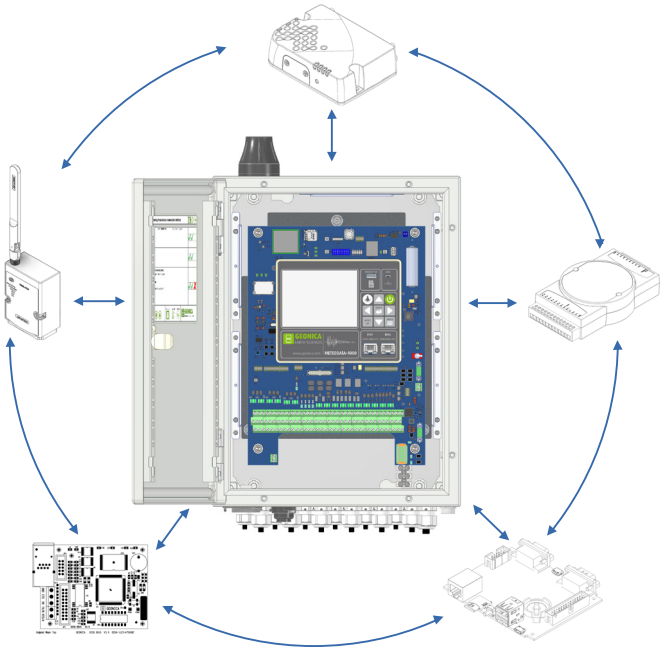
EXTENSION MODULES FOR METEODATA-4000-CM SERIES

HARDWARE MODULES CONNECTED TO THE DATALOGGER TO PROVIDE ADDITIONAL INTERFACES FOR SENSORS AND COMMUNICATION NETWORKS

- Easily configurable ('Drag and Drop')
- Ease of mounting and removal
- Media converters for Fiber optic, Ethernet, Serial ports, etc.
- Optional gateways for mobile or satellite communication networks
- Extension modules for analogue inputs and outputs
- Installed inside the datalogger enclosure
- Additional interfaces for digital inputs, outputs and frequency / pulse counters
- Up to 5 extension modules per datalogger

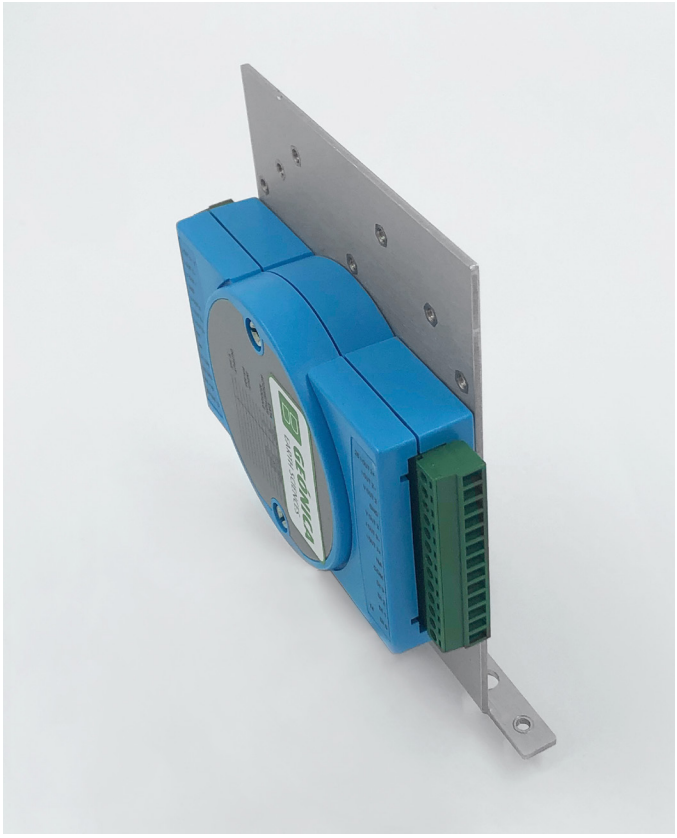


MODULES FOR ADDITIONAL HARDWARE RESOURCES

GEO-97019 EXTENSION MODULE (10 ANALOGUE INPUTS)

FEATURES

- 10-channel Analogue Input (Thermocouple, Voltage or Current)
- Individual Channel Configuration
- Open Thermocouple Detection
- 240 Vrms Overvoltage Protection
- 4 kV ESD Protection
- 3000 VDC Intra-module Isolation, Field to Logic



INTRODUCTION

The GEO-97019 is a 10-channel universal analogue input module with an RS-485 interface that is a specially designed for extremely accurate thermocouple measurement and features automatic cold-junction compensation for each channel to ensure temperature output consistency and stable temperature output in the field. Besides the thermocouple inputs, the GEO-97019 also supports voltage and current inputs. The voltage input range can be from ±15 mV to ±10 V, and the current input range can be either 4 ~ 20 mA, 0 ~ 20 mA, or ± 20 mA. Up to 10 analogue inputs of different types can be connected to a single module. Overvoltage protection of up to 240 Vrms is provided. The module also features per-channel open wire detection for thermocouple and 4 ~ 20 mA inputs.

SYSTEM SPECIFICATIONS

Communication with METEODATA/HYDRODATA-4000 Series	
Interface	RS-485
Protocol	Modbus RTU
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	-
7-segment LED Display	-
Isolation	
Intra-module Isolation, Field-to-Logic	3000 VDC
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal
EFT (IEC 61000-4-4)	±4 kV for Power Line
Surge (IEC 61000-4-5)	-
Power	
Reverse Polarity Protection	Yes
Input Voltage Range	+10 VDC ~ +30 VDC
Power Consumption	1.8 W
Mechanical	
Dimensions (W x L x H)	73 mm x 116 mm x 35 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 95% RH, Non-condensing

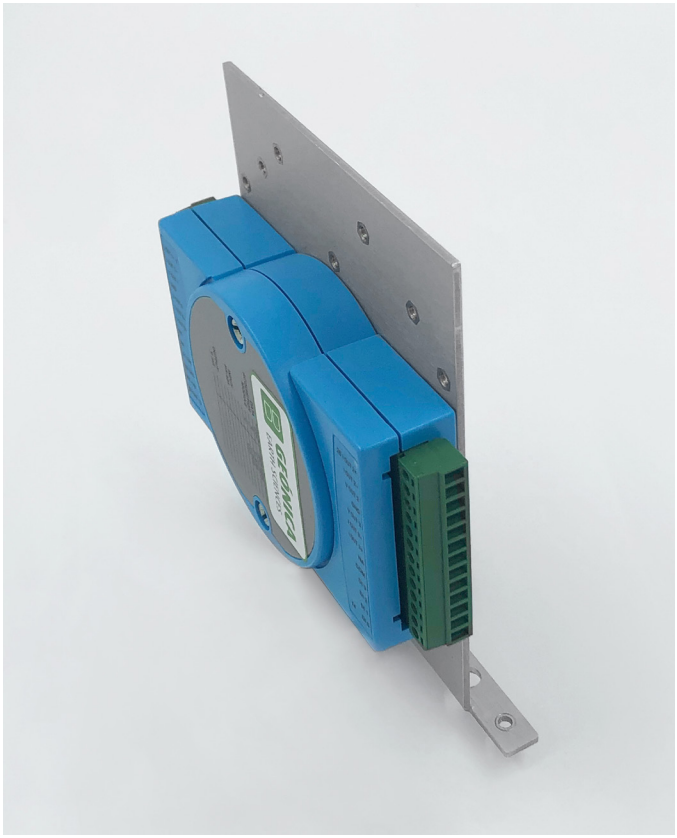
I/O SPECIFICATIONS

Analogue Input		
Channels		10
Wiring		Differential
Sensor Type	Thermocouple	J, K, T, E, R, S, B, N, C, L, M, LDIN43710
	Voltage	±15 mV, ±50 mV, ±100 mV, ±150 mV, ±500 mV, ±1 V, ±2.5 V, ±5 V, ±10 V
	Current	±20 mA, 0 ~ 20 mA, 4 ~ 20 mA (Jumper selectable)
Resolution		16-bit
Accuracy		±0.1% of FSR
Sampling Rate		10 Hz (Total)
Input Impedance	Voltage	2 MΩ
	Current	125 Ω
	Thermocouple	> 400 kΩ
Common Voltage Protection		±200 VDC
Overvoltage Protection		240 Vrms

GEO-97018 EXTENSION MODULE (10 THERMOCOUPLE INPUTS)

FEATURES

- 10-channel Analogue Input (Current, Voltage and Thermocouple)
- Individual Channel Configuration
- Open Thermocouple Detection
- Overvoltage Protection of up to 240 Vrms
- 4 kV ESD Protection
- 3000 VDC Intra-module Isolation



INTRODUCTION

The GEO-97018 is a 10-channel universal analogue Input module with an RS-485 interface that is especially designed for extremely accurate thermocouple measurement and features automatic cold-junction compensation for each channel to ensure temperature output consistency and stable temperature output in the field. Besides the thermocouple inputs, the GEO-97018 also supports voltage and current input. The voltage input range can be from ±15 mV to ±2.5 V. Up to 10 different types of analogue input can be connected to a single module. Overvoltage protection of up to 240 Vrms is provided. The module also features per-channel open wire detection for the thermocouple and 4 ~ 20 mA inputs.

