

## Remote SmartMux

Modular multiplexer that allows the management of multiple sensors as part of a remote or automatic data acquisition system. An easy-to-use digital alternative to the traditional vibrating wire rotary switch terminal box



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## Overview



The Geosense Remote SmartMux is a modular multiplexer that allows the management of multiple sensors as part of a remote or automatic data acquisition system. It is an easy-to-use digital alternative to the traditional vibrating wire rotary switch terminal box.

Sensor connection is simple thanks to plug-in connectors. Sensor channels can be easily viewed and selected via the SmartMux Interface which replaces time-consuming rotary switches and readout. It is connected into one central location with subsequent connection to a data logger via one multi-core cable. The cost of cabling and installation is therefore significantly reduced.

Available either as an analogue or digital version, it is capable of being used with a wide range of sensor outputs including VW, V, mV/V, 4-20mA, Pt100, NTC and RS485. Models are available as 4, 8, 12, and 16 channel and can be configured either as 2 pole (2 wires) or 4 pole (4/3 wires) or any combination of each.

Example: 16 channel can have 32 x VW or 16 x VW + Temp or any combination.

The Remote SmartMux is powered from the G8 logger module for cable lengths up to 1000 metres. For lengths greater than this an additional power source will be required within the Remote SmartMux, which can be battery or solar powered.

The amount of multiplexers required will depend on the number of sensors within each location.

## APPLICATIONS

Joining multiple sensors to a single multicore cable and connection to datalogger

Providing central location for manual readings and troubleshooting

## FEATURES

Manual readings available

Can be integrated into automatic systems

Intelligent on-board A2D processing

Vibrating wire inputs

Analogue inputs

Digital inputs & outputs

Can be connected together

Detachable screw terminals

Simple wiring process

Built-in transient protection

Robust steel box

Waterproof to IP66 rated

In-built lightning protection (TVS)

Up to 96 sensors can be connected



# Remote SmartMux

## Specifications

### M16 FOR ANALOGUE SENSORS WITH CABLE SIZE 4-7MM

	RSM-A 4-M16	RSM-A 8-M16	RSM-A 12-M16	RSM-A 16-M16	RSM-A 20-M16	RSM-A 24-M16	RSM-A 28-M16	RSM-A 32-M16	RSM-A 36-M16	RSM-A 40-M16	RSM-A 44-M16	RSM-A 48-M16
Channel outputs 4 pole	4	8	12	16	20	24	28	32	36	40	44	48
Sensor glands (M16)	4	8	12	16	20	24	28	32	36	40	44	48
Power glands (M20)	2	2	2	2	2	2	2	2	2	2	2	2
Enclosure width (mm)	300	400	400	500	500	500	500	500	600	600	600	600
Enclosure Height (mm)	300	400	400	500	500	500	500	500	600	600	600	600
Enclosure depth (mm)	200	200	200	200	200	200	200	200	200	200	200	200

### M20 FOR ANALOGUE SENSORS CABLE SIZE 7-13MM

	RSM-A 4-M20	RSM-A 8-M20	RSM-A 12-M20	RSM-A 16-M20	RSM-A 20-M20	RSM-A 24-M20	RSM-A 28-M20	RSM-A 32-M20	RSM-A 36-M20	RSM-A 40-M20	RSM-A 44-M20	RSM-A 48-M20
Channel outputs 4 pole	4	8	12	16	20	24	28	32	36	40	44	48
Sensor glands (M20)	4	8	12	16	20	24	28	32	36	40	44	48
Power glands (M20)	2	2	2	2	2	2	2	2	2	2	2	2
Enclosure width (mm)	300	400	400	500	500	500	500	500	600	600	800	800
Enclosure Height (mm)	300	400	400	500	500	500	500	500	600	600	800	800
Enclosure depth (mm)	200	200	200	200	200	200	200	200	200	200	200	200

