Allegro[®] Photocell Repeater Installation Manual

Category: System Infrastructure Type: Allegro Photocell Repeater Issue: Installation Version: 0612.20F



Introduction

System Integrity Recommendation – Surge Protector

WARNING: To prevent damage due to power network surges.

Safety Instructions

- Only qualified personnel should perform the installation.
- Follow all local electrical codes during installation.
- Although it is not necessary to disconnect power to the pole during installation, one should always be aware of possible exposure to electrical elements.
- When working from heights, it is important to follow standard safety precautions to avoid any danger of potential injury.
- Use appropriate work tools.

Installation Overview

Note: Read the Installation Guide in its entirety prior to beginning the installation process.

The following is the NEMA installation process;

- 1. Physical installation of:
 - NEMA in previously installed NEMA receptable.
- 2. Obtaining GPS coordinates of Allegro Photocell Repeater and either writing electronically or recording manually.

Preparing for Installation

It is assumed that the luminaire cover has had a NEMA ANSI C136.10-2010 and C136.41-2013 compliant receptacle installed.

Installation

To install an Allegro Photocell Repeater:

- 1. Prior to physically installing the Allegro Photocell Repeater
 - (a) Record the NEMA serial number and pole number, if any.
 - (b) Stand as close as possible to the pole and obtain GPS coordinates in decimal degrees.
 - (c) Record the coordinates for the NEMA serial number.
 - (d) If you are sending the NEMA information entries one by one, please record the information in a Microsoft[®] Excel spreadsheet and send to a Master Meter AMI Technician.
- 2. Remove the existing photocell repeater by twisting counterclockwise, unlocking the plug from the receptacle (*see figure 1*).



3. Align the tallest and widest prong (*neutral*) at the center of the photocell repeater plug with the widest socket in the receptacle. Firmly insert the plug into the receptacle (*see figure 2*).



Figure 2



WARNING: Attempting to insert the NEMA prongs into the wrong sockets in the receptacle can damage the Allegro Photocell Repeater.

4. Twist the Allegro Photocell Repeater clockwise, until the Allegro Photocell Repeater stops moving and is securely locked and the bottom of the NEMA is even with the top of the receptacle (*see figure 3 below*).



Figure 3

- **5.** Once the photocell repeater is installed, the light fixture will turn **ON** (*light on*). After initial turn ON, the light fixture will run an 'Auto Detection and Verification' procedure which identifies the lamp driver type and executes the following light on/off sequence:
 - After approximately 25 seconds of being ON the light fixture will dim to about 5%, if dimming is configured.
 - After approximately 10 seconds, the light fixture will return to 100%.
 - After approximately 7 seconds, the light fixture will turn OFF (light off).
 - After approximately 11 seconds, the light fixture will return **ON** or to operational state the internal photocell repeater schedule determines.

Activation

To activate the Allegro Photocell Repeater:

Record the serial number located on the side of the photocell repeater in Allegro Technician NET. Determine what frequency you will be programming the unit for by choosing the nearest base station (*see figure 4*).



Figure 4

- 1. Connect **2w-MMR** to your laptop "**USB Comm**" (*USB Micro USB Cable*) and switch to **ON**.
- 2. Be sure to choose the correct "**Comm Port**" inside the software as shown in *figure 5* below;

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File Connection Tools About

Operate COM3

Single

Figure 5

3. Once the **2w-MMR** is connected you will see "**Connected**" in green letters on the lower left corner of the application window (*see figure 6*).



4. Select the "**Settings**" icon (*see figure 7*).

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File	Connection	Tools	About		
2	17.				
-Opera	tion Mode	~			Get
O Sir	ngle				Command Na
			- a /		Start New Re
- :	. 7				

Figure 7

- 5. In the "**Settings**" window ensure the following (see *figure 8*);
 - (1) Both **Downlink** and **Uplink** frequencies are set to default.
 - (2) **Long Sync** is selected within the *Wake Up Sequence* menu and **26** is entered within the *sec.* entry field.

🖳 General Settings	×
General Settings	MMR Use defaults Mode : Low Power Programming Use defaults Downlink Frequency : 461.175 (Default) MHz Uplink Frequency : 466.175 (Default) MHz Uplink Frequence Long Sync 26 sec 2 Short Sync 6 sec. Unicast No. of Retransmissions 1 - Interval between transmissions 0 sec.
	Broadcast No. of Retransmissions 2 🚖 Interval between transmissions 30 sec.
	Multicast No. of Retransmissions 2
	3 🗐 🕘

(3) The **Save** icon is selected.

