TAP-17 installation guide

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Product Overview

This guide covers model numbers TAP-17 and TAP-17C.

The model TAP-17C is equipped with an EnOcean 315MHz radio and the TAP-17 model has the EnOcean 868MHz radio.

The TAP-17 Task Ambient Photosensor monitors light levels within interior spaces and transmits the value to Echoflex lighting controllers. The controller determines whether the space requires more or less light based on pre-configured lighting set points. If the dimming output from the controller is connected to a dimming ballast; the output will modulate the lighting level to meet the set point. The controller can also control the lighting with the internal relay when the light levels exceed the lights ON or OFF set points.

The TAP-17 Task Ambient Photosensor measures ambient light in two ranges: 0-510 lux (0 - 47 foot candles) and 0-1024 lux (0 - 95 foot candles) and is intended for indoor use only.

The package includes the TAP-17 light sensor and installation guide.

NOTE: The TAP-17 is a solar powered device that absorbs solar energy storing it for use during low light periods. Before assigning the TAP-17 device to a receiver/controller, the device must be exposed to a good light source for a minimum of 2 hours.

Installing EnOcean Devices

Locating transmitters (sensors and switches) to work with installed receivers requires planning. Careful consideration should be made for locating the wireless devices based on the construction materials in the space and possibility of tenant's furniture disrupting the wireless transmissions. Fire doors, elevator shafts, stairwells, storage areas and any large metal products create radio shadows and will disrupt wireless transmissions.

Using floor-plan drawings, draw 100 feet (30m) diameter circles to identify optimal transmitter and controller locations. Refer to the table below for range considerations with building materials. Identifying trouble areas early and making adjustments either with layout or deployment of repeaters will dramatically ease the installation phase of any project.

Material	Attenuation
Wood	0 - 10%
Plaster	0 - 10%
Glass	0 - 10%
Brick	5 - 35%
MDF	5 - 35%
Ferroconcrete	10 - 90%
Metal	90 - 100%
Aluminum	90 - 100%

Material	Range-typical
Line of sight:	100′ (30m) corridors
Line of sight:	330′ (100m)open halls
Plasterboard:	100′ (30m) through 5 walls
Brick:	65′ (20m) through 3 walls
Concrete:	65′ (20m) through 3 walls
FerroConcrete:	33′ (10m)
Ceiling:	1 ceiling

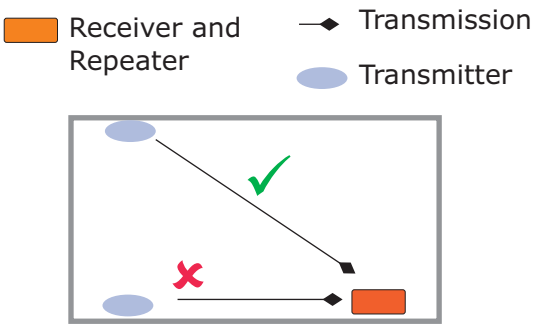
**** IMPORTANT NOTES ON ENOCEAN RADIOS****

1.) When a receiver is in LEARN mode, the radio range can be reduced. It is strongly advised to perform all linking of remote transmitting devices to the receivers BEFORE the transmitters are installed.

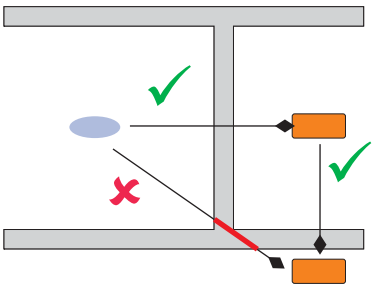
2.) If the EnOcean radios experience excessive radio interference on their frequency (315 or 868 Mhz) from other sources, the radios effective receiving and transmitting range is reduced. This radio noise can be emitted from computers, monitors, lighting ballasts, ethernet appliances, other radios, any microprocessor based device.

Layout Hints

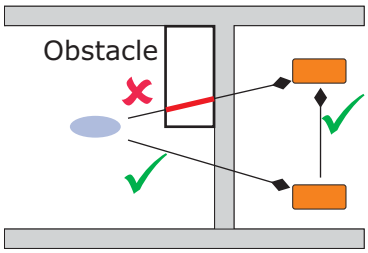
⇨ Avoid transmitting down a length of wall to reduce signal reflection.



⇨ Avoid transmissions that must penetrate walls at acute angles. This increases the wall material the telegram must pass through, greatly reducing the signal power.



⇨ Avoid large obstructions. Place receivers in alternate locations to avoid the radio shadow or use repeaters to go around the obstacle.



⇨ Do not locate receivers close to other high frequency transmitters. Leave at least 2′ between the receiver and any other source of interference including, computers, video equipment, Wi-Fi/LAN routers, GSM modems and monitors. Transmitters are not affected by these sources of interference.

