DIN rail mounting
IP rating	IP20

Technical Data

Atmospheric Environment

Test	Standard	Description
Cold test operation	IEC 60068-2-1	-25°C for 96 hours
Cold test storage	IEC 60068-2-1	-25°C ±3°C for 96 hours
Dry heat test operation	IEC 60068-2-2	+70°C ±2°C for 96 hours
Dry heat test storage	IEC 60068-2-2	+70°C ±2°C for 96 hours
Cyclic temperature	IEC 60068-2-14	-25°C, +70°C, 5 cycles, dwell time 3 hours
Damp heat steady state	IEC 60068-2-78	+40 °C, 93% RH, 4 days
Damp heat, cyclic	IEC 60068-2-30	+55°C, 95% RH, 6 of 24 h cycles
Ingress protection	IEC 60529	IP 20 RTU Electronics

Mechanical Environment

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

Electrical Environment

Test	Standard	Description
Insulation – Dielectric	IEC 60255-27	Power supply port, input/output ports, functional earth port, 2kV, 1 minute For comm. ports 0.5kV, 1 minute
Insulation – Impulse Voltage	IEC 60255-27	Power supply port, input/output ports, functional earth port, 5 kV peak, 1.2/50 µs, 0.5 J For comm. ports, 1kV peak, 1.2/50 µs, 0.5 J
Insulation - Insulation Resistance	IEC 60255-27	Power supply port, input/output ports, functional earth port, > 100 MΩ at 500 V d.c.

EMC Tests

Test	Standard	Description
Electrostatic discharge immunity	IEC 60255-26, IEC 61000-4-2	Level 3
Radiated, radio-frequency, electromagnetic field immunity	IEC 60255-26, IEC 61000-4-3	Level 3
Fast transient immunity	IEC 60255-26, IEC 61000-4-4	Level 4
Surge immunity	IEC 60255-26, IEC 61000-4-5	Level 4
Conducted disturbance induced by RF fields	IEC 60255-26, IEC 61000-4-6	Level 3
Power frequency magnetic field immunity	IEC 60255-26, IEC 61000-4-8	Level 4
Pulse magnetic field immunity	IEC 61000-4-9	Level 5
Damped oscillatory magnetic field immunity	IEC 61000-4-10	Level 5
Ripple on d.c. input power port immunity	IEC 60255-26, IEC 61000-4-17	Level 4
Damped oscillatory wave immunity test - slow	IEC 60255-26, IEC 61000-4-18	Level 3
Damped oscillatory wave immunity test - fast	IEC 61000-4-18	Level 4
Radiated emission (below 1 GHz)	IEC 60255-26, EN 55011, CISPR 11	Class A
Radiated emission (above 1 GHz)	IEC 60255-26, EN 55011, CISPR 22	Class A
Conducted emission	IEC 60255-26, EN 55011, CISPR 22	Class A

Detailed reports can be made available upon request.

Ordering Options

	Current	Voltage	Digital Inputs	Communications
AUT0004265	3 x 330mV AC	3 x 110V AC Ph - Ph	2	Ethernet
AUT0004141	3 x 1/5 AC (Selectable)	3 x 110V AC Ph - N	0	Ethernet
AUT0004267	3 x 1A AC	6 x 4V AC Ph - N	0	Ethernet

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