Aclara

Edge Gateway
Installation and Configuration
Technical Manual

Y21057-TUM
Revision C
www.Aclara.com

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CHAPTER

1

WARNINGS, CAUTIONS, AND NOTES

Always consult and adhere to all local and national safety codes, regulations, and standards.WARNING, CAUTION and Note statements are used throughout this manual to emphasize important and critical information to help you ensure safety and prevent product damage.These statements are defined below.

⚠WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious physical injury.

⚠CAUTION Indicates a situation, which, if not avoided, could result in damage to equipment, damage to software, loss of data or invalid results.

NOTE Indicates important supplemental information.

Avertissements, mises en garde et remarques

Toujours consulter et respecter les codes, règlements et normes de sécurité locaux et nationaux. Des AVERTISSEMENTS, MISES EN GARDE et remarques sont utilisés tout au long de ce guide pour souligner l'information importante et critique qui vous aidera à assurer la sécurité et à prévenir les dommages au produit. Ces énoncés sont définis ci-dessous.

⚠WARNING

Indique une situation potentiellement dangereuse qui, si elle n'était pas évitée, pourrait entraîner la mort ou des blessures graves.

⚠CAUTION

Indique une situation qui, si elle n'était pas évitée, pourrait entraîner des dommages à l'équipement, des dommages au logiciel, des pertes de données ou des résultats invalides.

REMARQUE Indique des informations supplémentaires importantes.

Supplier’s Declaration of Conformity

47 CFR § 2.1077 Compliance Information

Unique Identifier: Edge Gateway, Model Y84110-221

Responsible Party U.S. Contact Information:

Aclara Technologies LLC
30400 Solon Road
Solon, Ohio 44139
Phone: 800-892-9008 Email: aclarasupport@hubbell.com

FCC/IC Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reposition or relocate the receiving antenna. (This would have to be done by an installer.)
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician (Aclara) for help.

FCC ID: LLB2021006

IC:4546A-2021006

The antenna must not have a gain greater than:

- 5 dBi for 450 – 470 MHz
- 5 dBi for 901 – 902 MHz

⚠CAUTION Any changes or modification made to this device without the expressed, written approval of Aclara Technologies LLC may void the user's authority to operate this device.

Déclaration de Conformité du Fournisseur

47 CFR § 2.1077 Informations de conformité

Identifiant Unique: Edge Gateway, Modèle Y84110-221

Partie Responsable - U.S. Coordonnées:

Aclara Technologies LLC
30400 Solon Road
Solon, Ohio 44139
Phone: 800-892-9008 Email: aclarasupport@hubbell.com

Déclaration de conformité FCC/IC

Cet appareil est conforme à la partie 15 des règles FCC. L'exploitation est soumise aux deux conditions suivantes:

1. Cet appareil ne doit pas provoquer d'interférences nuisibles et
2. Cet appareil doit accepter toute interférence reçue, y compris les interférences susceptibles de provoquer un fonctionnement indésirable.

Si cet appareil cause des interférences nuisibles à la réception des signaux de radio ou de télévision, ce qui peut être détecté en mettant l'appareil sous et hors tension, l'utilisateur peut tenter de neutraliser l'interférence de l'une ou l'autre des façons suivantes:

- Réorienter ou repositionner l'antenne de réception.
- Augmenter la distance séparant l'équipement du récepteur.
- Brancher l'appareil dans une prise sur un circuit électrique différent de celui sur lequel le récepteur est branché.
- Consultez le revendeur ou un technicien radio/TV expérimenté (Aclara) pour obtenir de l'aide.

FCC ID: LLB2021006

IC:4546A-2021006

L'antenne ne doit pas avoir un gain supérieur à:

- 5 dBi for 450–470 MHz
- 5 dBi for 901–902 MHz

MISE EN GARDE

Tout changement ou toute modification à cet appareil sans l'approbation écrite expresse d'Aclara Technologies LLC peut annuler l'autorisation de l'utilisateur d'utiliser cet appareil.