SYSTEM SPECIFICATIONS

Communication with METEODATA/HYDRODATA-4000 Series	
Interface	RS-485
Protocol	Modbus RTU
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	-
7-segment LED Display	-
Isolation	
Intra-module Isolation, Field-to-Logic	3000 VDC
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal
EFT (IEC 61000-4-4)	±4 kV to Power
Surge (IEC 61000-4-5)	±0.5 kV for Power Line
Power	
Reverse Polarity Protection	Yes
Input Voltage Range	+10 VDC ~ +30 VDC
Power Consumption	1.0 W
Mechanical	
Dimensions (W x L x H)	73 mm x 116 mm x 35 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 95% RH, Non-condensing

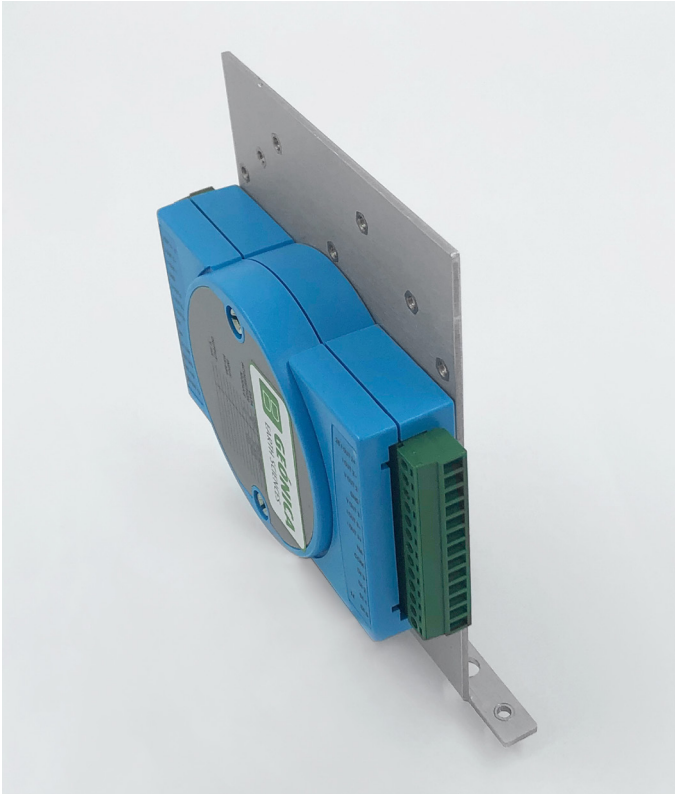
I/O SPECIFICATIONS

Analogue Input		
Channels		10
Wiring		Differential
Sensor Type	Thermocouple	J, K, T, E, R, S, B, N, C, L, M, LDIN43710
	Voltage	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V
	Current	±20 mA, 0 ~ 20 mA, 4 ~ 20 mA (Requires an optional external 125 Ω resistor)
Resolution		16-bit
Accuracy		±0.1% of FSR
Sampling Rate		10 Hz (Total)
Input Impedance		> 400 kΩ
Common Voltage Protection		±200 VDC
Overvoltage Protection		240 Vrms

GEO-97016 EXTENSION MODULE (2 STRAIN GAUGE INPUTS)

FEATURES

- 2-channel Strain Gauge Measurement
- High Resolution: 16-bit
- Excitation Voltage Output: 0 ~ +10 V
- 50 Hz Event Counter (Digital Input)
- High/Low Alarm (Digital Output)
- Linear Mapping Function



INTRODUCTION

In the industrial environment, there are numerous examples where force needs to be converted into a measurable electrical output. In most cases, a strain gauge or a load cell can be used. The GEO-97016 can process data from a load cell or a strain gauge and it also features linear mapping that can be used to directly convert the resulting data into weight via a user-defined correspondent table. The GEO-97016 supports full-bridge strain gauges and provides 2 analogue input channels, 1 excitation voltage output channel, 1 Digital input channels and 4 Digital output channels. The module provides a programmable input range (±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, and ±2.5 V) and each analogue Input channel can be individually configured. Excitation voltage output can be in the range of 0 ~ +10 V, with a 40 mA driving efficiency. Digital Output channels can also be set as high or low alarm outputs.

SYSTEM SPECIFICATIONS

Communication with METEODATA/HYDRODATA-4000 Series	
Interface	RS-485
Protocol	Modbus RTU
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	-
7-segment LED Display	Available for specific model
Isolation	
Intra-module Isolation, Field-to-Logic	1500 VDC
EMS Protection	
ESD (IEC 61000-4-2)	-
EFT (IEC 61000-4-4)	-
Surge (IEC 61000-4-5)	-
Power	
Reverse Polarity Protection	Yes
Input Voltage Range	+10 VDC ~ +30 VDC
Power Consumption	2.4 W to 3.0 W (depending on model)
Mechanical	
Dimensions (W x L x H)	123 mm x 72 mm x 35 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 95% RH, Non-condensing

I/O SPECIFICATIONS

Strain Gauge Input	
Channels	2
Wiring	4-wire
Resolution	16-bit
Accuracy	±0.5% of FSR
Sampling Rate	10Hz (1-channel mode)/2Hz (2-channel mode)
Input Impedance	20 MΩ
Overvoltage Protection	±5 VDC
Excitation Voltage Output	
Channels	1
Range	0 ~ +10 V
Max. Load Current	40 mA
Resolution	16-bit
Accuracy	±0.05%
Digital Input	
Channels	1
Contact	Dry
Sink/Source (NPN/PNP)	Source
ON Voltage Level/OFF	Close to GND/Open
Counter (50 Hz, 16-bit)	Yes
Input Impedance	3 kΩ
Overvoltage Protection	±30 VDC
Digital Output	
Channels	4
Type	Open Collector
Sink/Source (NPN/PNP)	Sink
Load Voltage	+3.5 ~ +50 VDC
Max. Load Current	30 mA/Channel

GEO-97052/53 EXTENSION MODULE (8/16 ISOLATED/NON-ISOLATED DIGITAL INPUTS)

FEATURES

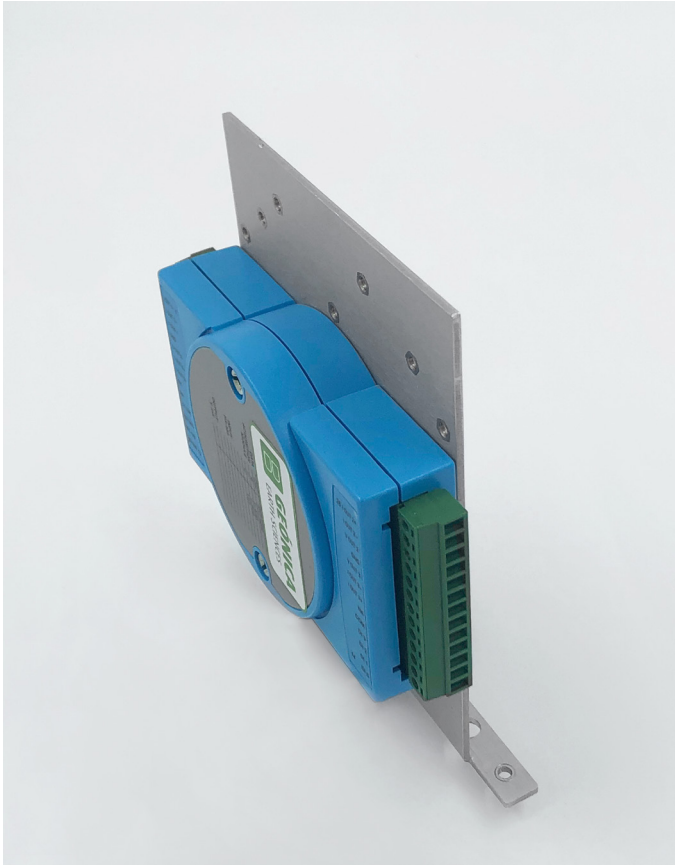
GEO-97052

- Differential Digital Inputs
- Sink- or Source-type Input
- 4 kV ESD Protection
- 5000 Vrms Isolation Voltage

GEO-97053

- 16 Source-type Digital Inputs
- Long Effective Distance
- Dry Contact Input
- Non-isolated for all Channels

All Channels Can Be Used as 16-bit Counters



INTRODUCTION

The GEO-97052 offers 6 fully independent channels and 2 common ground channels for digital input. The differential inputs feature channel-to-channel Photocouple isolation. In addition, you can choose either sink- or source-type input via wire connections. All channels are able to be used as 16-bit counters. This module has 8 LED indicators for DI channel status monitoring. 4 kV ESD protection and 5000 Vrms intra-module isolation are standard.

The GEO-97053 features a long effective distance measurement for dry contact digital input of up to 500 meters. All 16 channels are also able to be used as 16-bit counters, each of which are non-isolated. The GEO-97053 has 16 LED indicators for channel status monitoring.

