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Mega_Link 2

Secure AES-256 Encrypted
Telemetry Communication System



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Overview

Mega_Link 2 is a versatile and secure telemetry communication system for passing two-way instrumentation, measurement and control data between industrial plant and equipment distributed over wide geographical areas and remote locations. Using a variety of communications media, including: de-regulated unlicensed UHF low power radio or the national mobile networks and it removes the dependency for cables. It builds upon the success of the previous generation of the Mega_Link family with a proven track record and installed base within major utility companies over the past 10 years.

Mega_Link 2 offers secure telemetry transmission with all messages encrypted using the **AES-256** data encryption standard in response to the UK implementing the NIS Directive through the Network and Information Systems Regulations (2018). The NIS Regulations apply to operators of essential services and Relevant Digital Service Providers (RDSPs). It offers cost effective, secure, robust and dependable performance, making it the ideal solution for your telemetry and control applications.

COM Ports

- ***COM1 and COM2*** can be fitted with a combination of the following communication interface modules:
  - 458 MHz unlicensed UHF low power radio
  - 4G LTE Cat-1 modem
- ***COM3*** is a serial RS232 or RS485 interface:
  - Fieldbus interface to PLC/SCADA systems using Modbus RTU (master or slave)
  - Communications interface for external modem (e.g. ADSL, SoGEA FTTP, Satellite etc.)
- ***COM4*** is 10/100M Ethernet for IP communications;
  - LAN/WAN TCP/IP local
- ***COM6*** is USB Device interface for configuration and diagnostics using DCD2 software

Security Features

- **AES-256** Encryption for all communication modes

Telemetry Interfaces

- I/O interfaces are compatible with a wide range of digital & analogue instruments and equipment such as volt-free contacts, depth transducers, flow meters and electrical switchgear:
  - 8 Digital Inputs (volt-free contact)
  - 8 Digital Outputs (relay contact)
  - 2 Analogue Inputs (fully isolated, 0...20mA), with a regulated 12Vdc transducer supply
  - 2 Analogue Outputs (0...20mA)
- I/O interfaces are expandable to add a further 256 physical inputs and outputs for larger system applications, using a range of expansion modules
- Power supply options:
  - 12Vdc
  - 24Vdc
  - 110/240Vac mains (with battery backup)
- DIN rail mounted for fitment in existing equipment racks or Churchill Controls can supply ***Mega_Link 2*** along with expansion modules ready built into a range of standard IP67 enclosures for quick and easy installation

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Advanced Features

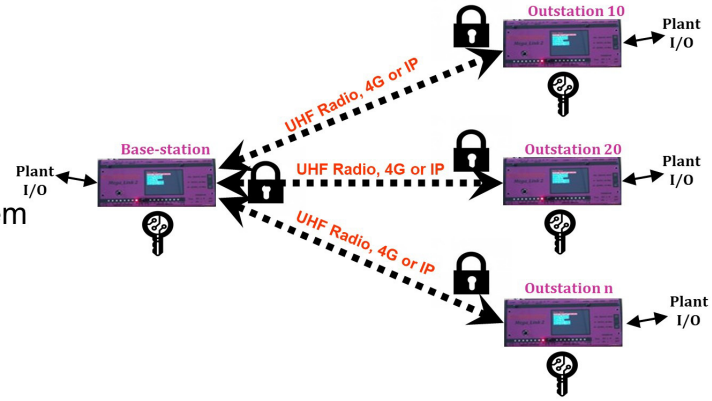
- **AES-256** cryptographic encryption for all messages
- Space for 2nd interface module to give Dual Comms operation for applications requiring extra resilience
- RS232/RS485 port for interface to PLC and SCADA equipment using Modbus RTU serial protocol
    - Modbus TCP/IP via a gateway convertor
- Digital and analogue exception reporting for alerting change of conditions past pre-determined thresholds
- Outstations can also be configured to operate in a repeater mode to relay two-way radio communications over extended distances and overcome otherwise challenging geographical features and locations
- Versatile and user configurable; communications failure, battery condition and RSSI monitoring functions
- Built-in colour LCD display and joystick user interface for easy monitoring of status and operation
- USB programming port for connection to Windows based PC running our DCD2 software for setting up system configurations, data routing tables, detailed status monitoring and diagnostics etc.