FCC/IC Exposure Statement

Aclara Technologies LLC low power RF devices and their antennas must be fixed-mounted on indoor or outdoor permanent structure(s) providing a separation distance of at least 1 meter (about 3 feet) from all persons during normal operation. This device is not designed to operate in conjunction with any other antennas or transmitters.

No other operating instructions for satisfying RF exposure compliance are needed.

Holding the antenna in one's hands while it is transmitting, or standing near a transmitting antenna for a prolonged period of time, could result in RF exposure that exceeds FCC and Health Canada recommendations.

Once the equipment is powered up and operational, it will emit RF energy. Installers, technicians, and the public at large should keep a distance of 1 meter (about 3 feet) or more from the plane of the antenna.

This equipment has been tested for exposure of humans to RF energy. It satisfies OSHA, FCC, and Health Canada requirements provided it is installed in a manner described in this manual and operated in accordance with the user guide.

Guide d’exposition aux RF FCC/IC

Les appareils RF de faible puissance d'Aclara Technologies LLC et leurs antennes doivent être montés de manière fixe sur une ou plusieurs structures permanentes intérieures ou extérieures offrant une distance de séparation d'au moins 1 mètre de toutes les personnes pendant le fonctionnement normal. Cet appareil n'est pas conçu pour fonctionner avec d'autres antennes ou émetteurs.

Aucune autre instruction d'utilisation pour satisfaire à la conformité en matière d'exposition aux RF n'est nécessaire.

Tenir l'antenne dans ses mains pendant qu'elle transmet, ou se tenir près d'une antenne émettrice pendant une période prolongée, pourrait entraîner une exposition aux RF qui dépasse les recommandations de la FCC et de Santé Canada.

Une fois l’équipement sous tension et opérationnel, il émettra de l’énergie RF. Les installateurs, les techniciens et le grand public doivent garder une distance d'au moins 1 mètre par rapport au plan de l'antenne.

Cet équipement a été testé pour l'exposition des humains à l'énergie RF. Il répond aux exigences de l'OSHA, de la FCC et de Santé Canada à condition qu'il soit installé de la manière décrite dans ce manuel et utilisé conformément au guide de l'utilisateur.

Field Calibration Procedure

Aclara Technologies LLC low power RF devices have passed through extensive testing and calibration procedures while in the factory. Therefore, no additional calibration or adjustment is required in the field.

Procédure de calibration sur place

Les appareils RF à faible puissance Aclara Technologies LLC ont été soumis à des tests étendus et multi-tâches et à des procédures de calibration complexes en usine. Par conséquent, ils ne requièrent pas de calibration ni d'ajustement supplémentaire sur place.

CHAPTER

2

PRODUCT SPECIFICATIONS

The following table summarizes the specifications of Aclara's Edge Gateway device.

External enclosure	**NEMA 2 anodized aluminum, IPO2**
Dimensions (LxWxD)	**5.77" x 4.27" x 1.87" (146.6mm x 108.5mm x 47.5mm)**
Weight	**1.1 lbs. (0.50 kg)**
Operating frequency	**450MHz–470MHz, 901MHz–902MHz, 930MHz–931MHz, 940MHz–941MHz**
Input voltage	**6Vdc - 30Vdc**
Operating temperature	**-40° C - +85° C**
Operating humidity	**0% - 95% non-condensing**
Serial	**RS-232, DB9 DTE**
Ethernet	**RJ-45**
Antenna connector	**SMA Female**
RF Output	**1W maximum**
Supported protocol	**DNP3I**