SYSTEM SPECIFICATIONS

MODEL	GEO-97052	GEO-97053
Communication with METEODATA/HYDRODATA-4000 Series		
Interface	RS-485	
Protocol	Modbus RTU	
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)	
LED Indicators/Display		
System LED Indicator	Yes, 1 as Power/Communication Indicator	
I/O LED Indicators	Yes, 8 LEDs as Digital Input Indicators	Yes, 16 LEDs as Digital Input Indicators
7-segment LED Display	-	
Isolation		
Intra-module Isolation, Field-to-Logic	5000 Vrms	-
EMS Protection		
ESD (IEC 61000-4-2)	4 kV Contact for each Terminal 8 kV Air for Random Point	-
EFT (IEC 61000-4-4)	±4 kV for Power Line	-
Surge (IEC 61000-4-5)	-	-
Power		
Reverse Polarity Protection	Yes	
Input Voltage Range	+10 VDC ~ +30 VDC	
Power Consumption	0.2 W – 0.6 W	0.7 W – 0.9 W
Mechanical		
Dimensions (W x L x H)	123 mm x 72 mm x 35 mm	
Environment		
Operating Temperature	-25 to +75°C	
Storage Temperature	-40 to +85°C	
Humidity	10 to 95% RH, Non-condensing	

I/O SPECIFICATIONS

MODEL		GEO-97052	GEO-97053
Digital Input/Counter			
Channels		8	16
Type	Dry Contact	-	Source
	Wet Contact	Sink/Source	-
Wet Contact	ON Voltage Level	+4 ~ 30 VDC	-
	OFF Voltage Level	+1 VDC Max	-
Dry Contact	ON Voltage Level	-	Open
	OFF Voltage Level	-	Close to GND
	Effective Distance	-	500 m Max.
Counters	Max. Count	65535 (16-bit)	
	Max. Input Frequency	100 Hz	
	Min. Pulse Width	5 ms	
Input Impedance		3 kΩ	-
Channel-to-Channel Isolation		Yes, ±2 kV for differential only.	-
Overvoltage Protection		±35 VDC	-

GEO-97026 EXTENSION MODULE (6 ANALOGUE INPUTS + 2 ANALOGUE OUTPUTS + 3 DIGITAL INPUTS + 3 DIGITAL OUTPUTS)

FEATURES

- Multifunction (6 AI, 2 AO, 3 DI and 3 DO)
- Supports Fast Mode and Normal Mode
- Open Wire Detection for Current Output
- Overload and Short Circuit Protection for Digital Output
- Configurable Power-on Value Settings
- Configurable Safe Value Settings
- 240 Vrms Overvoltage Protection for Voltage Input
- ±4 kV Contact ESD Protection

INTRODUCTION

The GEO-97026 is a multifunction module that includes 6 analogue input channels, 2 analogue output channels, 3 digital input channels, 3 digital output channels. It provides a programmable input range on all analogue input (±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±20 mA or 0 ~ +20 mA), analogue outputs are 12-bit at ±5 V, ±10 V, 0 ~ +20 mA or +4 ~ +20 mA and all digital outputs can be set as alarm output. Each analogue input can be configured for an individual range and provides a high overvoltage protection of 240 Vrms. Voltage and current inputs/outputs are jumper selectable.

SYSTEM SPECIFICATIONS

Communication with METEODATA/HYDRODATA-4000 Series	
Interface	RS-485
Protocol	Modbus RTU
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/ Communication Indicator
I/O LED Indicators	-
7-segment LED Display	-
Isolation	
Intra-module Isolation, Field-to-Logic	2500 VDC
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal ±8 kV Air for random point
EFT (IEC 61000-4-4)	±4 kV for Power Line
Surge (IEC 61000-4-5)	±3 kV for Power Line
Power	
Reverse Polarity Protection	Yes
Input Voltage Range	+10 VDC ~ +30 VDC
Power Consumption	1.8 W
Mechanical	
Dimensions (W x L x H)	123 mm x 72 mm x 35 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 95% RH, Non-condensing

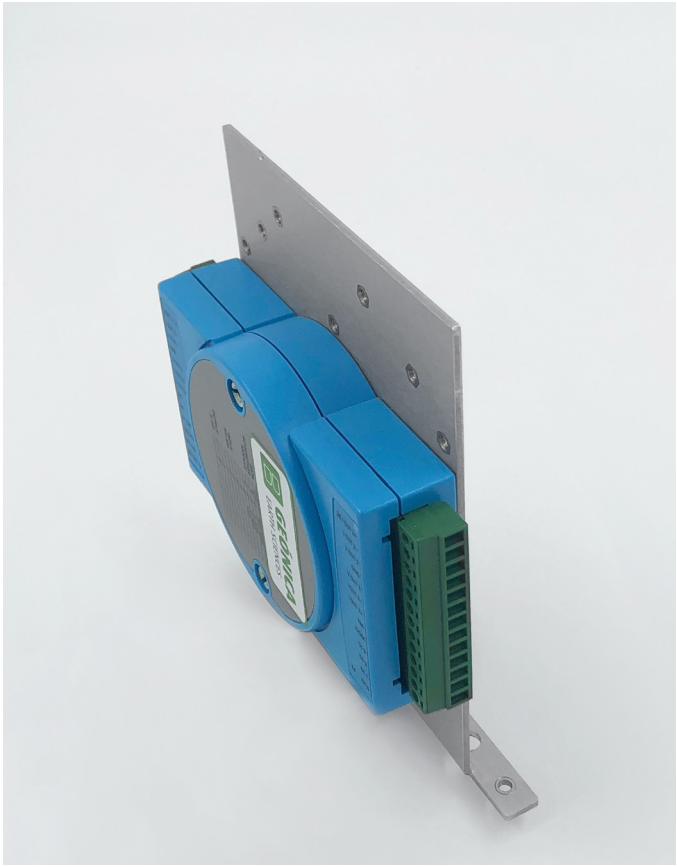
I/O SPECIFICATIONS

Analogue Input		
Channels		6
Wiring		Differential
Type	Voltage	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V
	Current	±20 mA, 0 ~ 20 mA, 4 ~ 20 mA (Jumper selectable)
Resolution		16-bit
Accuracy	Normal Mode	±0.1% of FSR
	Fast Mode	±0.5% or better
Sampling Rate	Normal Mode	10 Samples/Sec.
	Fast Mode	60 Samples/Sec. (Total)
Input Impedance	Voltage	2 MΩ
	Current	140 Ω
Common Voltage Protection		±200 V
Overvoltage Protection		240 Vrms
Overcurrent Protection		50 mA at 110 VDC
Analogue Output		
Channels		2
Range		+0 ~ +5 VDC, +0 ~ +10 VDC, ±5 VDC, ±10 VDC, +0 ~ +20 mA, +4 ~ +20 mA (Jumper Selectable)
Resolution		12-bit
Accuracy		±0.1% of FSR
Voltage Output Capability		10 V @ 20 mA
Digital Input/Counter		
Channels		3
Dry Contact	ON Voltage Level	Close to GND
	OFF Voltage Level	Open
Counters	Max. Count	65535 (16-bit)
	Max. Input Frequency	50 Hz
	Min. Pulse Width	5 ms
Digital Output		
Output Channels		3
Type		Open Collector
Sink/Source (NPN/PNP)		Sink
Load Voltage		+ 3.5 VDC ~ + 30 VDC
Max. Load Current		700 mA/Channel
Overvoltage Protection		60 VDC

GEO-97065 EXTENSION MODULE (4 ISOLATED DIGITAL INPUTS + 5 RELAY OUTPUTS)

FEATURES

- 4 Digital Input channels and 5 Relay Output channels
- Form A Power Relay Output
- Sink- and Source-type for Digital Input
- Digital Input Channels can be used as 16-bit Counters



INTRODUCTION

The GEO-97065 series provides 4 digital input channels and 5 Form A relay output channels. All digital input channels can be used as 16-bit counters. In addition, the digital input channels can be selected either as sink- or source-type via wire connections. The GEO-97065 optionally provides 9 LED indicators that can be used to monitor the status of the digital input and relay output. There are options for configuring power-on and safe values. 4 kV ESD protection and 3750 VDC intra-module isolation are also provided to enhance noise protection capabilities in industrial environments.

SYSTEM SPECIFICATIONS

Communication with METEODATA/HYDRODATA-4000 Series	
Interface	RS-485
Protocol	Modbus RTU
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	Opt., 9 as Digital Input/Relay Output Indicators
7-segment LED Display	-
Isolation	
Intra-module Isolation, Field-to-Logic	3750 VDC
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal ±8 kV Air for Random Point
EFT (IEC 61000-4-4)	±2 kV for Power Line
Surge (IEC 61000-4-5)	-
Power	
Reverse Polarity Protection	Yes
Input Voltage Range	+10 VDC ~ +30 VDC
Power Consumption	1.3 W – 1.8 W
Mechanical	
Dimensions (W x L x H)	123 mm x 72 mm x 35 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 95% RH, Non-condensing