- 6. In the "**Operation Mode**" window ensure the following (see figure 9);
 - (1) The last 7 digits of the Allegro Photocell Repeater's serial number are entered into the **Single** entry field.
 - (2) The + icon is selected.
 - (3) Once the + icon button has been selected, click the Get tab.
 - (4) Double-click the Get Comm Status command from the Get menu.

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File Connection Tools About	
2 🛱 • 💥	3
Operation Mode 1	Get Set
 Single Type rpt number 1127674 Use Multicast Broadcast 	Command Name Get Dump Get Dump HPD Get 12 Readings 4 Get Comm Status Get Data Logger Get Params Dynamic Get Metrological Parameters Get Extended Uplink/Downlink Frequencies Send Test Data Get Unit Mode And Parametere Get Diagnostic
Use Short Sync	

Figure 9

After the **Get Comm Status** command has been selected, a new **.exe** window will appear (*see figure 9.1*).

💀 Command Get Comm Status					
Downlink : 461.175 MHz	Uplink : 466.175 MHz				
Unit ID:1127674 Time out after: 18 secs					
@					

Figure 9.1

7. At the bottom of Allegro Tech NET you will see a gray window, which shows the current **DN/UP Frequencies** (*see figure 10*). The results show that the photocell repeater is communicating! The repeater is now ready to be set to a new frequency.

☑ ✓ 1127674 40 461.1750 MHz 466.1750 MHz 23 sec.

To set the Allegro Photocell Repeater to a new frequency:

The new frequency will be according to destination base station frequency. The below example (see figure 11) shows how to change repeater frequencies for a specific city, in this case City of XYZ.



Figure 11

- 1. Click on the "**Settings**" icon (see figure 11).
- 2. Ensure both the **Downlink** and **Uplink** frequencies as well as the *Wake Up Sequence* are set to default on the **2w-MMR** (*see figure 12*)
- 3. Select the **Save** icon (*see figure 12*).

- MMB	MMR
··· Communication	🔲 Use defaults
	Mode : Low Power Programming
	Downlink Frequency : 461.175 (Default) MHz
	Uplink Frequency : 466.175 (Default) MHz
	Wake Up Sequence o Long Sync 26 sec. 2 O Short Sync 6 sec.
	Unicast No. of Retransmissions 1 🕀 Interval between transmissions 0 sec.
	Broadcast No. of Retransmissions 2 🚖 Interval between transmissions 30 eec.
	Muticast No. of Retransmissions 2 🚖
	3 🗐 🎯

4. Ensure the Allegro Photocell Repeater is marked as shown below (see figure 13).



- 5. In the "**Operation Mode**" window ensure the following (see *figure 14*).
 - (1) The **Set** tab is selected.
 - (2) The Set Uplink/Downlink Frequency is selected.

Operation Mode	Get	Set	1
 Single 	Command Name		
- 🕒 🐼	Start New Registr Set Encoder Rec	ration onnect	
Use Mulicast	Set Params Dyna Set Receiver	mic	_
 Broadcast 	Set Uplink/Down Set Extended Upl Set Metrological F Set Unit Mode An Set RTC Set Unit Mode	link Frequency link/Downlink Frequ Parameters nd Parameters	2 Jencies
Use Short Sync			
Figure 14			

- 6. From the **Setup Uplink/Downlink Frequency** window (*see figure 15*) ensure the following;
 - (1) The correct frequency (i.e. "City of XYZ") is selected.
 - (2) The **Play** icon is selected.

at Unlink/Downlink Er				
et Opinik/Downink Pr	equency			
		-		
	1			
Downlink Frequency :	461,5875	-	MHz	
,	461.5875	h		
	461.9125	_		
Uplink Frequency :	464.525		MHZ	
	463.63/5			
	404.270			
	464 025			
	463.2125		2	
	463.3			
	463.2875	E		
	453.340625			
	404.33373		_	_
	463.4673			
	463.375			
	451.2625			
	461.5875			
	451.9625			
	462.08/5			
	401.0120			
	462 0875			
	464.3625			
	461.4			
	463.575			
	461.4375			
	463.9125			
	401.20625			

Figure 15

Once the **Play** icon is selected, this will begin writing new frequency to the photocell repeater (*see figure 15.1*).

į	Command Set Uplink/Downlink Frequency					
	Downlink : 461.5875 MHz Uplink : 466.5875 MHz					
	Unit ID:1127674 Time out after: 24 secs					
	(

Figure 15.1

When the new frequency writing is complete, a check mark will appear on the results (see figure 15.2).

	Unit ID	Voltage @ 10mW	Config Corrupted	Low Temperature	Sys Changed By	HPD To Unit RS
V 🗸 🗸	1127674	2.95 <= V < 3.00				-69 dBm

Figure 15.2

- 7. Check and confirm the photocell repeater has been programmed with the new frequency (in this case, **City of XYZ** frequency). To do so, the **2w-MMR** frequency will need to be updated.
- 8. Select the **Settings** icon (*see figure 16*).