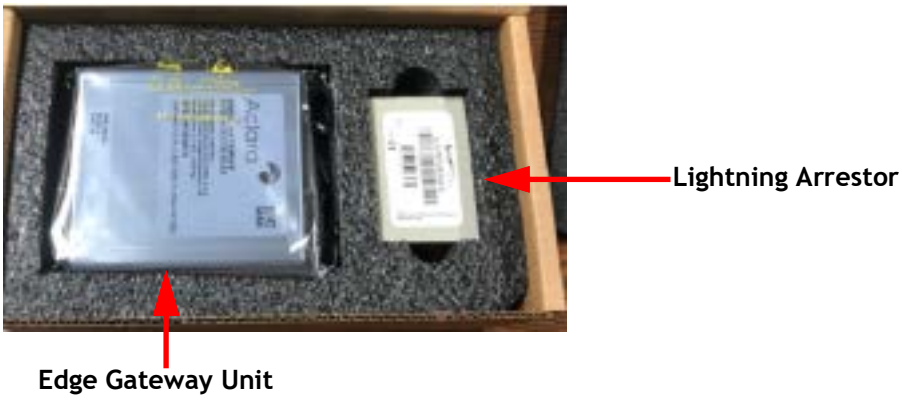
CHAPTER

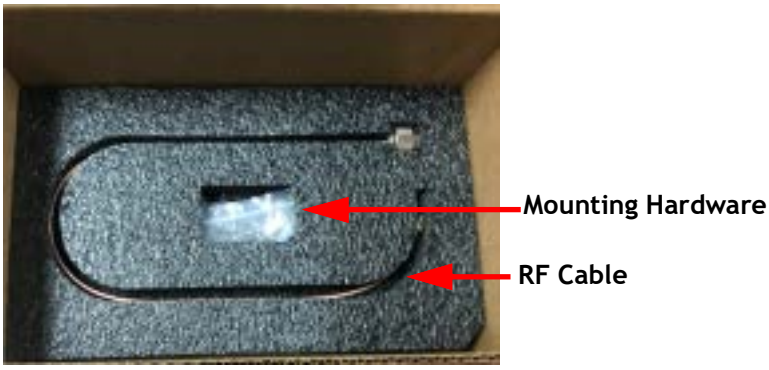
3

INSTALLATION AND CONFIGURATION

This section of the document describes the contents of the Aclara Edge Gateway within the box when it arrives and how to configure the Edge Gateway device to connect with external controllers. This section describes how to install the Edge Gateway device into Beckwith Capacitor Bank Controllers, M-6280A and M-6283A, using the installation kit PN 109-BECM6280A. It also describes how to install the Edge Gateway device into Schweitzer Recloser Controllers, SEL-651R and SEL-351R, using the install kits PN 109-SEL351R or 109-SEL651R.

Unpacking the Contents of the Aclara Edge Gateway Carton





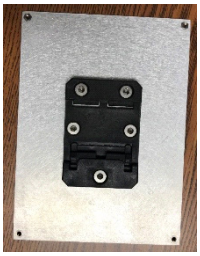
- Edge Gateway Unit

- Mounting Hardware
  - Quantity 4, 4-40 x 3/8” stainless steel pan head Phillips machine screws with external tooth lock washers
  - Quantity 4, 4-40 stainless steel hex nuts with lock washers
- Lightning Arrestor
- RF Cable (Aclara PN 070-2600-02)
- Lightning Arrestor (Aclara PN 0015-0064)

Contents of Beckwith Install Kit (PN 109-BECM6280A)

- Shielded Ethernet Cable (Aclara PN 070-1800)
- Power Cable (Aclara PN 070-2000C)
- Earth Ground Cable (Aclara PN 070-3000C)