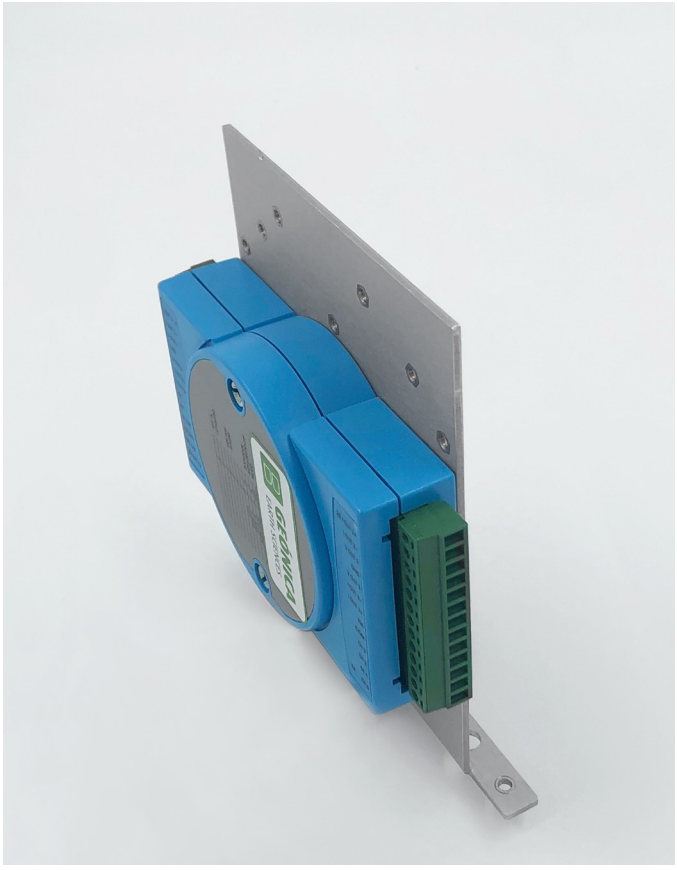
I/O SPECIFICATIONS

Relay Output		
Channels		5
Relay Type		Power Relay
Form A Relay	Contact Rating	5 A @ 250 VAC 5 A @ 30 VDC
	Min. Contact Load	10 mA @ 5 V
	Contact Material	Gold-plated Silver Cadmium Alloy
	Operate Time	6 ms
	Release Time	3 ms
Surge Strength		4000 VDC
Digital Input/Counter		
Channels		4
Wet Contact	ON Voltage Level	+1 VDC Max
	OFF Voltage Level	+4 ~ 30 VDC
Counters	Max. Count	65535 (16-bit)
	Max. Input Frequency	100 Hz
	Min. Pulse Width	5 ms
Input Impedance		3 kΩ
Overvoltage Protection		±35 VDC

GEO-9AD5 (5 ISOLATED ANALOGUE INPUTS WITH HIGH VOLTAGE PROTECTION)

FEATURES

- 5-channel Differential Inputs
- Voltage Inputs
- 120 VDC Overvoltage Protection
- 4 kV ESD and EFT Protection
- 3 kV Surge Protection
- 2500 VDC Intra-module Isolation



INTRODUCTION

The GEO-9AD5 is an analogue input module that includes 5 differential analogue input channels and provides a programmable input range on all analogue inputs (±1 V, ±2.5 V, ±5 V, ±10 V). It provides a high overvoltage protection of 120 VDC. The sampling rate of the GEO-9AD5 is adjustable and is available in either fast or normal mode and It also provides 4 KV ESD protection as well as 2500 Vrms intra-module isolation.

SYSTEM SPECIFICATIONS

Communication with METEODATA/HYDRODATA-4000 Series	
Interface	RS-485
Protocol	Modbus RTU
Dual Watchdog	Yes, Module (2.3 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	-
7-segment LED Display	-
Isolation	
Intra-module Isolation	2500 VDC
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal ±8 kV Air for Random Point
EFT (IEC 61000-4-4)	±4 kV for Power
Surge (IEC 61000-4-5)	-
Power	
Reverse Polarity Protection	Yes
Input Voltage Range	+10 VDC ~ +30 VDC
Power Consumption	0.7 W Max.
Mechanical	
Dimensions (W x L x H)	52 mm x 98 mm x 27 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-30 to +75°C
Humidity	10 to 95% RH, Non-condensing

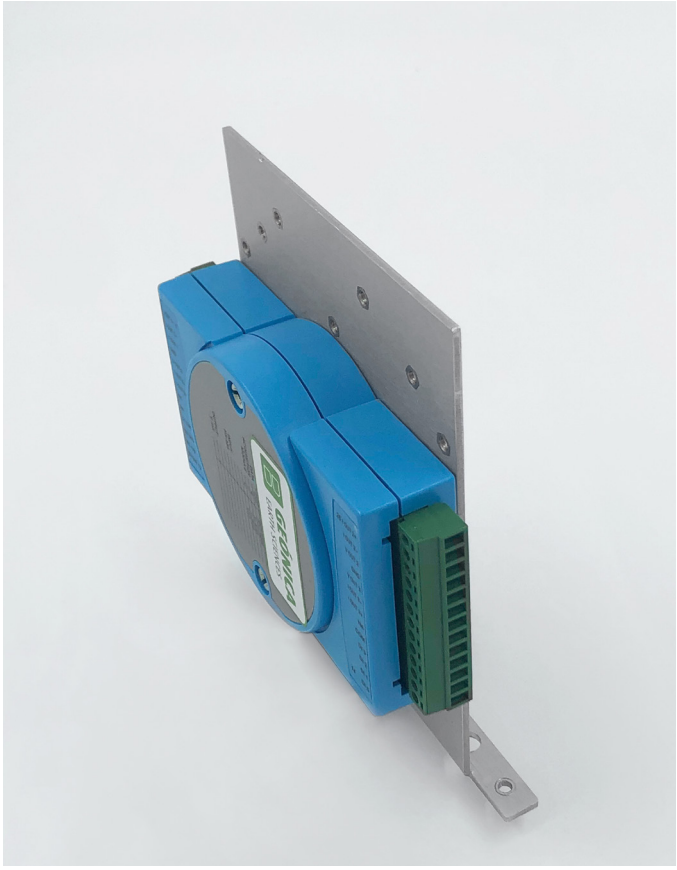
I/O SPECIFICATIONS

Analogue Inputs	
Channels	5
Wiring	Differential
Type	Voltage
Range	±1 V, ±2.5 V, ±5 V, ±10 V
Resolution	Normal Mode: 14-bit Fast Mode: 12-bit
Accuracy	Normal Mode: ±0.1% Fast Mode: ±0.5%
Sampling Rate	Normal Mode: 10 Hz Fast Mode: 200 Hz
Input Impedance	20 MΩ
Zero Drift	±20 µV/°C
Span Drift	±25 ppm/°C

GEO-9AD8C (8 ISOLATED CURRENT INPUTS)

FEATURES

- 8-channel Single-ended Inputs
- Current Inputs
- 4 kV ESD and EFT Protection
- 3 kV Surge Protection
- 2500 VDC Intra-module Isolation



INTRODUCTION

The GEO-9AD8C is a current input module that includes 8 single-ended analogue input channels and provides a programmable input range on all analogue inputs (0 ~ 20 mA, 4 ~ 20 mA). The sampling rate of the GEO-9AD8C is adjustable and is available in either fast or normal mode. It also provides 4 KV ESD protection as well as 2500 Vrms intra-module isolation.

SYSTEM SPECIFICATIONS

Communication with METEODATA/HYDRODATA-4000 Series	
Interface	RS-485
Protocol	Modbus RTU
Dual Watchdog	Yes, Module (2.3 seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	-
7-segment LED Display	-
Isolation	
Intra-module Isolation	2500 VDC
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal ±8 kV Air for Random Point
EFT (IEC 61000-4-4)	±4 kV for Power
Surge (IEC 61000-4-5)	-
Power	
Reverse Polarity Protection	Yes
Input Voltage Range	+10 VDC ~ +30 VDC
Power Consumption	0.7 W Max.
Mechanical	
Dimensions (W x L x H)	52 mm x 98 mm x 27 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-30 to +75 °C
Humidity	10 to 95% RH, Non-condensing

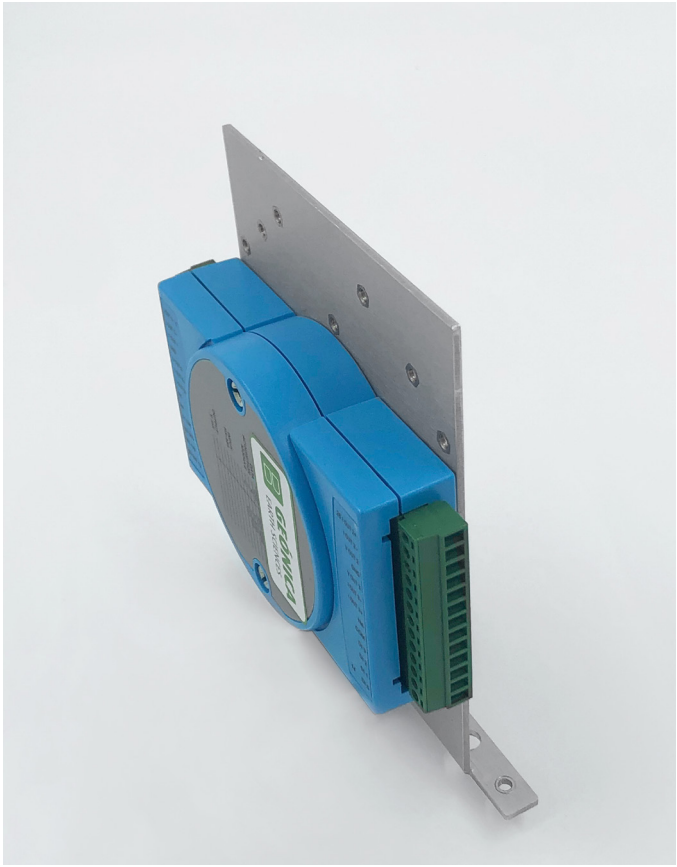
I/O SPECIFICATIONS

Analogue Input	
Channels	8
Wiring	Single-ended
Type	Current
Range	0 ~ 20 mA, 4 ~ 20 mA
Resolution	Normal Mode: 14-bit Fast Mode: 12-bit
Accuracy	Normal Mode: ±0.1% Fast Mode: ±0.5%
Sampling Rate	Normal Mode: 10 Hz Fast Mode: 200 Hz
Input Impedance	125 Ω
Zero Drift	±20 μV/°C
Span Drift	±25 ppm/°C