For more information about range planning, please refer to the range planning guide downloaded from "http://www.echoflexsolutions.com/

Preparing to Install

Even with a brief exposure to light the TAP-17 will operate however, for best results the sensor should be mounted in a location with exposure to light on a daily basis. The TAP-17 can be mounted on any surface; ceiling, wall, desk, cubicle wall, etc.

The TAP-17 sensor should be placed so there is direct exposure to a window. The most common mounting location for photo sensors is ceiling mount, centered with the window, about 4' from the window. The TAP-17 must be installed in the space where the Echoflex lighting controller is operating the light fixtures. There are online software tools that can also assist in identifying the optimal location to mount photo sensors.

The TAP-17 sensor can be mounted using screws (not supplied) through the back plate or using double sided tape or Velcro™ (not supplied).

1. Attach the tape or Velcro to the back surface using two pieces, each about 4cm. (1.5in.) in length. Insure none of the tape will hang outside the sensors edges once mounted
2. If you're using tape, remove the protective film to reveal the sticky surface. If you are using Velcro, remove the backing tape from the mating strip but do not separate the Velcro strips
3. Hold the sensor over the mounting location and gently press to adhere.

The alternative method is to secure the photosensor with screws and anchors (not supplied).

1. Using a fingernail or small flat head screwdriver, pop

the rear mounting plate off the sensor.

2. Using a drill suited to the wall anchor size (#6 screw), bore the holes in the wall board

3. Insert the wall anchors as per package recommendations, mount the back plate with the screws

4. Snap on the photosensor body to the mounting plate

Linking a TAP-17 to an Echoflex controller

This process requires the controller to be mounted and powered and within range of the sensor to be linked

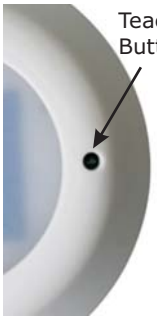
The controller has 4 labeled holes on the face plate.

LEARN button – The LEARN button can be used to link a switch or sensor to the Echoflex controller

CLEAR button - The CLEAR button erases all switches and sensors linked to the Echoflex controller

LEARN and POWER LEDs – Diagnostic led's

1. Insert a pen into the LEARN hole on the controller depressing the button for a half second. The led will begin toggling.



2. Tap the sensors TEACH button. The led on the controller will remain lit for 4 seconds while it links the new device. It will resume toggling allowing you to link another device up to a total of 30 devices. Activating link mode from a switch or sensor that is already learned to a controller, will remove or unlink it from the controller.

3. To exit link mode, depress the LEARN button on the controller again for a half second. Link mode will time out after no activity in 30 seconds.

Clearing a controller of a TAP-17

Insert a pen into the CLEAR hole depressing the button for 5 seconds. The Learn led will flash ON for 1 second and then OFF to complete the step.

Selecting the Light Range on the TAP sensor

1. Using a fingernail or small flat head screwdriver, pop the rear mounting plate off the sensor to reveal the range slide switch.

2. Slide the switch to the range setting required.

3. Press the rear mounting plate back into position.

Daylight Harvesting

The TAP sensor will repeatedly broadcast a telegram on a timer (heart beat timer). The time period adjusts automatically to the ambient light levels and energy charge stored on the radio.

Light Level	**Charge**	**Timer (± 10%)**
< 50 lux (4.6 FC)	2.3 .. 3 V	120 seconds
> 50 lux	3 V	30 seconds
> 50 lux	3 .. 4.5V	linear ramp to 10 sec.

EnOcean Equipment Profiles

EEP: A5-06-02, Light Sensor DB_1: 0 lux - 1024 lux
DB_2: 0 lux - 512 lux
DB_3: Supply Voltage 0…5.1V, linear n=0…255

Technical Specifications

Power Supply	Dual Solar cell
Operational Light Level	40 lux minimum
Charging Period	6 hours full charge
Initial Operation	5 minutes in 40 lux
Full Charge Operation	8 hours in 0 lux
Telegram Heartbeat	8 seconds @ 150 lux 120 seconds @ 0 lux
Radio Frequency	315 MHz or 868 MHz EnOcean radio
Antenna	Integrated whip
Transmission Range	30m (100 ft.) - commercial office space
Inputs	TEACH button

Mechanical Specifications

Operating Temperature	-13°F to 145°F (-25°C to 65°C)
Relative Humidity	5% to 95% RH (non-condensing)
Weight	2.6 oz. (74 gms.)
Dimensions	4.0"round x 0.9" (100 mm x 23 mm)
Mounting	mount with screws or tape (Velcro®), not supplied

Agency Listing

Radio Frequency	FCC Part 15.231: XMGSTM112C IC RSS-210: 7256A-STM112C