



TRANSMISSION SOLUTIONS SPECIALISTS

# Installation and Operation Manual

## ET1100C Series



## Ethernet Extender Series

Microtype10/100BASE-TX Ethernet Extender over Coaxial Cable

## Models covered in this manual

### Transmitter

ET1100C-T-MT

### Receiver

ET1100C-R-MT

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## (1) Safety Instructions

**Please be familiar with all information in this manual prior to installation and operation.**

**Note 1:** This assembly contains parts sensitive to damage by electrostatic discharge (ESD). ESD precautionary procedures should be applied in the course of touching, removing or inserting parts or assemblies.

## (2) Product Overview

### 2.1 Introduction

OT Systems offers the perfect point-to-point solution to connect Ethernet technology to existing coaxial installations. Designed to work in pairs, the ET1100C series offers upstream (receiver to transmitter) connectivity for 300 meters up to 3 Mbps; downstream (transmitter to receiver) connectivity for 300 meters up to 20 Mbps using single coaxial cables. This simple, plug-and-play system and offers the OT Systems' design reliability. The ET1100C series is a perfect solution for corporate campuses, industrial settings or any application where aging infrastructure must be integrated with newer facilities and upgraded systems.

### 2.2 Products Highlights

#### Basic Features

- One Ethernet port (RJ-45 connector): 10/100Mbps-Full/Half-duplex, Auto-MDI/MDIX, Auto-negotiation.
- One Ethernet Extender port (BNC connector): communications link over existing coaxial cable.
- Complies with IEEE802.3 10Base-T and IEEE802.3u 100Base-TX standards.
- Provides F-Type BNC connector.
- Operates transparent to higher layer protocols.
- External DC power adapter.
- Operating voltage and Max. Current consumption: 0.2A @ 12VDC.  
Power consumption: 2.4W Max.  
-10°C to 60°C (14°F to 140°F) operating temperature range.
- Microtype design - fits within most camera housings
- Plug-and-Play
- Aluminum case.
- Supports Wall-Mounting installation; Optional DIN-Rail mounting kit.

## (3) Installation

### 3.1 General

All OT Systems products are thoroughly inspected, tested and securely packaged before delivery to ensure a stable, intact and trouble-free service. Please check the equipment upon receipt for any visible damage which may have been caused during shipping.

### 3.2 Package Contents

When you unpack the product package, you shall find the items listed below. Please inspect the contents, and report any apparent damage or missing items immediately to your authorized reseller.

- ✓ Ethernet Extender
- ✓ Quick Installation Guide
- ✓ Wall-mounting kit or DIN-rail mounting

The ET1100C Series (Fig. 3.1) can be either horizontally or vertically wall-mounted, or mounted on any fixture, etc. It works with an external 12VDC power supply which can be purchased separately.



Fig. 3.1 ET1100C

### 3.3 Selecting a site for the Ethernet Extender

As with any electric device, you should place the equipment where it will not be subjected to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site you select should meet the following requirements:

- The ambient temperature should be between -10 to 60 degrees Celsius.
- The relative humidity should be less than 95 percent, non-condensing.
- Surrounding electrical devices should not exceed the electromagnetic field (RFC) standards.
- Make sure that the equipment receives adequate ventilation. Do not block the ventilation holes on each side of the equipment.
- The power outlet should be within 1.8 meters of the product.

### 3.4 Installation

This chapter gives step-by-step instructions about how to install the Ethernet Extender:

The Microtype works with the provided external power supply (12VDC) powered by local 110/220V power.

- a) Mount the clip (Fig. 3.2) onto a fixture, e.g. a plank, (either on the wall or on a flat surface) with two screws through the holes on the mounting frame to secure it in position.

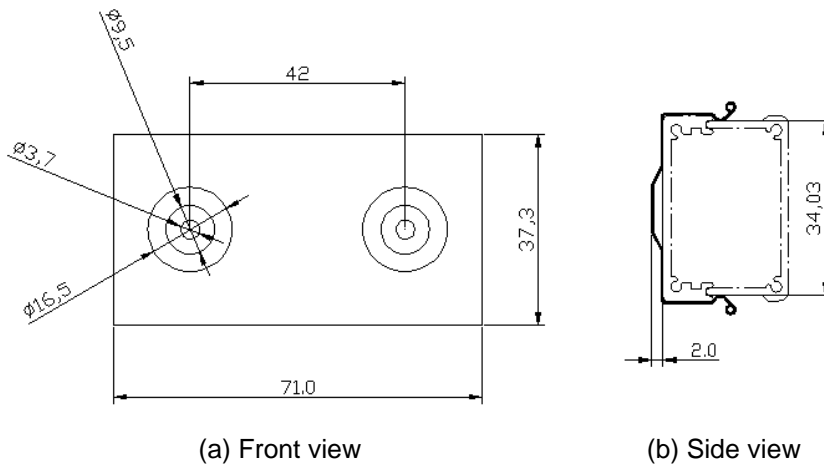


Fig. 3.2 Micro unit's clip

- b) The provided power supply should also be mounted on the same fixture or in the proximity for connection of the supply cables to the unit, provided that an AC power supply socket is nearby for powering the adaptor.
- c) Push the Micro unit into the clip to secure it in position. For details, please follow Fig. 3.3.

