CONCEPT

RS485 Wireless Mesh transceivers are pre-configured at SES for **Plug and Play** operation.
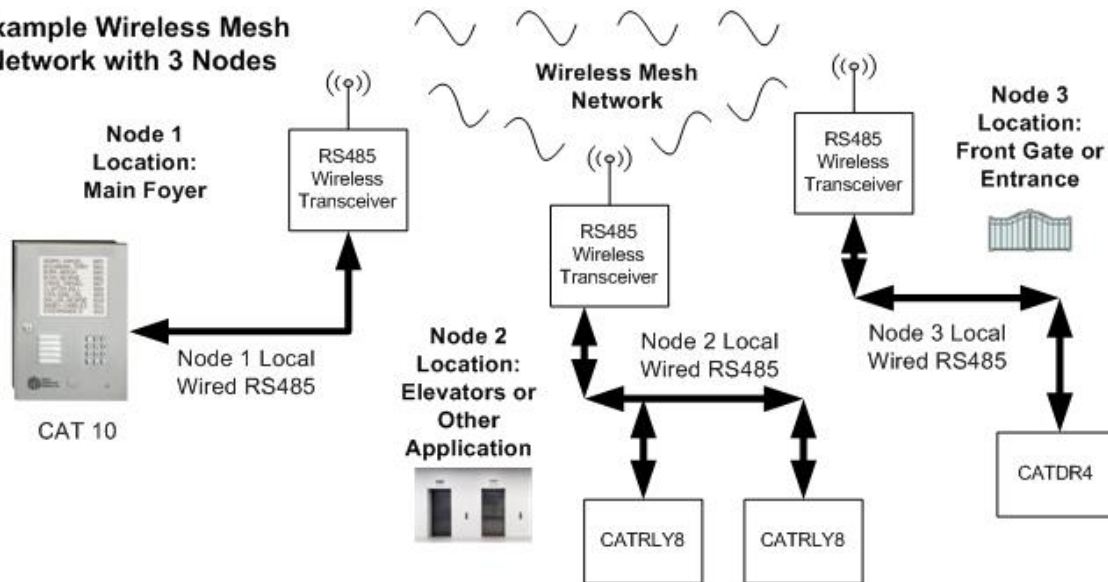
Part Numbers

SWRS485MESH – Individual RS485 mesh transceivers

SWRS485EXTENCL – Mesh transceivers mounted in Exterior NEMA 4 enclosures

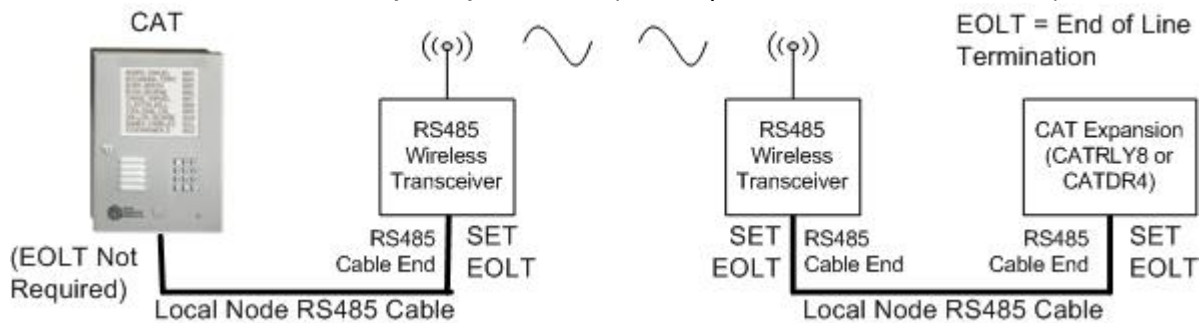**SWRS485EXTPM** – kit for mounting SWRS485EXTENCL on poles