GEO-96018-16 (16 ANALOGUE INPUTS)

FEATURES

- 16-channel Differential Analogue Input
- ±120 VDC Overvoltage Protection
- Current, Voltage or Thermocouple Input
- 3000 VDC Intra-module Isolation



INTRODUCTION

The GEO-96018-16 is an analogue input module that includes 16 differential analogue input channels. The voltage input range can be from ±15 mV to ±2.5 V, the current input range can be either +4 to +20 mA, 0 to +20 mA, or ±20 mA, and types J, K, T, E, R, S, B, N, C, L, M, LDIN43710 thermocouple can be used for the thermocouple input. Overvoltage protection of up to 120 VDC is provided. The module also features per-channel open wire detection for the thermocouple input types and provides 4 kV ESD protection as well as 3000 VDC intra-module isolation.

SYSTEM SPECIFICATIONS

Communication with METEODATA/HYDRODATA-4000 Series	
Interface	RS-485
Protocol	Modbus RTU
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	-
7-segment LED Display	-
Isolation	
Intra-module Isolation, Field-to-Logic	3000 VDC
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal ±8 kV Air for Random Point
EFT (IEC 61000-4-4)	±4 kV for Power Line
Surge (IEC 61000-4-5)	±1 kV for Power Line
Power	
Reverse Polarity Protection	Yes
Input Voltage Range	+10 VDC ~ +48 VDC
Power Consumption	0.5 W
Mechanical	
Dimensions (W x L x H)	120 mm x 116 mm x 64 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 95% RH, Non-condensing

I/O SPECIFICATIONS

Analogue Input		
Channels		16
Wiring		Differential
Sensor Type	Thermocouple	J, K, T, E, R, S, B, N, C
	Voltage	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V
	Current	±20 mA, 0 ~ +20 mA, +4 ~ +20 mA (requires an optional external 125 Ω resistor)
Resolution		16-bit
Accuracy		±0.1% of FSR
Sampling Rate		10 Hz (Total)
Input Impedance		> 400 kΩ
Common Voltage Protection		25 VDC
Individual Channel Configuration		-
Overvoltage Protection		120 VDC

GEO-97015 EXTENSION MODULE (6 RTD INPUTS)

FEATURES

- 6-channel RTD Input
- High Resolution: 16-bit
- Individual Channel Configuration
- 4 kV ESD Protection
- 4 kV EFT Protection
- 3000 VDC Intra-module Isolation

INTRODUCTION

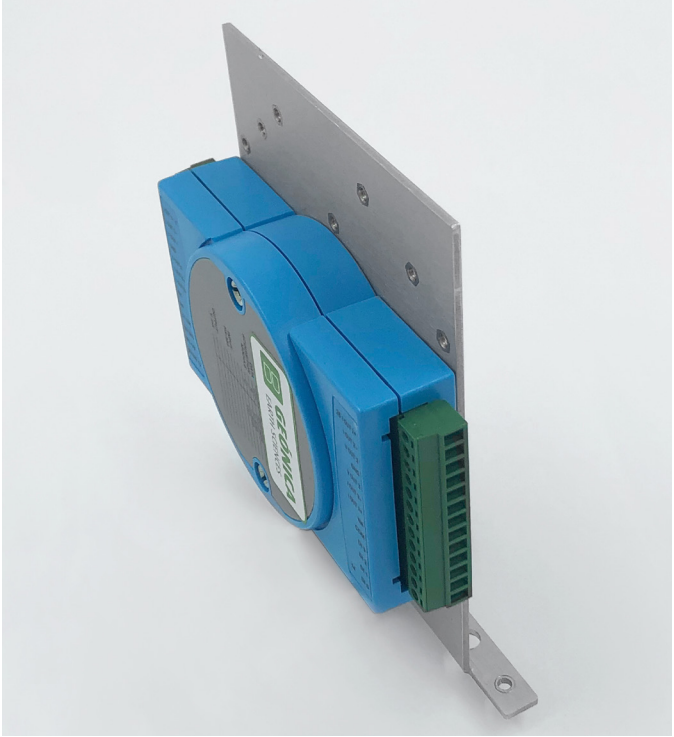
The GEO-97015 is a series of 6-channel RTD input modules that are used for measuring temperatures using RTD sensors and each channel can be connected to a different type of sensor. The GEO-97015 is specifically designed for long-distance RTD measurement, and features automatic compensation for three-wire RTD, meaning that accurate measurements can be obtained regardless of the length of the wires.
The GEO-97015 series is fully RoHS-compliant and features 4 kV ESD protection as well as 3000 VDC intra-module isolation.

SYSTEM SPECIFICATIONS

Communication with METEODATA/HYDRODATA-4000 Series	
Interface	RS-485
Protocol	Modbus RTU
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	-
7-segment LED Display	-
Isolation	
Intra-module Isolation, Field-to-Logic	3000 VDC
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal
EFT (IEC 61000-4-4)	±4 kV for Power Line
Surge (IEC 61000-4-5)	-
Power	
Reverse Polarity Protection	Yes
Input Voltage Range	+10 VDC ~ +30 VDC
Power Consumption	1.1 W to 1.2 W (depending on model)
Mechanical	
Dimensions (W x L x H)	123 mm x 72 mm x 35 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 95% RH, Non-condensing

I/O SPECIFICATIONS

Analogue Input	
Channels	26
Wiring	2/3-wire
Sensor Types	Pt100, Pt1000, Ni120, Cu50, Cu100, Cu1000



Resolution	16-bit
Accuracy	±0.05% of FSR
Sampling Rate	12 Hz (Total)
Overvoltage Protection	120 VDC
Open Wire Detection	Yes
3-Wire RTD Lead Resistance Elimination	Yes (depending on model)
Resistance Measurement	3.2 kΩ Max.

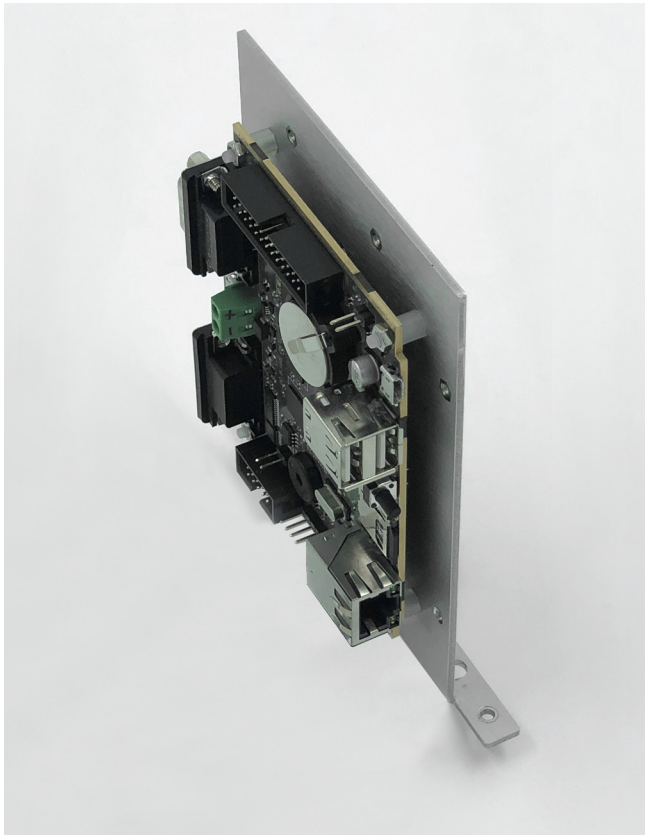
RTD Type Settings (TT)		
20	Platinum 100, α= 0.00385	-100 to +100°C
21	Platinum 100, α= 0.00385	0 to +100°C
22	Platinum 100, α= 0.00385	0 to +200°C
23	Platinum 100, α= 0.00385	0 to +600°C
24	Platinum 100, α= 0.003916	-100 to +100°C
25	Platinum 100, α= 0.003916	0 to +100°C
26	Platinum 100, α= 0.003916	0 to +200°C
27	Platinum 100, α= 0.003916	0 to +600°C
28	Nickel 120	-80 to +100°C
29	Nickel 120	0 to +100°C
2A	Platinum 1000, α= 0.00385	-200 to +600°C
2B	Cu 100 at 0°C, α= 0.00421	-20 to +150°C
2C	Cu 100 at 25°C, α= 0.00427	0 to +200°C
2D	Cu 1000 at 0°C, α= 0.00421	-20 to +150°C
2E	Platinum 100, α= 0.00385	-200 to +200°C
2F	Platinum 100, α= 0.003916	-200 to +200°C
80	Platinum 100, α= 0.00385	-200 to +600°C
81	Platinum 100, α= 0.003916	-200 to +600°C
82	Cu 50	-50 to +150°C
83	Nickel 100	-60 to +180°C

MODULES FOR ADDITIONAL PROTOCOLS

NTCIP PROTOCOL EXTENSION MODULE

FEATURES

- RWIS (Road Weather Information Systems)
- Input: Environmental data collected by datalogger METEODATA/ HYDRODATA
- Output: NTCIP Protocol
- Embedded configuration Web



INTRODUCTION

The NTCIP (National Transportation Communications for Intelligent Transportation System Protocol) is one of the most frequent standardized protocols used is RWIS (Road Weather Information Systems).
The NTCIP protocol extension module requests meteorological data to the series METEODATA-4000 that processes according to the NTCIP standard requirements to provide meteorological data to the RWIS network through SNMP.
It has an embedded configuration Web to adapt this module to the project requirements.