### M20 FOR DIGITAL SENSORS CABLE SIZE 7-13MM

	RSM-D 4-M20	RSM-D 8-M20	RSM-D 12-M20	RSM-D 16-M20	RSM-D 20-M20	RSM-D 24-M20	RSM-D 28-M20	RSM-D 32-M20	RSM-D 36-M20	RSM-D 40-M20	RSM-D 44-M20	RSM-D 48-M20
Channel outputs 4 pole	4	8	12	16	20	24	28	32	36	40	44	48
Sensor glands (M20)	4	8	12	16	20	24	28	32	36	40	44	48
Power glands (M20)	2	2	2	2	2	2	2	2	2	2	2	2
Enclosure width (mm)	300	400	400	500	500	500	500	500	600	600	800	800
Enclosure Height (mm)	300	400	400	500	500	500	500	500	600	600	800	800
Enclosure depth (mm)	200	200	200	200	200	200	200	200	200	200	200	200

# Remote SmartMux



## Specifications & Accessories

### ALL MODELS

Supply voltage	+20V, +12V, $\pm 12V$ , +5V
Current	30mA in standby. Zero with RS485 connection
Power source	G8 logger; Internal battery; Solar
Inputs	Analogue (VW, V, mV/V, 4-20mA, Pt100, NTC); Digital (RS485)
Resolution	24 Bit V, mV/V, 4-20mA, Pt100, NTC 0.1Hz
Communication	RS485, Dust network
Operating temperature	-20 to + 70°C
Protection	IP66

### ACCESSORIES

#### RS-485 RANGE EXTENDER

Where the cable length between a Remote SmartMux and a G8 Plus logger exceeds 1200m, the range extender can be used. (Pic 1)

#### RADIO MODULE

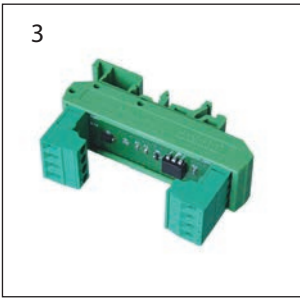
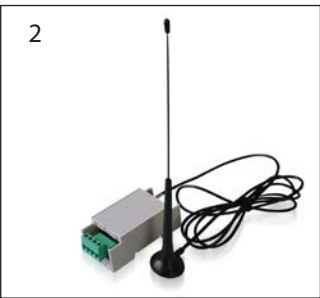
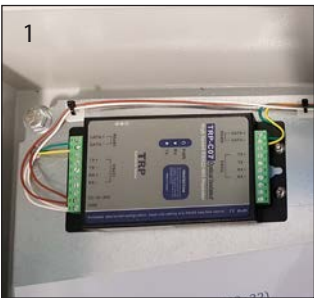
2.4MHz wireless RS-485 to mesh radio Bridge can be used to link Remote SmartMuxes together and then to the G8 Plus. (Pic 2)

#### BATTERY SAVING DEVICE

Used in battery-only powered systems on long cable lengths to extend battery life. (Pic 3)

#### SOLAR KIT

Can be used to independently power the Remote SmartMux. (Pic 4)



# Remote SmartMux

## System Design

### STAGE 1

A series of sensors are wired into the Remote SmartMux, which acts as a temporary data acquisition station. Readings can be taken easily using the SmartMux interface.

### STAGE 2

Further Remote SmartMuxes can be added and linked by a 4-core cable to create a digital RS485 BUS system. Readings can then be taken from any point along the linked system, making monitoring easier and more efficient.

### STAGE 3

All Remote SmartMuxes are then connected to a GeoLogger G8-Plus, which powers and controls the entire system. Configuration, including sampling interval, timing and data transfer can now all be centrally controlled.

### CABLE LENGTHS

Power is provided to the SmartMux from the G8 module. If lengths are greater than the maximum shown below, repeaters will be required.