For easier reading, "SES Select Wireless RS485 Mesh Transceivers" will be referred to simply as "Wireless RS485 transceivers", and CATDR4 or CATRLY8 modules will be referred to as "CAT expansion modules".
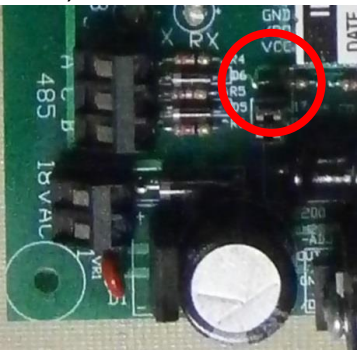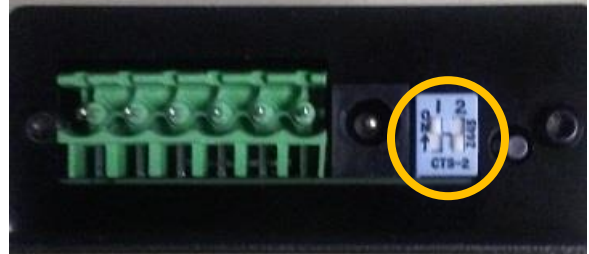

Operational (Non-Safety) Warnings before Installation of RS485 Wireless Mesh

- **Wireless RS485 transceivers must be pre-configured at SES** to be Plug and Play out-of-the-box
- **CATRS485CONVKIT option must have been installed in the CAT** for *any* RS485 operation. Contact SES Customer Service if needed.
- **DO NOT install RS485 wireless mesh transceivers inside metal boxes, close to metal structures or inside control rooms** - metal cages and surroundings acts as a shield against wireless signals and **will prevent wireless operation.**
- **DO NOT use Ethernet cables for connecting or powering RS485 modules**
- **DO NOT put more than one CAT series transceiver (**CAT2, CAT4, CAT 10, CATCARD or legacy CAT transceivers**) on a single RS485 wireless system otherwise conflicts and cause unpredictable operation will occur.**
- **Each mesh has its own unique mesh network ID** to prevent mesh cross-talk and **is factory (SES) preset**. If ordering a wireless RS485 Mesh transceiver to replace an existing transceiver or adding to an existing mesh network, please notify SES of the existing network ID when ordering.
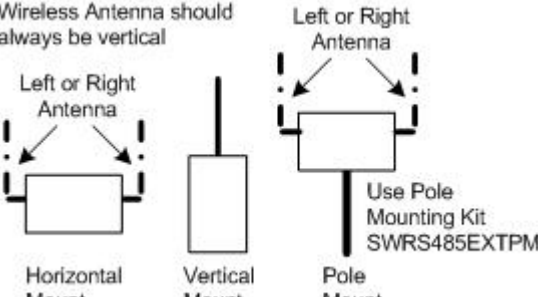
INSTALLATION

A. **Plan the RS485 system.** Each "node" RS485 cable connects local transceivers and modules. Each node must have a wireless RS485 mesh transceiver and each CAT expansion module must have a unique RS485 address.

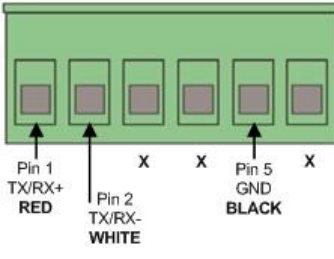B. **Set End-of-Line Termination (EOLT) Resistors** (not required for CAT transceivers).

EOLT Jumpers for CAT Expansion Modules	EOLT DIP Switches for Wireless RS485 Transceivers
Red circle shows **TWO** on-board jumpers **Install** both jumpers (factory default) **to set EOLT**, otherwise remove both jumpers.	**Orange circle** shows **TWO** DIP switches (**DIP1** is **left**) Set DIP1 on (up) to set EOLT, otherwise leave DIP1 down. Leave **DIP 2** *Always* **OFF** (factory default)

C. **If using SWRS485EXTENCL enclosure for RS485 mesh transceivers**, decide on cable entry point and remove appropriate knockout. Install the (provided) liquid-tight conduit fitting into the knockout hole.