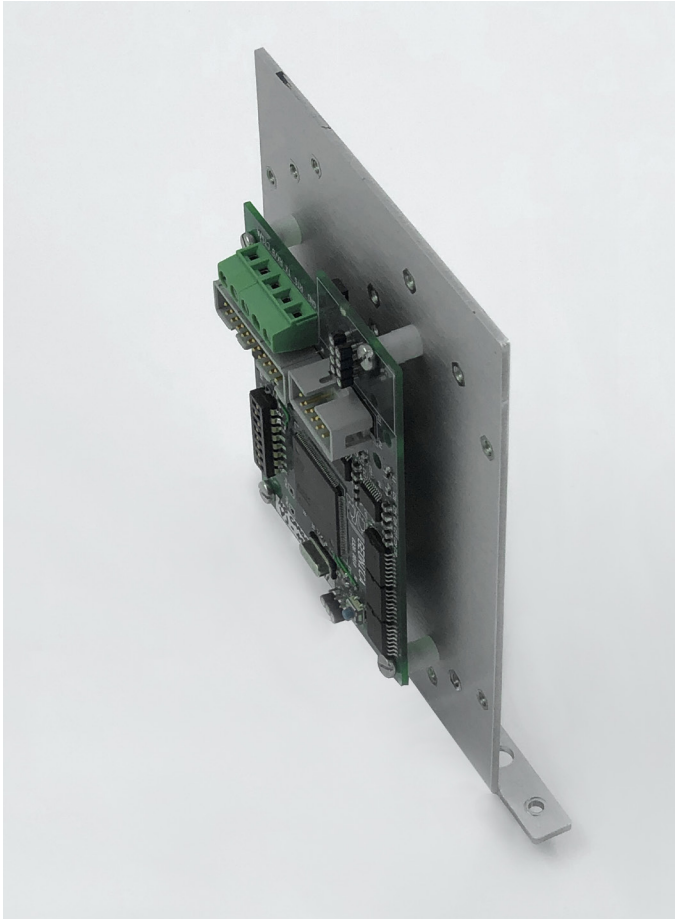
SYSTEM SPECIFICATIONS

On board interfaces	
10/100 Ethernet MAC	NTCIP Protocol
1 x RS232	GDCP (Geonica Data Center Protocol)
1 x RS232/RS485 Multiplex-Port	Test port
MicroSD card slot	MicroSD card including OS and program
LED Indicators	
LED1 / LED2	Power and operation
System	
Reset button	Yes
Battery	3V Battery backed-up Real-Time Clock (RTC)
Embedded Web	Yes, configuration
Power	
Input Voltage Range	5 VDC
RoHS Compliant	Yes
Mechanical	
Dimensions (W x L x H)	100 x 79.8 x 16 mm
Environment	
Operating Temperature	-30 to +85°C
Storage Temperature	-45 to +85 °C
Humidity	< 90% RH, Non-condensing

DGT (DIRECCIÓN GENERAL DE TRÁFICO) PROTOCOL EXTENSION MODULE

FEATURES

- RWIS (Road Weather Information Systems)
- Input: Environmental data collected by datalogger METEODATA/ HYDRODATA
- Output: DGT Protocol
- Embedded configuration interface



INTRODUCTION

Module to adapt the data collected by the series METEODATA/ HYDRODATA-4000 into DGT protocol for usage with RWIS (Road Weather Information Systems) in road applications.
Input communication: RS-232 (to be connected to METEODATA/ HYDRODATA-4000).
Output communication: RS-232/422/485 and Ethernet (to be connected to the RWIS network).

SYSTEM SPECIFICATIONS

On board interfaces	
1 x Ethernet	Communication to ERU (DGT Protocol)
1 x RS232, RS485, RS422	Communication to ERU (DGT Protocol) Configurable with integrated switches
1 x RS232	GDCP (Geonica Data Center Protocol) with METEODATA/HYDRODATA
Memory	
Program Memory	Code
Data Memory	Atmospheric data storage
System	
Maintenance interface	Yes
Configuration	Sensors, parameters and date-time
Power	
Input Voltage Range	5 VDC
Battery	3 V, for RTC
Protections	
ESD	Yes
EMI	Yes
Isolation	Galvanically isolated
Mechanical	
Dimensions (W x L x H)	91 mm x 65 mm x 18mm
Operation	
Data sending	Under request When data already integrated
Data integration time	From 5 min.
Alarms	Upper and lower threshold
System status	Normal Anormal Without configuration
Sensor status	Working Out of service

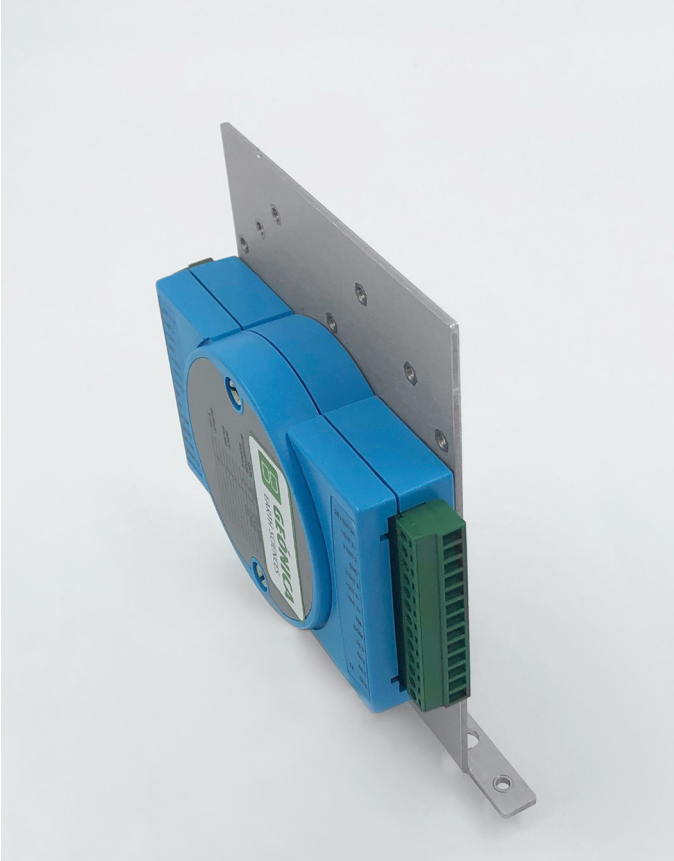
Protocol	
Link level	ENQUIRE frames (control) ACK frames (acknowledge)
Application level	Configuration order and request Reset order Date time modification and request Status and alarms request Last integrated data request Instantaneous data request Historic data request
Standards	
UNE_135441-1	Traffic management
UNE_135441-2	Traffic management

MODULES FOR ADDITIONAL COMMUNICATION INTERFACES

GEO-9tGW-700 (MODBUS/TCP TO RTU/ASCII GATEWAY)

FEATURES

- Supports Modbus TCP/UDP master and slave
- Supports Modbus RTU/ASCII master and slave
- Max. TCP connections (masters) per serial port: 32
- Supports UDP responder for device discovery (UDP Search)
- Static IP or DHCP network configuration
- Tiny Web server for serial and network configuration (HTTP)
- Allows automatic RS-485 direction control
- 3000 VDC Isolation and ±4 kV ESD protection for i versions



INTRODUCTION

Modbus has become a standard industrial communication protocol and is now the most commonly available means of connecting industrial electronic devices. Modbus allows for communication between many devices connected to the same RS-485 network, for example, a system that measures temperature and humidity and communicates the results to a computer. Modbus is often used to connect a supervisory computer with a remote terminal unit (RTU) in supervisory control and data acquisition (SCADA) systems.
The GEO-9tGW-700 module is a Modbus gateway that enables a Modbus TCP/UDP host to communicate with serial Modbus RTU/ASCII devices through an Ethernet network, and eliminates the cable length limitation of legacy serial communication devices.

