User Guide

MS-63U1C

USB-C Extender Set - up to 50m. USB 3.2 Gen1 PoC,
RS-232 pass through



Revision: 1.0 - Aug 2024

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Notices

- This MSolutions product contains electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection is highly recommended in order to protect and extend the life of your equipment.
- The transmission distances of data over Cat cables are measured using TE CONNECTIVITY 1427071-6 EIA/ TIA-568B termination (T568B) of cables is recommended for optimal performance. To minimise interference of unshielded twisted pairs in the Cat6A (or above) cable, do not run the Cat6A (or above) cabling with or in close parallel proximity to mains power cables.
- Do not substitute or use any other power supply other than the enclosed unit, or an MSolutions approved replacement. Do not disassemble either the Transmitter or Receiver units for any reason. Doing so will void the manufacturer's warranty.
- MSolutions reserves the right to change the specifications of this unit without prior notice. As a result of this, physical representations or graphical elements contained within this user guide may not be accurate.

Introduction

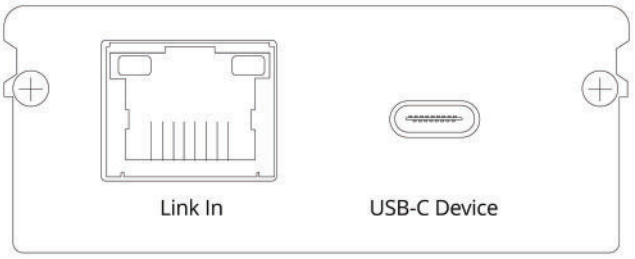
The MSolutions MS-63U1C is a USB 3.2 Gen 1 USB-C extender allowing for a single USB-C data channel to be extended to distances of up to 50m over a single Cat6A (or above) infrastructure.

The extender features RS-232 serial pass-through and bi-directional 12V PoC (Power over Cable) expand the capabilities of this extender kit for a variety of commercial uses..

Key Features

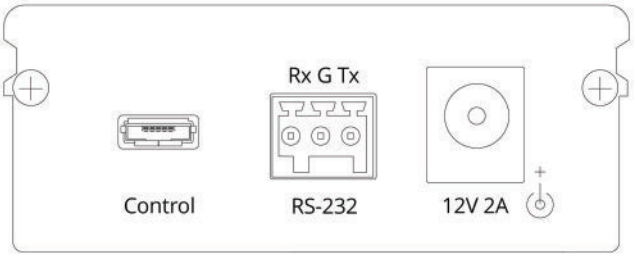
- Uncompressed USB 3.2 Gen 1 extension of USB data up to 50m over single Cat6A (or above)
- 1x USB-C channel for up to 5Gbps data connectivity of USB-C devices across the links
- Flexible USB extension for: USB-C PTZ cameras, hard drives, laptops and other USB-C peripherals
- Bi-directional RS-232 serial pass through
- Bi-directional 12V PoC (Power over Cable)
- Hardware acceleration for isochronous and bulk transfer

Connectivity Overview - Device



Front panel:

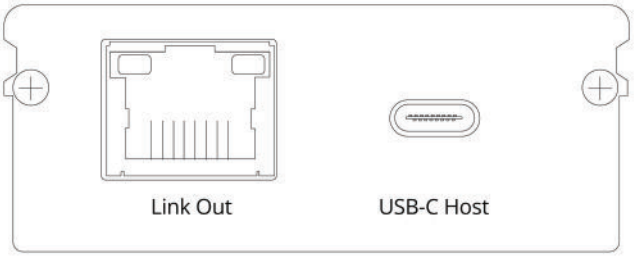
- Cat6A (or above) Link - connect to Cat cable from receiver
- USB-C - connect USB-C peripheral



Back panel:

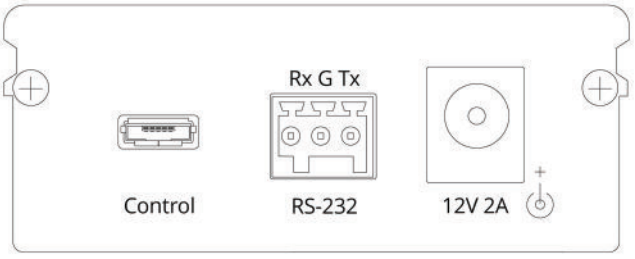
- Control - Micro USB for firmware and control (reserved for future use)
- RS-232 - use supplied 3-pin phoenix connector to connect to serial device
- Power - connect to 12V/2A DC power supply