½" inner-diameter straight non-metallic liquid-tight conduit fitting

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D. **Hook up local RS485 connections (use Belden #8771 or equivalent)**
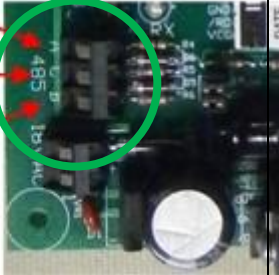
Local Node RS485 Wire Colors (Belden #8771)		
TX/RX+	Red	Positive Transmission Line
GND	Black	Ground
TX/RX-	White	Negative Transmission Line

Wireless RS 485 Mesh Transceiver Connector Screw Terminal Block

CAT Terminal [1] Strip RS485 Connections (Blue Circle)

CATDR4/CATRLY8 RS485 Terminals (Green Circle)

[1] In some variants, the terminal strip may be to the left of the label. **In all cases the wiring for RS485 connection is identical**.

E. **Connect Power to Transceivers**. To supply 9VDC power using the supplied adapter (below) or optionally supply 12VDC power from the expansion module (images next page).

DO NOT USE RS485 CABLE OR ETHERNET CABLE TO SUPPLY POWER.

Wireless RS485 Power Adapter (+9VDC, Supplied)
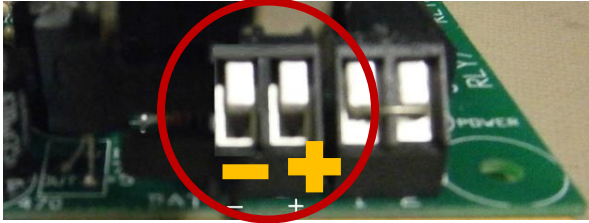
Wireless RS485 Power Socket 9 - 24VDC

(Green RS485 screw terminal block has been removed for clarity)

Optional: Supplying 12VDC Power for RS485 Transceiver from Expansion CATDR4 /CATRLY8

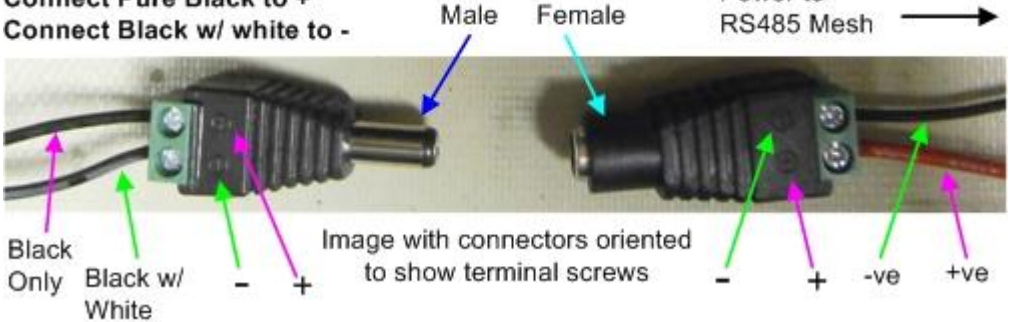CATDR4 / CATRLY8 showing location of power terminals for RS485 mesh

Optional power for transceiver from expansion boards CATDR4 and CATRLY8.

12 VDC power for transceiver can be taken from BAT terminals as shown (Red Circle). Note position of **+** and **–** polarity signs (shown orange). **DO NOT POWER MORE THAN ONE TRANSCEIVER FROM THESE TERMINALS ON THE SAME CATDR4/CATRLY8.**

RS485 Mesh Adapter wire colors:
Connect Pure Black to +
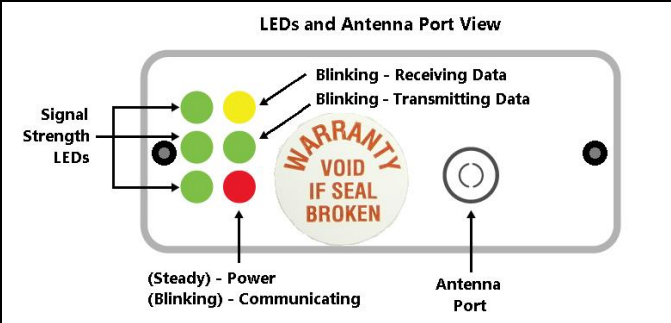**Connect Black w/ white to -**

F. Attach the provided antenna to the RS485 mesh transceiver. Install the provided antenna directly into the Antenna Port on the RS485 transceiver on the SWRS485EXTENCL enclosure.

LEDs and Antenna Port Side