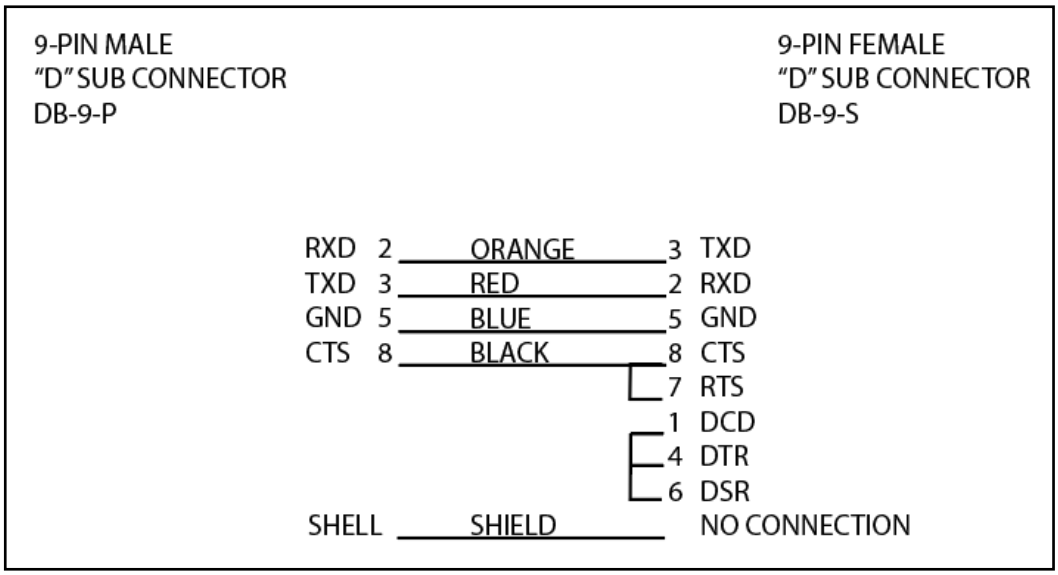
Contents of Schweitzer SEL-351 Install Kit (Aclara PN 109-SEL351R)

PN 109-SEL351R	Description
	Lighting Arrestor Adapter Plate (Aclara PN 056-0130)
	Power Cable (Aclara PN 070-2000S)
	DIN Rail Mounting Plate Assembly (Aclara PN 109-3357-45)
	Earth Ground Cable (Aclara PN 070-3000S)

Not included in the Aclara supplied kit, and to be ordered separately from Schweitzer:

- Schweitzer serial port cable (Schweitzer PN SEL-C234A) or equivalent for serial port communications.
- Schweitzer serial converter (Schweitzer PN SEL-2890) and associated serial cable for proper communications.

NOTE In the event you do not use a Schweitzer serial cable, use a generic RS-232 DTE null modem cable or the serial cable recommended by the manufacturer of your end device. Refer to the following diagram for connection information.



Contents of Schweitzer SEL-651 Install Kit (Aclara PN 109-SEL651R)

- Shielded Ethernet Cable (Aclara PN 070-1800)
- Power Cable (**Aclara PN 070-2000R**)
- Earth Ground Cable (Aclara PN 070-3000R)
- Lightning Arrestor Adapter Plate (Aclara PN 056-0130)

Not included in the Aclara supplied kit and to be ordered separately from Schweitzer:

Schweitzer Accessory Shelf (Schweitzer PN 9250567) for mounting into the SEL-651 unit.

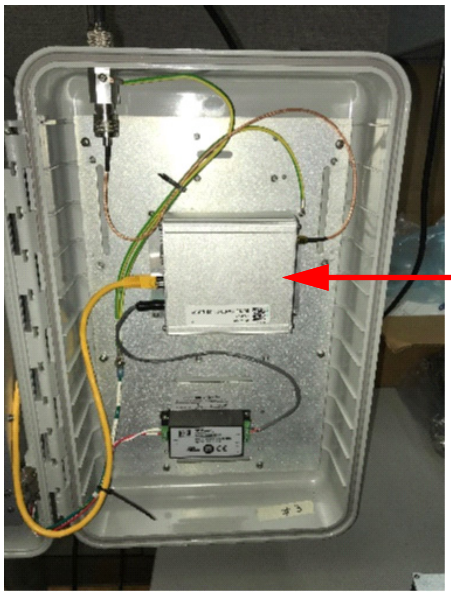
Installer Kit

- USB Type A to Type A Cable (Aclara PN 070-1703)

Installation of Edge Gateway into Beckwith Capacitor Bank Controller

The Edge Gateway device mounts directly onto the M-6280A or M-6283A Beckwith Capacitor Bank Controller utilizing the Utilinet mounting holes and the four provided mounting bolts.