SYSTEM SPECIFICATIONS

System	
CPU	32-bit MCU
Communication interface	
Ethernet	10/100 Base-TX, 8-pin RJ-45 x 1, (Auto-negotiating, Auto-MDI/MDIX, LED indicator)
PoE	IEEE 802.3af, Class 1 (some models)
COM Port	Depending on models: 1, 2 or 3 x RS-232 1 x RS-422/RS-485 2 or 3 x RS-485 1 x RS-232 or RS-422/485
Self-Tuner	Automatic RS-485 direction control in some models
Power Isolation	1000 VDC for models 9tGW-722i/ 732i/ 718i-D
Signal Isolation	3000 VDC for models 9tGW-712i/ 715i/ 725i/ 735i/ 718i/ 724i/ 734i/ 715i-T/ 718i-T
ESD Protection	±4 kV
COM Port Capability	
Baud Rate	115200 bps Max.
Data Bit	5, 6, 7, 8
Parity	None, Odd, Even, Mark, Space
Stop Bit	1, 2
Power	
Power Input	IEEE 802.3af, Class 1 for PoE; +12 ~ 48 VDC for DC Jack
Power Consumption	0.07 A @ 24 VDC

Mechanical	
Connector	Depending on models: Male DB-9 or 10-pin Removable Terminal Block
Dimensions (W x L x H)	52 mm x 95 mm x 27 mm 52 mm x 90 mm x 27 mm
Case	Plastic
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-30 to +80°C
Humidity	10 to 90% RH, Non-condensing

GEO-9PDS-220 (PROGRAMMABLE SERIAL-TO-FIBER DEVICE SERVER)

FEATURES

- Adds fiber optic connectivity to serial devices
- Application Modes: Virtual COM, TCP Server, TCP Client
- "Virtual COM" extends PC COM ports
- Serial Port ± 4 kV ESD Protection Circuit
- Self-Tuner ASIC controller on the RS-485 port
- 100 Base-FX fiber port (SC/ST connectors)

INTRODUCTION

The GEO-9PDS-220 series is a family of Programmable Device Servers, also known as "Serial-to-Fiber gateway", that are designed for adding fiber optic connectivity to RS-232/422/485 devices. The fiber optic communications permit transmission over longer distances than other forms of communications because of the signals travel along them with less loss and no crosstalk.

The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS- GEO-9PDS-220 series into standard COM ports on a PC.

The GEO-9PDS-220 series includes a powerful and reliable Xserver programming structure that allows to design robust Ethernet applications.

The GEO-9PDS-220 is equipped with 1 RS-232 port and 1 RS-422/485 port. The removable onboard terminal block connector is designed for easy and robust wiring.

SYSTEM SPECIFICATIONS

Communication Interface		
COM1		Male DB-9, 5-wire RS-232 (RxD, TxD, CTS, RTS, GND) Note: ±4 kV ESD Protection
COM2		Removable Terminal Block 2-wire RS-485 (D+, D-, GND) with Self-Tuner ASIC or 4-wire RS-422 (TxD+, TxD-, RxD+, RxD-, GND) Note: ±4 kV ESD Protection
Fiber Port		100 Base-FX. Depending on model: ST connector or SC connector
Mode	Fiber Cables	Depending on model Multi-mode: 50/125, 62.5/125 or 100/140 µm Single-mode: 8.3/125, 8.7/125, 9/125 or 10/125 µm
	Wavelength	1300 or 1310 nm
Distance		Up to 60 km, (9/125 µm recommended) for full duplex
COM Port		
Configuration		7/8 Data Bits, None/Even/Odd/Mark/ Space parity, 1/2 stopbit, 115200 bps max.
LED Indicators/Display		
Link/Act		Green
System		Red

Power	
Protection	Power Reverse Polarity Protection, EMS Protection (Frame GND)
Input Voltage Range	+12 VDC ~ +48 VDC (non-regulated)
Power Consumption	0.14 A @ 24 VDC
Mechanical	
Dimensions (W x L x H)	31 mm x 121 mm x 157 mm 31 mm x 123 mm x 157 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-30 to +85°C
Humidity	10 to 90% RH, Non-condensing

GEO-94120 (INDUSTRIAL PROPRIETARY LPWAN WIRELESS I/O MODULE)

FEATURES

- Proprietary LPWAN with using sub-1GHz wireless frequency
- Battery power for 5 years with 3 x 3.6V AA batteries
- Up to 5 km communication range in open space
- Longer communication range than 2.4GHz
- Better penetration through concrete and steel than 2.4GHz
- Less interference than 2.4GHz spectrum

INTRODUCTION

LPWAN, created for machine-to-machine (M2M) and Internet of things (IoT) networks, is a variety of low-power wide area network technologies. GEO-94210 series is the proprietary LPWAN which provides better connection compare with traditional 2.4G WiFi, GEO-94210 series is helpful of eliminating network interference.
Additionally, GEO-94210 uses a LPWAN (low-power, wide-area networks) wireless interface, which has a kilometer-long communication distance and battery power.
The low power consumption of sub-GHz enables the sensor node to be powered by a battery. With a 3.6V AA Lithium battery, the sensor node can maintain communication at a distance of 5 km for up to 5 years, thereby eliminating the need to recharge or change batteries.
Star topology, also known as star network, is the most common network setup. In star topology, every node connects to a central network device.

SYSTEM SPECIFICATIONS

GEO-94210	
Frequency Band	NA915: 923MHz (920.60~924.60), BW: 400kHz EU868: 868MHz (865.00~869.00), BW: 400kHz UN433: 433MHz (433.05~434.55), BW: 300kHz
Antenna Gain	902~928MHz:1.33 dBi 863~870MHz:2.19 dB
Data Rate	625bps, 50kbps
Outdoor Range	625bps: 5 km with line of sight 50kbps: 2 km with line of sight
Topology	Star
Network Capacity	64 clients
Configuration interface	
Access Point	LAN port
Sensor Node	Micro-B USB
LEDS	
LED Indicator	Status, Error, Tx, Rx, Battery/Signal Level
Power	
Power Input	Access Point: 10 ~ 50 VDC Sensor Node: 3 x AA, 3.6V Lithium Battery or 10 ~ 50 VDC
Battery Life	625bps: 5 years with 10-minute update rate @ 25°C 50kbps: 5 years with 1-minute update rate @ 25°C
Mechanical	
Dimensions (W x L x H)	70 x 102 x 38 mm

Environment	
Operating Temperature	-25 ~ 70°C
Storage Temperature	-40 ~ 85°C
Humidity	5 ~ 95% RH
Approvals	
Certification	CE, FCC, IC, NCC, TELEC
GEO-94210 Access Point	
Data Rate	625 bps, 2.5k bps, 5k bps, 50k bps
Ethernet	RJ-45 (for configuration and data query)
RS-485	Data+, Data- (for query node data)
Messaging Protocol	Modbus/TCP, Modbus/RTU, REST, MQTT
Application Protocol	HTTP, HTTPS, SNTP, DHCP
Transport Protocol	TCP, UDP
Supports RESTful Web API in JSON format	
Supports Web Server in HTML5	
GEO-94210 Sensor Node Models	
GEO-94210-S231	Built-in Temperature & Humidity Sensor
GEO-9S214	4 Analogue Inputs (16 bits resolution Voltage/ Current) 4 Digital Inputs (Dry Contact, 32-bit counter)
GEO-9S250	6 Digital Inputs (Dry Contact) 2 Digital Outputs (Sink type) 1 RS-485 (Modbus/RTU)
GEO-9S251	6 Digital Inputs (Dry Contact, 32-bit counter) 1 RS-485 (Modbus/RTU)

GEO-9UR32 (INDUSTRIAL CELLULAR ROUTER)

FEATURES

- Compact and rugged design
- Global 4G LTE CAT4/3G network with dual SIM cards for backup between multiple carrier networks
- PoE is optional; Wi-Fi/GPS (alternative)
- Support rich protocols like SNMP, Modbus bridging, RIP, OSPF
- 1 digital input and 1 digital output
- OpenVPN/IPsec/PPTP/L2TP/DMVPN/GRE

INTRODUCTION

GEO-9UR32 is a cost-effective industrial cellular router with embedded intelligent features that are designed for multifarious M2M/IoT applications. Global WCDMA and 4G LTE carrier supported make this drop-in connectivity a great help for operators in maximizing uptime.
Integrating embedded cellular modem and dual SIM function, the GEO-9UR32 provides 3G/4G cellular network with 150 Mbps download and 50 Mbps uplink, it also has 2 fast Ethernet ports and supports Wi-Fi that compliance with 802.11b/g/n standard. All these capabilities deliver users an uninterrupted internet access.