Arad Technologies© - Allegro Technician NET Ver. 1.2.0.0 File Connection Tools About Operation Mode Figure 16

- 9. In the **Settings** window ensure the following (see figure 17);
 - The City of XYZ frequency is selected in the Downlink Frequency and Uplink Frequency drop-down menus.
 - (2) **Long Sync** is selected within the *Wake Up Sequence* menu and **26** is entered within the sec. entry field.
 - (3) The **Save** icon is selected.

 MMR
Node : Low Power Programming ▼ Downlink Frequency : 461.5875 (City of XYZ) ▼ MHz Uplink Frequency : 466.5875 (City of XYZ) ▼ MHz Wake Up Sequence 6 sec. Shot Sync 6 sec. Unicast No. of Retransmissions 1
Broadcast No. of Retransmissions 2 🐑 Interval between transmissions 30 sec. Multicast No. of Retransmissions 2 😓
3,



The 2w-MMR is now set with City of XYZ's frequency.

10. Confirm the photocell repeater is selected, as shown below in *figure 18*.



11. In the "**Operation Mode**" window, double-click the **Get Comm Status** in the **Get** tab (see figure 19).



After the **Get Comm Status** command has been selected, a new **.exe** window will appear (*see figure 19.1*).

🔛 Command Get Comm Status					
Downlink : 461.5875 MHz Uplink : 466.5875	5 MHz				
Unit ID: 1127674 Time out after: 25 secs	7				
(

Figure 19.1

12. The results shown at the bottom of the application window happily confirm the Allegro Photocell Repeater is programmed to the **City of XYZ's** frequency (*see figure 20*).

Operation Mode	Get	Set			
 Single Use Multicast Broadcast 	Command Name Get Dump Get Dump HPD Get 12 Readings Get Data Logger Get Params Dynar Get Metrological P Get Extended Upi Send Teet Data Get Unit Mode An Get Diagnostic	nic Parameters ink/Downlink Fr d Parameters	requencies		
Use Short Sync					
Unt Unit Type Dn Frequency Up Freq	uency Normal I	Rx2Rx Fa	ast Rx2Rx	Unit SW Version	Uplink RSSI
✓ 1127674 40 461.5875 MHz 466.587	75 MHz 23 sec.	5	sec.	2.07 (519)	-70 dBm

Figure 20

Sync

To sync the Allegro Photocell Repeater:

The photocell repeater must first be enabled. To enable, ensure the following (see *figure 21*);

- 1. The **Set** tab is selected.
- 2. The corresponding photocell repeater (*Unit ID*) is selected.
- 3. Double-click the **Set Receiver** command from the **Set** tab.

File Connection Tools About				
♀ □□- ○×			1	
Operation Mode		Get Command Name	Set	
•	•	Start New Registra Set Encoder Reco	ation Innect	
Use Multicast		Set Receiver Set Uplink/Downli	nk Frequency	
 Broadcast 		Set Extended Uplin Set Metrological P Set Unit Mode And	nk/Downlink Frequ arameters d Parameters	iencies
		Set RTC Set Unit Mode		
Use Short Sync				
2 Unit ID Voltage @ 10mW V	/oltage @ 4W	Config. Changed	Corrupted data	HW Error
✓ 1127674 2.95 <= V < 3.00 2	95 <= V < 3.00	True	False	False

Figure 21

- **4.** After the **Set Receiver** command has been selected, a new window will pop-up. Ensure the following (*see figure 22*);
 - (1) The **Enable** option is selected in the **BS Communication** window.
 - (2) The **Play** icon is selected.

🖳 Set Receiver	
Set Receiver	
BS Communication	
	2 💽 🞯

Figure 22

After the **Play** icon is selected, a new **exe.** window will appear (see figure 22.1).



Figure 22.1

5. The results will confirm the photocell repeater has been enabled and configured correctly (see *figure 23*).

ſ		Unit ID	Voltage @ 10mW	Voltage @ 4W	Config. Changed By HPD	Corrupted data	HW Error
I	V 🗸	1127674	2.95 <= V < 3.00	3.35 <= V	True	False	False
_							

Figure 23

The Allegro Photocell Repeater is now synced. Please send the following data to a Master Meter AMI Technician to add to the system;

- (1) Latitude and Longitude
- (2) Serial Number of photocell repeater
- (3) Address
- (4) Height of repeater
- (5) Frequency used

Once the above data has been reviewed and approved by a Master Meter AMI Technician, you are free to begin magnetizing nearby registers or use Allegro Tech NET to manually connect units in the field to the repeater(s).