Application Examples

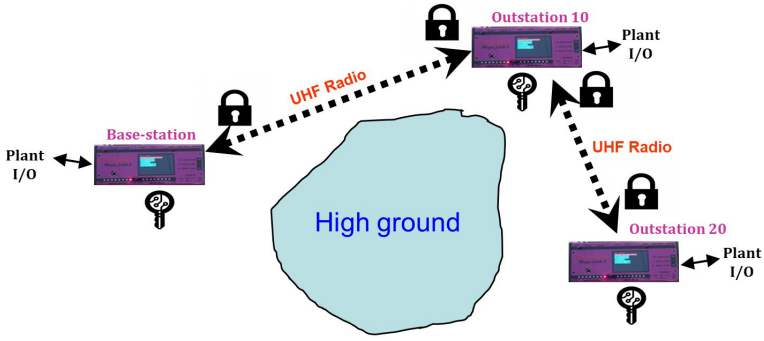
- Basestation and Outstation system



- Basestation and Multiple Outstation system



- Basestation and Outstation via Repeater Outstation system



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Product Options and Ordering Information

Mega_Link 2 can be ordered with a variety of power supply options and types of communication interface modules fitted in one or both of the COM1 and COM2 ports.

Single Comms

Mode	**Primary**
458 MHz Radio	COM1 (RC458)
4G LTE Cat-1	COM1 (4G Sierra)
RS232/RS485	COM3A (RS232/RS485)
Ethernet TCP/IP	COM4 (Ethernet)

Dual Comms

Mode	**Primary**	**Secondary**
458 MHz Radio + 458 MHz Radio	COM1 (RC458)	COM2 (RC458)
4G LTE Cat-1 + 458 MHz Radio	COM1 (4G Sierra)	COM2 (RC458)
458 MHz Radio + RS232/RS485	COM1 (RC458)	COM3A (RS232/RS485)
458 MHz Radio + Ethernet TCP/IP	COM1 (RC458)	COM4 (Ethernet)

Mega_Link 2 **Expansion Modules and Accessories:**

16-channel Digital Input Expansion Module	7850-1
16-channel Digital Output Expansion Module	7850-2
8-channel Analogue Input Expansion Module	7860-1
4-channel Analogue Output Expansion Module	7870-1
Aerials	Various, depending on application
Aerial downlead cable	Per metre
Aerial mounting poles, brackets and hardware	Various, depending on application
Surge and lightning protection units	Mains power, aerial and leased line

Associated Support Services:

Radio path site survey	Price on application
Commissioning support	Price on application
Service visits, repairs and training	Price on application

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Specifications

Mechanical:	Size 150w x 125h x 110d, DIN rail mounting
Power Supply:	12Vdc: 6…15Vdc, 24W max 24Vdc: 20…30Vdc, 30W max Mains: 100…250Vac, 50VA max (including 15WH battery back-up)
Electrical Connections:	Pluggable 2.5mm² screw terminals
Digital Inputs:	Two groups of 4, each from volt-free contact to common 0V return
Digital Outputs:	Two groups of 4 volt-free relay contacts, each to common return, rated 120Vac/0.3A, 24Vdc/1A
Analogue Inputs:	Two fully isolated inputs calibrated 0…20mA into 10Ω, 0.025% resolution, 0.1% accuracy. Regulated 12Vdc output for transducer excitement
Analogue Outputs:	Two outputs with common +12Vdc return, calibrated 0…20mA into 500Ω max, 0.025% resolution, 0.1% accuracy
COM1, COM2:	De-regulated radio: UHF 458MHz, 500mW, up to 15km, depending on topography and aerial system 4G LTE Cat-1 cellular radio modem (Quad band)
COM3:	Configurable for RS232 or RS485 for fieldbus or external modem
COM4:	10/100M Ethernet for IP communications
COM6:	Micro-USB Device interface for configuration & diagnostics using DCD2 software
Display:	320 x 240 colour TFT with adjacent joystick
System Capabilities:	No of outstations: 249 max per base-station No of repeaters: 8 max on any path
Fieldbus Protocol:	Modbus RTU (Master or Slave)
Technical:	Processor: 32-bit ARM Cortex-M4 Clock Speed: 120 MHz CPU Memory: 2-MB Code Flash, 64-KB Data Flash, 640-KB SRAM Additional Memory: 512-Kbit EEPROM on SPI, 512-Kbit EEPROM on I²C