1. Mount the Edge Gateway device with the RF connector facing to the right. Mount using the four provided mounting bolts connecting the earth ground cable to the top right mounting bolt.



NOTE The 4 nuts are not required and may be discarded.

2. Create the antenna/lightning arrestor mounting hole as desired. Aclara recommends a location at the bottom of the enclosure.

NOTE The preferred hole type is a 5/8” diameter “D” or “Double D” shaped hole. It is not recommended to punch these holes into the polycarbonate case.

3. Mount the lightning arrestor into the enclosure.
4. Attach the RF cable from the Edge Gateway device to the lightning arrestor.
5. Attach the earth ground cable to the lightning arrestor.
6. Attach the earth ground cable to the back-panel grounding stud.
7. Mount the antenna using the local or remote mounting kits, and connect the antenna cable to the lightning arrestor.
8. Attach the provided shielded Ethernet cable.
9. Connect the provided power cable to the Edge Gateway using the 2.1 mm connector.
10. Connect the other end of the power cable to the 12V power supply provided by Beckwith.
11. Configure the Edge Gateway as described in *Edge Gateway Configuration* of this manual.

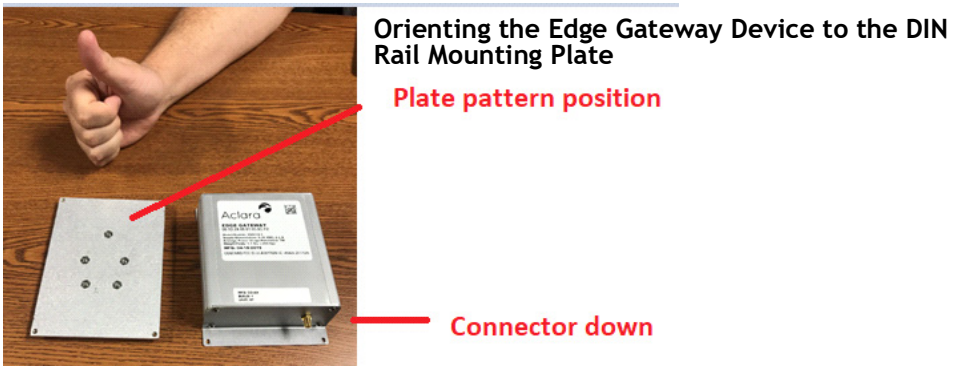
Installation of Edge Gateway into Schweitzer SEL-351 Recloser Controller

The Edge Gateway requires a DIN rail mounting kit to mount to the Schweitzer SEL-351 recloser controller.

1. Mount the Edge Gateway unit onto the DIN rail mounting plate assembly (PN 109-3357-45) using 3 of the mounting bolts supplied with the Edge Gateway unit. Use the 4th mounting bolt for the ground connection described in Step 4.

NOTE The 4 nuts are not required and may be discarded.

2. Mount the Edge Gateway device to the DIN Rail in the enclosure with the RF connector facing downwards.



3. Attach the ground cable to the lightning arrestor. Using the lightning arrestor adapter plate (PN 056-0130), mount the lightning arrestor (PN 0015-0064) to the bottom of the recloser controller enclosure at the desired location.
4. Attach the earth ground cable to a grounding stud inside the enclosure, and to the lightning arrestor, using the 4th mounting bolt mentioned in Step 1.
5. Mount the antenna using either the local or remote antenna mounting kits, and connect the antenna cable to the lightning arrestor.