SYSTEM SPECIFICATIONS

Cellular Interface	
Antenna Connector	2 × 50 Ω SMA Connectors (Center PIN: SMA Female)
SIM Slots	2 (Mini SIM-2FF)
Ethernet Interface	
Numbers	2 × 10/100 Mbps
Property	1 × WAN + 1 × LAN or 2 × LAN
Mode	Full or half duplex (Auto-Sensing
PoE	2 × 802.3 af/at PoE PSE on LAN Ports (Optional)
Wi-Fi Interface (Optional)	
Antenna Connector	1 × 50 Ω SMA Connector (Center PIN: RP-SMA Female)
Standards	IEEE 802.11 b/g/n, 2.4GHz
Tx Power	802.11b: 16 dBm ±1.5 dBm (11 Mbps) 802.11g: 14 dBm ±1.5 dBm (54 Mbps) 802.11n: 13 dBm ±1.5 dBm (65 Mbps)
Modes	AP or Client mode
Security	WPA/WPA2 authentication, WEP/TKIP/AES encryption
GPS (Optional)	
Antenna Connector	1 × 50 Ω SMA Connector (Center PIN: SMA Female)
Sensitivity	167dBm@Tracking, -149dBm@Acquisition, -161dBm@Re-acquisition
Position Accuracy	<2.5m CEP
Protocol	NMEA0183, PMTK
Serial Interface	
Numbers	1 × RS232 (RS485 Optional)
DI/DO	
Numbers	1 × DI (dry contact) + 1 × DO (wet contact), galvanic isolation
Maximum V/A	0.3A@30VDC (DO)
Others	
Reset Button	1 × RESET
LED Indicators	1 × POWER, 1 × SYSTEM, 1 × SIM, 3 × Signal strength
Built-in	Watchdog, Timer
Software	
Network Protocols	PPP, PPPoE, SNMP v1/v2c/v3, TCP, UDP, DHCP, RIPv1/v2, OSPF, DDNS, VRRP, HTTP, HTTPS, DNS, ARP, QOS, SNTP, Telnet, VLAN, SSH, etc.
VPN	DMVPN, IPsec, OpenVPN, PPTP, L2TP, GRE
Security	Access Control, DMZ, Port Mapping, MAC Binding, SPI Firewalls, DoS&DDoS Protection, Filtering (IP&Domain), IP Passthrough
Management	Web, CLI, SMS, On-demand dial up, SNMP v1/v2/v3, DeviceHub
AAA	Radius, Tacacs+, LDAP, Local Authentication
Multilevel Authority	Multiple Levels of User Authority
Reliability	VRRP, WAN Failover, Dual SIM Backup
Serial Port	Transparent (TCP Client/Server, UDP), Modbus Master/Slave, Modbus Gateway (Modbus RTU to Modbus TCP)
Power	
Protection	Surge-Protection and Reverse Polarity Protection
Input Voltage Range	9 VDC to 48 VDC
Power Consumption	Typical 1.9 W, Max 2.4 W (In Non-PoE mode)
Mechanical	
Ingress Protection	IP30
Dimensions (W x L x H)	108 mm x 90 mm x 26 mm
Environment	
Operating Temperature	-40°C to +70°C
Storage Temperature	-40°C to +85°C
Humidity	0 to 95% RH Non-condensing at 25°C
Approvals	
Regulatory	CE, FCC, RCM, NBTC
EMC	EN 55032, EN 55035
EMS	IEC 61000-4-2/3/4/5/6 Level 3 IEC 61000-4-8 Level 8
Radio Frequency	EN 301 489-1/17/19/52, EN 301 511, EN 301 908-1/2/13, EN 303 413, EN 300 328
Safety	EN 60950-1

GEO-9RV50X (INDUSTRIAL CELLULAR ROUTER)

FEATURES

- Compact
- Rugged
- Low Power LTE-A
- Configurable I/O pin on power connector

INTRODUCTION

The GEO-9RV50X is the industry's lowest power LTE gateway. Simple to install and easy to manage, the RV50X industrial gateway is designed to connect critical assets and infrastructure. Ideal for industrial-grade applications in energy, utilities and smart-city infrastructure, the GEO-9RV50X provides real-time remote connectivity for SCADA, distribution management systems and metering.

SYSTEM SPECIFICATIONS

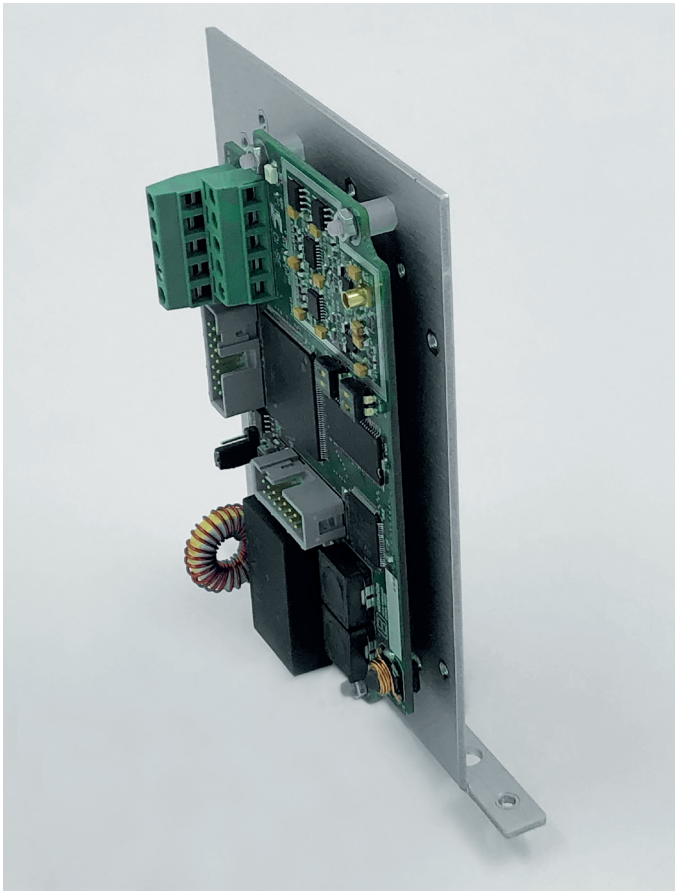
Interfaces	
Host Interfaces	10/100/1000 Ethernet (RJ45) RS-232 serial port (DB-9) USB 2.0 Micro-B Connector 3 SMA antenna connectors (primary, diversity, GPS) Active GPS antenna support
Input/Output	Configurable I/O pin on power connector •Digital Input ON Voltage: 2.7 to 36 VDC •Configurable Pull-up for dry contact input •Digital Open Collector Output > sinking 500 mA •Analogue Input: 0.5-36 VDC
LAN (Ethernet/USB)	DNS, DNS Proxy DHCP Server IP Passthrough VLAN Host Interface Watchdog PPPoE
Serial	TCP/UDP PAD Mode Modbus (ASCII, RTU, Variable) PPP DNP3 Interoperability
Satellite Navigation (GNSS)	12 Channel GPS and GLONASS Receiver Accuracy: <2 m (50%), <5 m (90%) Reports: NMEA 0183 V3.0, TAIP, RAP, XORA
Network	
Network And Routing	Network Address Translation (NAT) Port Forwarding Host Port Routing NEMO/DMNR VRRP Reliable Static Route Dynamic DNS Policy Routing Verizon ANTM IPv6 Gateway
VPN	IPsec, GRE, and OpenVPN Client Up to 5 concurrent tunnels Split Tunnel Dead Peer Detection (DPD) Multiple Subnets
Security	Remote Authentication (LDAP, RADIUS, TACACS+) DMZ Inbound and Outbound Port filtering Inbound and Outbound Trusted IP MAC Address Filtering PCI compatible
Mechanical	
Dimensions	119 mm x 34 mm x 85 mm (94 mm including connectors)
Power & Protections	
Input Voltage	7 to 36 VDC
LTE Idle Power	900mW (75 mA @ 12VDC) Configurable features and ports to optimize power consumption
Standby Mode Power	53 mW (4.4 mA @ 12 VDC) triggered on low voltage, I/O or periodic timer
Protections	Low voltage disconnect to prevent battery drain Built-in protection against voltage transients including 5 VDC engine cranking and +200 VDC load dump Ignition Sense with time delay shutdown
Environment	
Operating Temperature	-40°C to +70°C
Storage Temperature	-40°C to +85°C
Humidity	90% RH @ 60°C
Certifications	
Safety	IECEE Certification Bodies Scheme (CB Scheme), UL 60950
Vehicle Usage	E-Mark (UN ECE Regulation 10.04), ISO7637-2, SAE J1455 (Shock & Vibration)
Hazardous	Class 1 Div 2
Environmental	RoHS, REACH, WEEE

MODULES FOR ADDITIONAL SENSING ELEMENTS

NOISE MAPPER-NP

FEATURES

- Environmental Noise
- Noise Pollution
- IEC 61672
- Noise Levels
- Percentile levels



INTRODUCTION

The Noise Mapper has been designed to monitor the environmental noise or noise pollution produced by road traffic in cities and roads, airplanes and railway traffic, or noise produced in construction sites.
The Noise Mapper collects environmental noise through an outdoor microphone. These noise data is processed by the sound level analyzer (Noise Mapper-NP) to determine the noise levels, which are sent to the model METEODATA/HYDRODATA-4000 to be recorded and transmitted.

SYSTEM SPECIFICATIONS

Communication with METEODATA/HYDRODATA-4000 Series	
Interface	RS-232/RS-485
Protocol	Proprietary protocol
Watchdog	Yes
Measurements	
Measurement Range	30 to 140 dBA
Frequency Range	10 Hz to 20 KHz
Levels supplied	LAF, LAS, LAF max, LAS max, LAPeak, LAeq, LA10, LA50, LA90 LCF, LCS, LCF max, LCS max, LCPeak, LCeq, LC10, LC50, LC90
Power	
Input Voltage	12 VDC
Power Consumption	320 mA@12VDC (microphone + NP)
Mechanical	
Dimensions (W x L x H)	115 mm x 72 mm x 25 mm
Environment	
Operating Temperature	-40 to +60°C
Storage Temperature	-40 to +60°C
Standard Compliance	
Electroacoustics	IEC 61672

REVISION	EDITED	REVIEWED	DATE	AFFECTED SECTIONS	VERSIONS
2	P.V.	L.L.	29/09/2021	New features	Not applicable

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