

## USB Extension – Recommended installation

The USB Extension cable is nominally 15 ft long, and can simply be secured to the structure (pole, tower, building face) down to a suitable location and left dangling. As long as the connector is not exposed to corrosive air (salt spray, pollution, etc.), it should last for years. Please don't try to protect it with tape, as this can trap moisture and create more problems than it solves.

If you need a neater installation, or protection from vandalism, you can use electrical conduit and junction boxes.

One end of the USB Extension cable has a round waterproof connector, which is connected to the housing. This end is too large to fit through small conduit. The other end is a standard USB A Male connector, which will fit through 3/4" PVC or 3/4" EMT conduit. At the end of the conduit near the housing, a 'service entrance' cap (mast head, weather head) or other watertight 'gland' will be needed, to prevent rain from entering the conduit.

If you need more than 15 ft of extension, USB 2.0 Repeater cable assemblies are available which can extend this distance. These cables include a 'hub' as a repeater, so one end of the cable (USB A Female) is a bit larger, and also will not fit through small conduit. The other end is again the USB A Male, which will fit in 3/4" conduit.

We recommend using a single-gang weatherproof junction box at the base of the structure (termination), with a removable or flip cover plate. Remove the plate to expose the USB A male connector, which you can then connect to your laptop computer for camera connection / image download. You might need a short section of USB A Male / A Female passive extension cable if you need to place the laptop computer nearby.

A similar single-gang weatherproof junction box with cover plate will be needed for each USB 2.0 repeater cable (splice). The USB A Male can feed through the conduit, leaving the bulky female connection in the box. Please note some USB 2.0 Repeater cables have additional bulky electronic hubs in the center of the cable. If you don't know for sure, the 16 ft repeater cables certainly do not have them. 30 ft repeater cables rarely include them, but longer cables almost certainly will.

While some locations require the use of metallic (EMT) conduit in outdoor exposed locations for AC mains power, all locations should allow the use of low cost, easy to install non-metallic (PVC) conduit for low voltage wiring, such as this USB cable.

## **Non-metallic (PCV) hardware, 3/4”**

Non-metallic (PVC) conduit may simply be cut and glued to these fittings.

### **Single-Gang Weatherproof Boxes**

1-outlet (termination only), Type FSE

Cantex #5133364

Carlson #E980EFN

2-outlet (splices), Type FSC

Cantex #5133464

Carlson #E981EFN

1-outlet (termination), Type FDE (extra deep)

Cantex #5133311

Carlson #E9801EN

2-outlet (splices), Type FDC (extra deep)

Cantex #5133311

Carlson #E9811EN

### **Service Entrance Cap**

Cantex #5133591

Carlson #E998E

Generic #98006006609

## **Metallic (EMT) Hardware**

### **Single-Gang Weatherproof Boxes, with 3/4” threaded outlet connections (splice or termination)**

Watertight fittings will be needed with these boxes.

Aluminum 3-outlet                      Hubbell #5324, 5386

Aluminum 4-outlet                      Hubbell #5330

Aluminum 5-outlet                      Hubbell #5331, 5332

Plastic (PVC) 3-outlet                  Hubbell #PSB37550

### **Service Entrance Cap, for 3/4” EMT, clamped**

Halex #58007

Gampak 02-51252