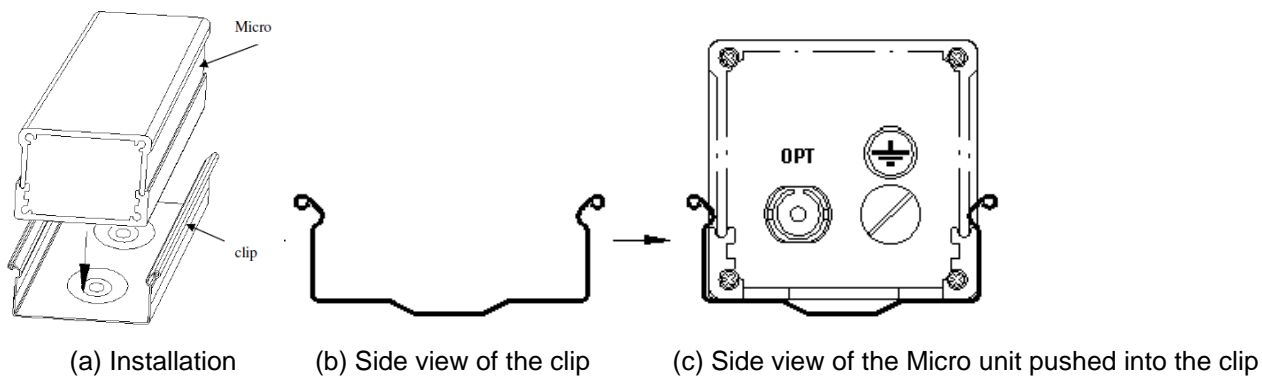


Fig. 3.3 Micro unit installation on the clip

- d) Connect all the signal inputs and outputs at the back of the unit with appropriate cables:
  - i) Coaxial Cable
  - ii) UTP cable with RJ45
- e) Once the unit is powered up, check that the red POWER LED on the unit is lit. If not, check the power supply cable connections between the unit and the power supply socket.
- f) With all the signals available at the input and output ports, check the status of LEDs located on the unit. With correct status of each LED, installation is now completed [for LEDs status, see **Operational Guides** on this manual's section (5)].

## (4) Cable Connections & Setup Procedures

### 4.1 System cable connections

| Signal Type | Cable Type  | Connector              | For details, please refer to |
|-------------|---|------------------------|------------------------------|
| Ethernet    | Twisted-pair Cable<br>10BASE-T: 4-pair UTP/STP Cat3, 4, 5<br>100BASE-TX: 4-pair UTP/STP Cat 5 | RJ45 Connector         | Section 4.2.1                |
| Line        | Coaxial cable (RG6, RG58 or RG59)   | BNC (Female)<br>75 Ohm | Section 4.2.2                |
| 12VDC       | Power cord  | DC Jack                | Section 5                    |

### Wiring Diagram

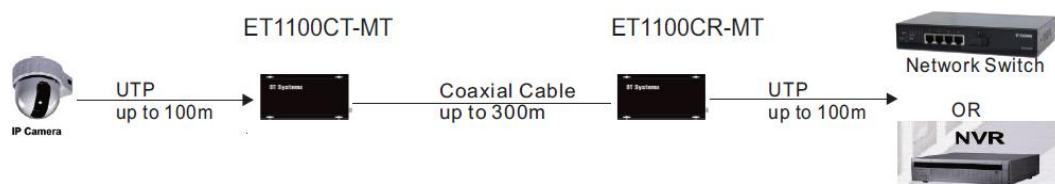


Fig 4.1 Ethernet Extender connection diagram

## 4.2 Connecting to Your Network

### Cable Type & Length

It is necessary to follow the cable specifications below when connecting the Ethernet Extender to your network. Use appropriate cables that meet your speed and cabling requirements.