I/O Expansion Modules:	Module size:	57w x 125h x 110d, DIN rail mounting
	Max number:	32
	Digital Input:	16 inputs, designed to interface from volt-free contacts.
	Digital Output:	16 outputs, volt-free relay contacts rated at 125Vac/1A, 60Vdc/1A.
	Analogue Input:	8 fully isolated inputs calibrated 0…20mA into 10Ω, 0.025% resolution, 0.1% accuracy
	Analogue Output:	4, fully isolated outputs calibrated 0…20mA into 500Ω max, 0.025% resolution, 0.1% accuracy

- We also supply a full range of aerials, downlead cables, masts, poles and all associated mounting hardware
- Please contact Churchill Controls for a radio path survey service and advice during selection of aerial configurations for your application and installation sites

Contact Us

Churchill Controls have a group of Agents and Distributors covering the whole of UK & Ireland; for further information and downloads, please visit our website or contact sales for any enquiries.

http://www.churchill-controls.co.uk/

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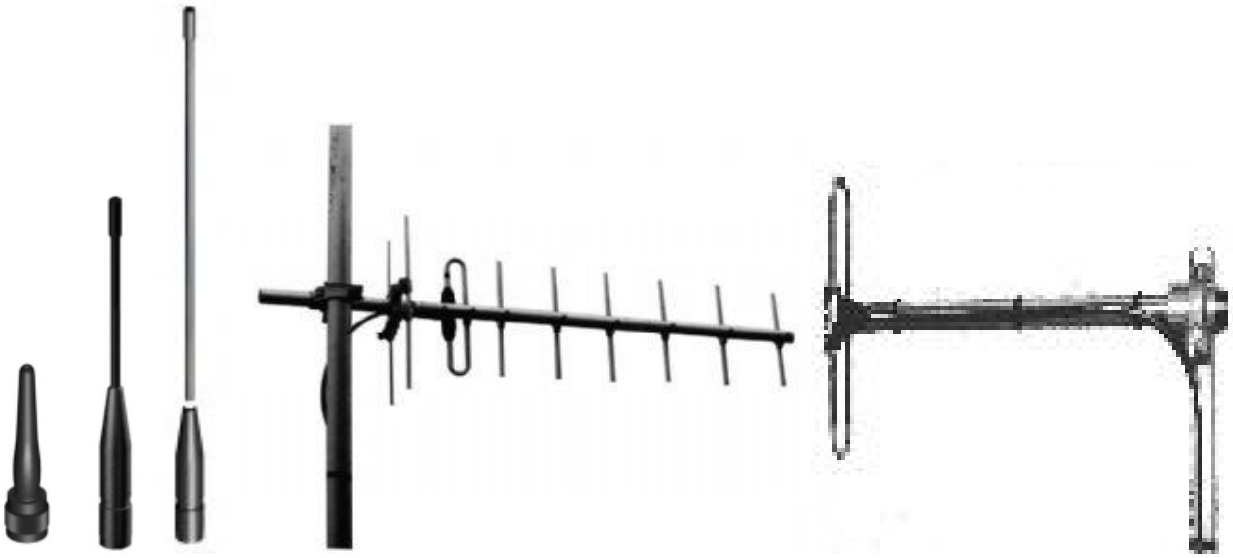
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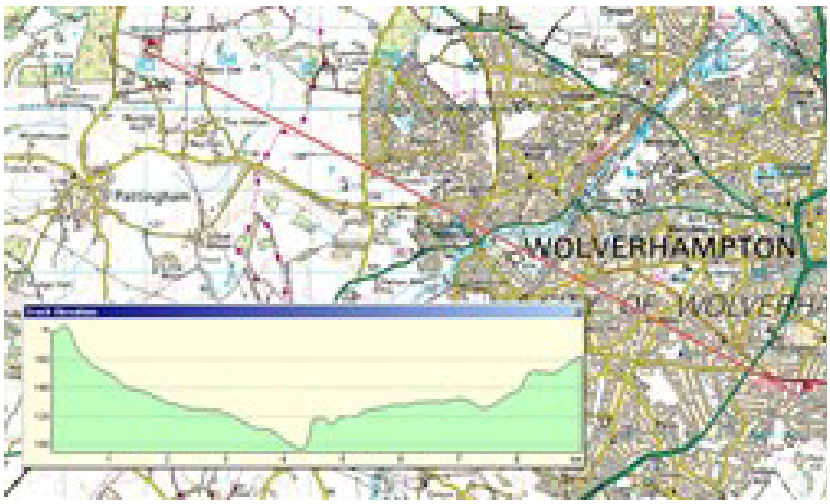












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