Connectivity Overview - Host



Front panel:

- Cat6A (or above) Link - connect to Cat cable from device
- USB-C - connect USB-C host



Back panel:

- Control - Micro USB for firmware and control (reserved for future use)
- RS-232 - use supplied 3-pin phoenix connector to connect to serial device
- Power - connect to 12V/2A DC power supply

Understanding the LED's

This MSolutions extender set includes status LED indicators on both the Host and Device products to show active connections and to further help integrators diagnose potential problems with the associated cabling.

The RJ45 Link connections on both the host and device units have orange and green LED's.

- The orange LED indicates that the unit is receiving power. The LED will blink continuously when there is a link to the unit on the opposing side of the cable.
- The green LED indicates that the unit is communicating with the unit attached to the far side of the link over the Cat cable.

Category Cabling for Extenders

It is important that the interconnecting category cable between the MSolutions products is terminated using the correct RJ45 pin configuration. The link category cable must be a 'straight' (pin-to-pin) category cable and it is advised that this is wired to the T568B wiring standard as this format is less prone to EMI (Electro-Magnetic Interference).

When installing category cables it is advised that the best possible category cable quality possible is used. MSolutions recommends using a Cat6A (or above) cable for installations, especially when running over longer distances, in areas of high EMI, or with high data rate signal distribution.

USB

This USB 3.2 extender allows for USB-C peripherals including cameras, touch screens, smart boards, hard drives, games controllers, USB audio devices, printers, scanners, and HID's (mouse or keyboard) to be distributed over a distance of up to 100m to a USB-C host device on the far side of the link.

The extender supports transparent true plug and play USB pass-through without the requirement of software or driver son the extender kit.

A maximum combined data transfer of 5Gbps can be achieved over the link.

The Micro-USB connections on both Host and Device units are utilised for firmware updating and are reserved for future CloudOS control.

Note: the USB-C connectivity does not support high-bandwidth video data from a laptop / tablet to a display due to the limitation of available bandwidth.

RS-232 Control

The MS-63U1C can distribute bi-directional serial commands between the transmitter and receiver to allow for control commands to be sent alongside USB.

Each unit is fitted with a 3-pin phoenix connector block that will need the serial TX, RX and Ground pins terminating into for serial pass-through. The link has the ability to transparently send any type of serial data as both pieces of equipment are able to communicate using the same baud rate, stop-gap, and parity.

Power

The MS-63U1C uses bi-directional PoC (Power over Cable) to provide power from either the Host or Device unit to the far side of the link over the Cat6A (or above) cable. Please only use the supplied 12V/2A DC PSU supplied with the MSolutions MS-63U1C to power the unit.

Specifications

Device

- USB-C connectivity: 1 x USB-C (female peripheral
- USB control: 1 x Micro USB (female)
- RS-232 connectivity: 1 x 3-pin phoenix connector, block included
- Power supply (PoC): 1x 12V/2A DC
- Individual unit dimensions (W x D x H): 60 x 84 x 25mm
- Individual unit weight: 0.2kg
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)
- Operating humidity: 0-80% non condensing