### Cable Specifications

#### 4.2.1 The 10/100Base-TX Connector

A standard straight through cable is used for the connection between the Ethernet switch and device. For the details, Please see Appendix A for your reference.

| Speed      | Connector | Cable                       | Max. Distance |
|------------|-----------|-----------------------------|---------------|
| 10Base-T   | RJ-45     | 2-pair UTP/STP Cat. 3, 4, 5 | 100 m         |
| 100Base-TX | RJ-45     | 2-pair UTP/STP Cat. 5       | 100 m         |

#### 4.2.2 The BNC connector and Coaxial Cable

For the Ethernet Extender port

| Connector | Cable                             | Max. Distance |
|-----------|-----------------------------------|---------------|
| BNC (75Ω) | Coaxial Cable (RG6, RG58 or RG59) | 300m          |

## 4.3 Cabling

**Step 1:** First, ensure the power of the Ethernet Extender and end devices are turned off.

**<Note>** Always ensure that the power is off before any installation.

**Step 2:** Prepare cable with corresponding connectors for each type of port in use.

**Step 3:** Consult the previous section for cabling requirements based on connectors and speed.

**Step 4:** Connect one end of the cable to the Ethernet Extender and the other end to a desired device.

**Step 5:** Once the connections between two end devices are made successfully, turn on the power and the Ethernet Extender is operational.



## (5) Operational Guides

### 5.1 LEDs Status

| LEDs            | State    | Indication   |
|-----------------|----------|--|
| PWR             | Green    | Power on.  |
|                 | Off      | Power off.   |
| Link            | Amber    | Data is available at coaxial cable   |
| ACT             | Flashing | Transmitting or receiving Ethernet data, Act stands for ACTIVITY                       |
|                 | Off      | Neither valid Ethernet connection established nor transmitting/receiving Ethernet data |
| <b>Ethernet</b> |          |  |
| Lnk/Act         | Steady   | A valid Ethernet connection established, Lnk stands for LINK                           |
|                 | Flashing | Transmitting or receiving Ethernet data, Act stands for ACTIVITY                       |
|                 | Off      | Neither valid Ethernet connection established nor transmitting/receiving Ethernet data |
| Spd             | Steady   | Ethernet Connection transferring at 100Mbps  |
|                 | Off      | Ethernet Connection transferring at 10Mbps   |

### Signal and Power Ports

|                  |  |
|------------------|--|
| 10/100 Ethernet- | RJ45 with Cat. 5 for Ethernet connection.        |
| COAX -           | BNC connector with Coaxial cable connection      |
| DC12V-           | 2-pin screw terminal for 12VDC power connection. |

## (6) Specifications

### Ethernet

|                         |  |
|-------------------------|--|
| <b>Standards</b>        | IEEE 802.3 10BASE-T<br>IEEE 802.3u 100BASE-TX<br>IEEE 802.3x |
| <b>Processing Type</b>  | IEEE 802.3x Full-duplex flow control                         |
| <b>Cabling</b>          |  |
| 10BASE-T                | 4-pair UTP/STP Cat. 3, 4, 5                                  |
| 100BASE-TX              | 4-pair UTP/STP Cat. 5  |
| <b>Maximum Distance</b> |  |
| Cat5 UTP                | Up to 100m   |
| <b>Connector</b>        |  |
| 10/100BASE-TX           | 1X RJ45  |

### Coaxial

|                         |                                   |
|-------------------------|-----------------------------------|
| <b>Cabling</b>          | Coaxial Cable (RG6, RG58 or RG59) |
| <b>Maximum Distance</b> | 300m                              |
| <b>Connector</b>        | BNC (75 ohm)                      |

**Electrical and Mechanical**

|   |                                     |
|---|-------------------------------------|
| <b>Input Power</b>                                      | 12VDC                               |
| <b>Power Consumption</b>                                | 2.4W Max.                           |
| <b>Max. Current Consumption &amp; Operating Voltage</b> | 0.2A @ 12VDC                        |
| <b>LED Indicators</b>                                   |                                     |
| PWR   | Power Status                        |
| 10/100 TX   | Link/Activity, <i>Speed</i>         |
| <b>Dimensions</b>                                       | 36.2mm (W) x 24.5 mm (D) x 98mm (H) |
| <b>Net Weight</b>                                       | 0.1Kg (0.25Kg including PA)         |
| <b>Casing</b>   | Aluminum case                       |
| <b>Mounting Options</b>                                 | Wall-Mount                          |

**Environmental**

|                              |                                |
|------------------------------|--------------------------------|
| <b>Operating Temperature</b> | -10°C to 60°C (14°F to 140°F)  |
| <b>Storage Temperature</b>   | -40°C to 85°C (-40°F to 185°F) |
| <b>Humidity</b>              | 5% - 95% non-condensing        |