Possible Cable length (L) between the Remote SmartMux & GeoLogger G8-Plus are:

- Up to 500 metres 0.34mm<sup>2</sup>
- 500 to 1300 metres 0.5mm<sup>2</sup>

$L1 + L2 + L3 + L4 + L5 + L6$  cannot exceed the maximum distances as above .

The distance for digital sensors can be extended using repeaters and auxiliary power, see diagram, left.

### ORDERING INFORMATION

Number of SmartMuxes

Number of Channels per SmartMux

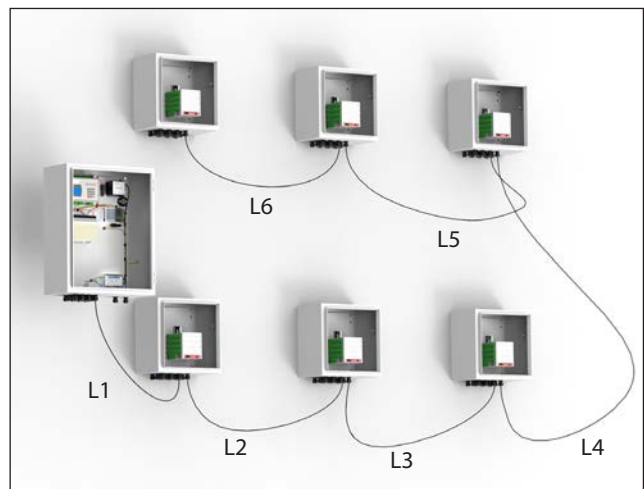
Cable Length

Readout

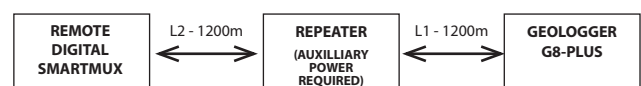
Datalogger



A Remote SmartMux connected to the Smart Mux Interface (SMI)



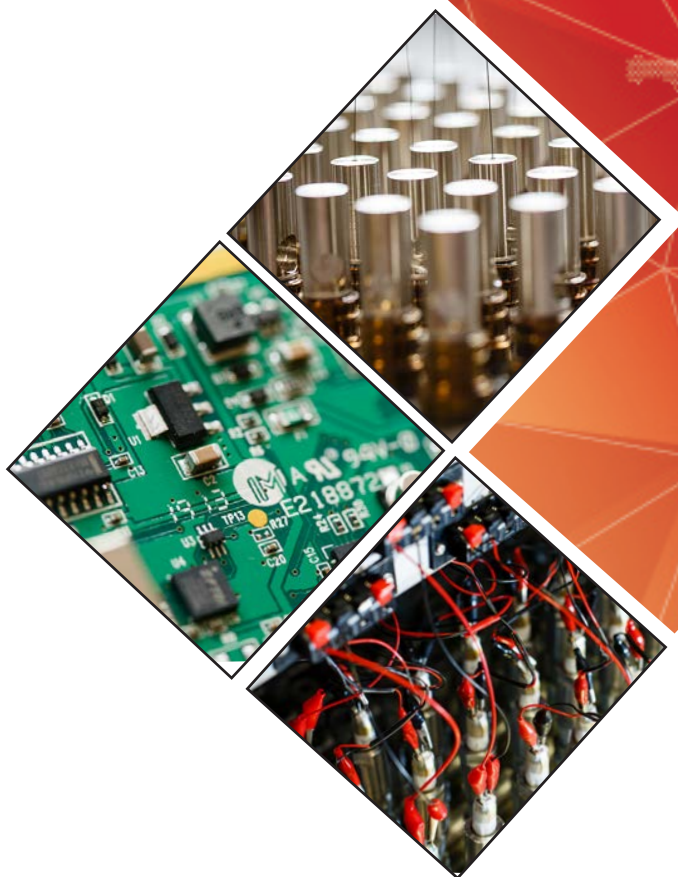
Remote SmartMuxes connected to the GeoLogger G8-Plus by a digital RS485 BUS system



### CABLE TYPE

Type 800 - Multi-core





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