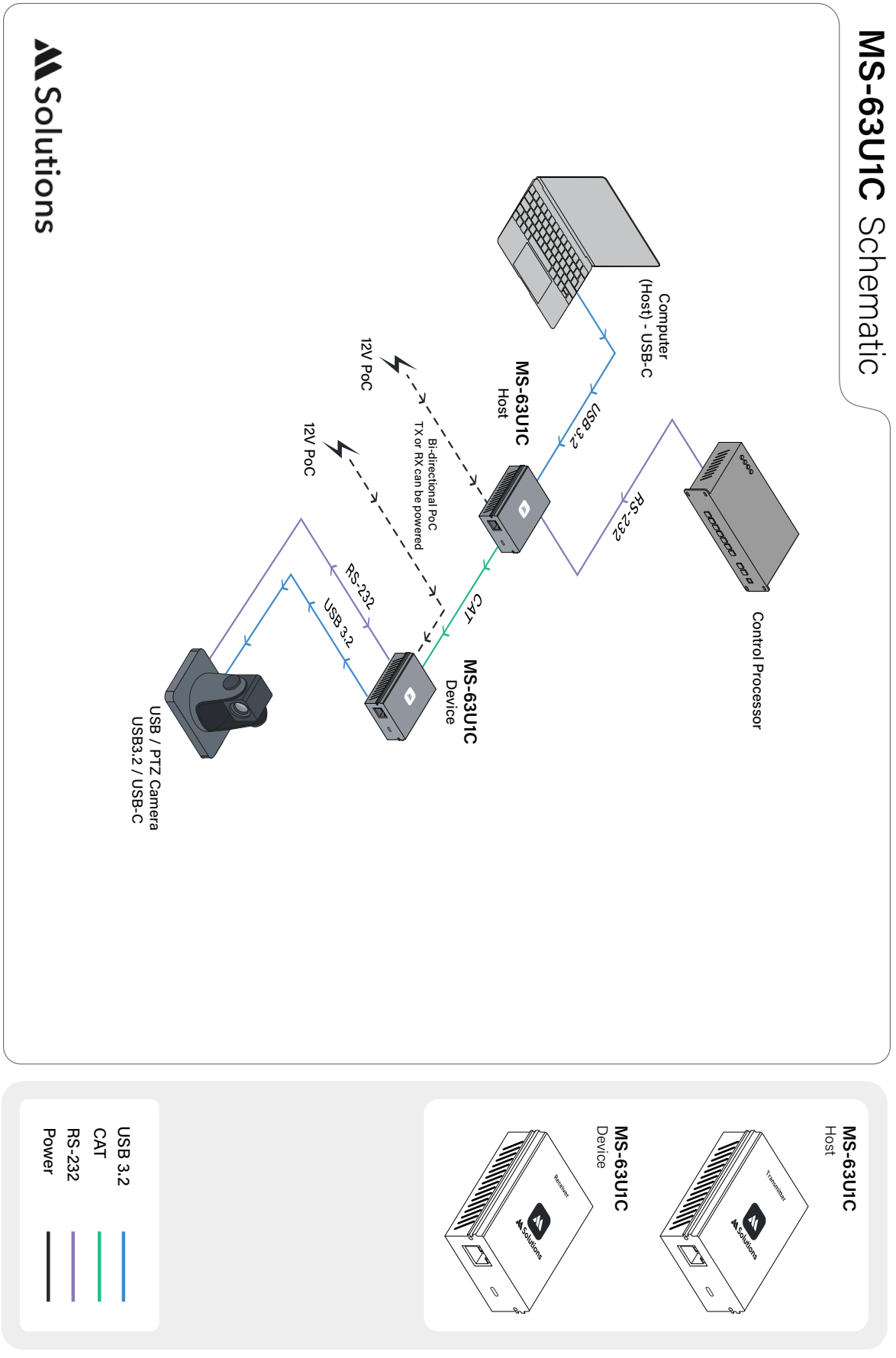
Host

- USB-C connectivity: 1 x USB-C (female) - host
- USB control: 1 x Micro USB (female)
- RS-232 connectivity: 1x 3-pin phoenix connector, block included
- Power supply (PoC): 1x 12V/2A DC
- Individual unit dimensions (W x D x H): 60 x 84 x 25mm
- Individual unit weight: 0.2kg
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)
- Operating humidity: 0-80% non condensing

Package Contents

- 1x MS-63U1C Host
- 1x MS-63U1C Device
- 1 x 12V / 2A DC power supply with US, UK, and EU clips
- 1 x USB-C (male) to USB-A (female) cable
- 2 x 3-pin phoenix connector blocks
- 2 x Surface mounting brackets

Schematic


MS-63U1C Schematic
Solutions
Computer (Host) - USB-C
MS-63U1C Host
12V PoC
Bi-directional PoC
TX or RX can be powered
12V PoC
USB 3.2
RS-232
CAT
RS-232
USB 3.2
Control Processor
MS-63U1C Device
USB / PTZ Camera
USB3.2 / USB-C
MS-63U1C Host
MS-63U1C Device
USB 3.2
CAT
RS-232
Power



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