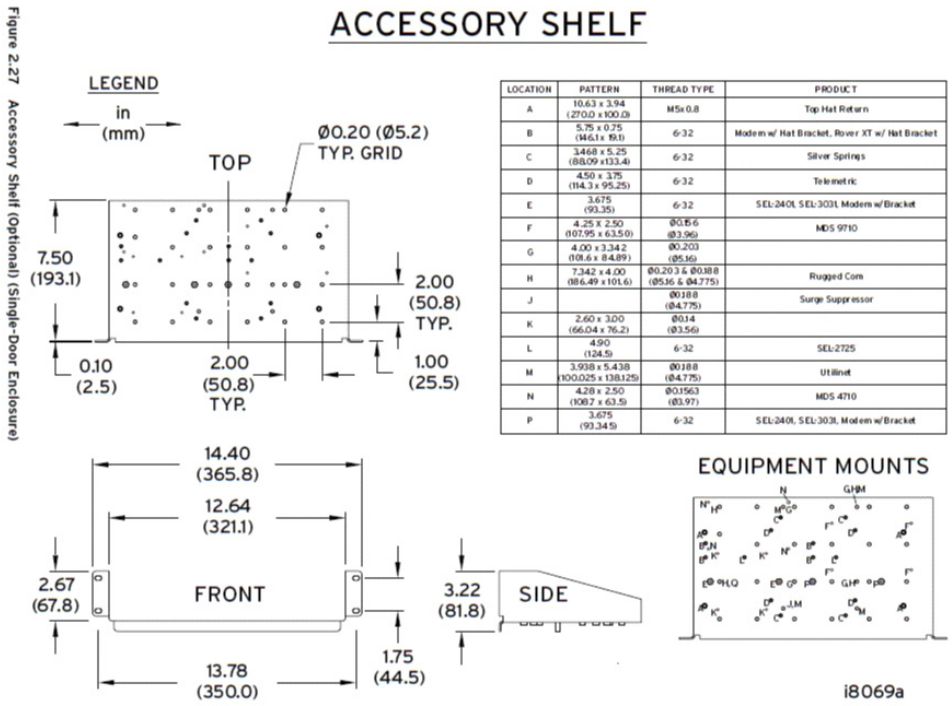
6. Attach the provided RF cable to the RF connector on the Edge Gateway device and the lightning arrestor.

7. Attach the SEL-C234A serial cable to the serial port on the Edge Gateway device and to the serial ports on the SEL-351 that is configured for DNP3. Alternatively attach the provided shielded Ethernet cable to a properly configured and installed SEL-2890 Ethernet transceiver (not provided by Aclara).
8. Connect the provided power cable to the Edge Gateway device using the 2.1 mm connector.
9. Connect the other end of the power cable to a 12V supply (supplied by Schweitzer) on the SEL-351 recloser controller.
10. Configure the Edge Gateway device as described in *Edge Gateway Configuration* of this manual.

Installation of Edge Gateway into Schweitzer SEL-651 Recloser Controller

The Edge Gateway device mounts directly onto the Schweitzer SEL-651 Accessory Shelf utilizing the Utilinet mounting holes (M) as shown in the following image with the provided 4 mounting bolts and nuts.

Figure 2.27 Accessory Shelf (Optional) (Single-Door Enclosure)



LOCATION	PATTERN	THREAD TYPE	PRODUCT
A	10.63 x 3.94 (270.0 x 100.0)	M5x 0.8	Top Hat Return
B	5.75 x 0.75 (146.1 x 19.1)	6-32	Modem w/ Hat Bracket, Rover XT w/ Hat Bracket
C	3.468 x 5.25 (88.09 x133.4)	6-32	Silver Springs
D	4.50 x 3.75 (114.3 x 95.25)	6-32	Telemetric
E	3.675 (93.35)	6-32	SEL-2401, SEL-3031, Modem w/Bracket
F	4.25 X 2.50 (107.95 x 63.50)	Ø0.156 (Ø3.96)	MDS 9710
G	4.00 x 3.342 (101.6 x 84.89)	Ø0.203 (Ø5.16)	
H	7.342 x 4.00 (186.49 x 101.6)	Ø0.203 & Ø0.188 (Ø5.16 & Ø4.775)	Rugged Com
J		Ø0.188 (Ø4.775)	Surge Suppressor
K	2.60 x 3.00 (66.04 x 76.2)	Ø.14 (Ø3.56)	
L	4.90 (124.5)	6-32	SEL-2725
M	3.938 x 5.438 (100.025 x 138.125)	Ø0.188 (Ø4.775)	Utilinet
N	4.28 x 2.50 (108.7 x 63.5)	Ø0.1563 (Ø3.97)	MDS 4710
P	3.675 (93.345)	6-32	SEL-2401, SEL-3031, Modem w/Bracket