**(7) Drawings**

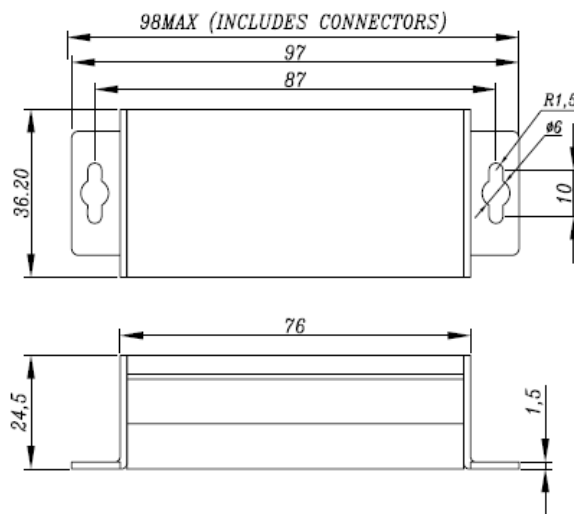


Fig. 7.1 Dimensional drawings of ET1100C (mm)

## (8) Warranty Information

All OT Systems ET Series products are subject to a three-year limited warranty offered by the company in normal circumstances. Please refer to the OT Systems Products Warranty Statement for details. Access to the statement is available in our company website at [www.ot-systems.com](http://www.ot-systems.com).

## (9) Contact Information

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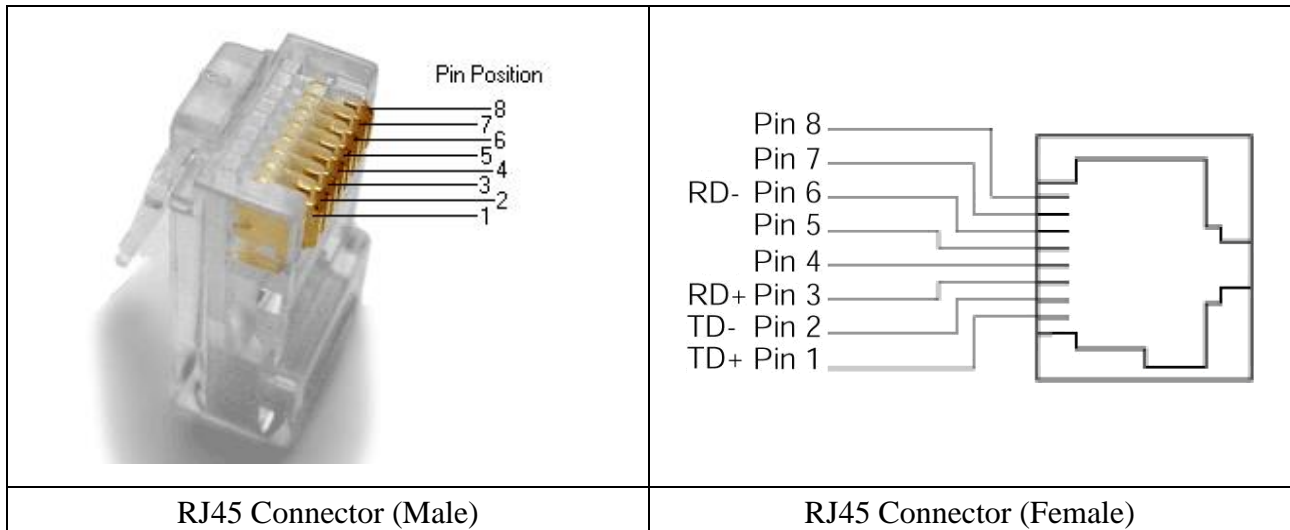
[sales.usa@ot-systems.com](mailto:sales.usa@ot-systems.com)

Technical Support





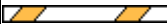
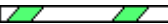


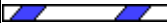
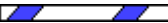


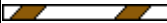
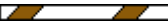


[techsupport.usa@ot-systems.com](mailto:techsupport.usa@ot-systems.com)

## Appendix A

### 1. Connector Pinouts



### 2. TIA/EIA-568 Cabling

| RJ45 Pin # | T568A   |              |                                      | T568B  |              |                                      |
|------------|---|--------------|--------------------------------------|--|--------------|--------------------------------------|
|            | Wire Diagram  | Wire Color   | 10Base-T Signal<br>100Base-TX Signal | Wire Diagram   | Wire Color   | 10Base-T Signal<br>100Base-TX Signal |
| 1          |  | White/Green  | Transmit+                            |  | White/Orange | Transmit+                            |
| 2          |  | Green        | Transmit-                            |  | Orange       | Transmit-                            |
| 3          |  | White/Orange | Receive+                             |  | White/Green  | Receive+                             |
| 4          |  | Blue         | Unused                               |  | Blue         | Unused                               |
| 5          |  | White/Blue   | Unused                               |  | White/Blue   | Unused                               |
| 6          |  | Orange       | Receive-                             |  | Green        | Receive-                             |
| 7          |  | White/Brown  | Unused                               |  | White/Brown  | Unused                               |
| 8          |  | Brown        | Unused                               |  | Brown        | Unused                               |

### 3. Standard, Straight-Through Wiring Diagram(both ends are the same):

The Straight-Through wiring (or called “*regular*” Ethernet cable), both ends should be use the same pin out on of RJ45 port.