1. Using the Lightning Arrestor Adapter Plate (PN 056-0130), mount the Lightning Arrestor (PN 0015-0064) to the bottom of the recloser controller enclosure at the desired location.

2. Attach the earth ground cable to a grounding stud inside the enclosure, to the lightning arrestor, and the Edge Gateway unit using one of the 4 mounting bolts holding the Edge Gateway device to the accessory shelf.
3. Mount the antenna using either the local or remote antenna mounting kits, and connect the antenna cable to the lightning arrestor.
4. Attach the provided RF cable to the RF connector on the Edge Gateway device and the lightning arrestor.
5. Attach the provided shielded Ethernet cable to the Ethernet port on the SEL-651.
6. Connect the provided power cable to the Edge Gateway device using the 2.1mm connector.
7. Connect the other end of the power cable to a 12V supply (provided by Schweitzer) on the SEL-651 recloser controller.
8. Configure the Edge Gateway device as described in *Edge Gateway Configuration* of this manual.

Recommended SCADA Settings

The Edge Gateway utilizes the proprietary Aclara RF™ 3.0 Network Protocol to communicate with other components within the Aclara RF Network. Given the lower bandwidth and narrow band nature of the Aclara RF Network, the following SCADA system settings are recommended:

- UDP communications is recommended.
- Intelligent Electronic Device (IED) or Remote Port number should always be 20000 for all IEDs
- The SCADA or Local Port number should be unique for each IED. Aclara recommends starting with 20001, since the SCADA master is Port 20000, and use the DNP3 Node number as part of the port number. For example, for Node 11, the port number should be 20011.
- Remote Host IP address
  - DNP3/IP devices (Ethernet connection from the Edge Gateway device to the IED): The IP address of the IED device MUST be used for SCADA setup, **NOT** the Edge Gateway. Aclara recommends that the Edge Gateway IP address be 1 lower or 1 higher than the IED. Example: IED 10.31.15.49:20000 and Edge Gateway IP 10.31.15.48. For DNP3/IP devices, the Edge Gateway port number does not need to be assigned.
  - DNP3/Serial Devices (serial connection from the Edge Gateway to the IED): The IP address of the Edge Gateway MUST be used for the SCADA setup as the IED does not have an IP address.
- Status scans should be no faster than every 20 seconds. Aclara recommends 1-2 minutes.

- Integrity polls should be no faster than every 15 minutes. Aclara recommends once every hour.
- Keep alive time (Link Status) should be no faster than 60 seconds.
- Response timeouts should be no shorter than 5 seconds.
- Aclara recommends the use of unsolicited data, so changes to the IED can be reported in a timely fashion. This allows the Scans and Integrity Polls to be as infrequent as possible.

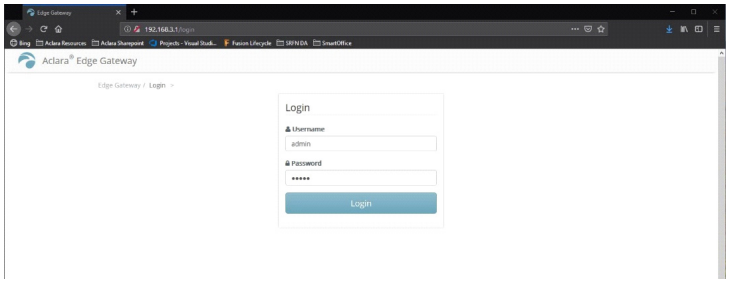
Edge Gateway Configuration

Once installed into the IED of choice using the proper installation kit, the Edge Gateway device will need to be configured for proper communications to the IED and SCADA system using the USB cable provided in the installer kit.

1. Apply power to the Edge Gateway device using the power cable from the appropriate install kit.
2. Connect the USB cable provided in the install kit to both the Edge Gateway device and a computer.

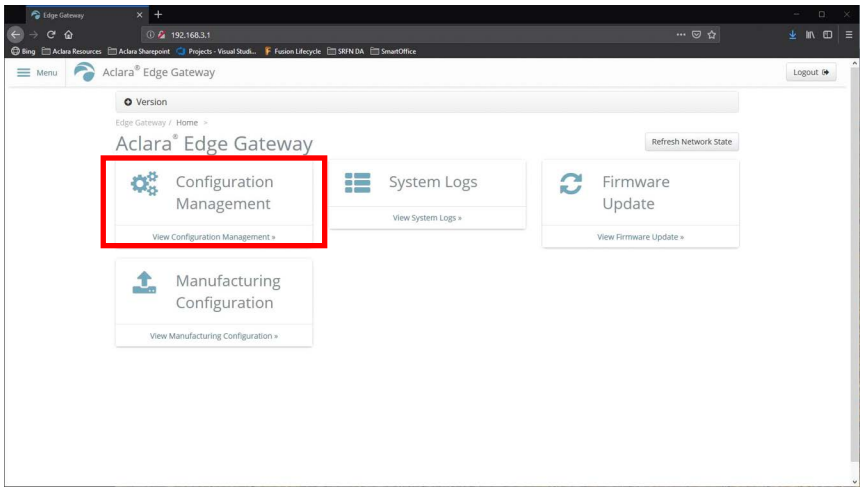
NOTE A Windows PC requires the RNDIS driver installed to communicate with the Edge Gateway device.

3. Open a browser and enter 192.168.3.1 in the address bar, and you will see the login screen.



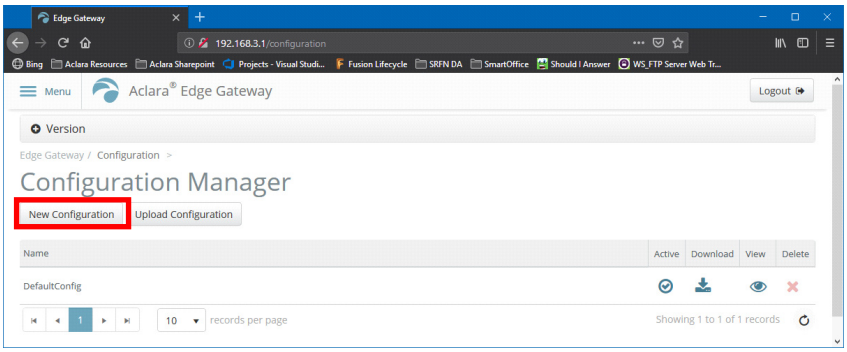
NOTE Only Firefox, Edge, or Chrome browsers are supported.

4. Login using the Username and Password provided by Aclara to view the main screen.



NOTES The default password for Username “Admin” is “HubbellAclara”. The default password for Username “User” is “user”. To secure the Edge Gateway user interface and protect against unauthorized users of the device, it is required that the passwords for Administrator and User accounts be changed during initial configuration of the Edge Gateway. Keep passwords secure to prevent unauthorized login.

5. From the main screen select **Configuration Management** to view the Configuration Manager screen.



6. Click on the **New Configuration** button.
7. Enter a name for the configuration and enter all the information required for your specific setup.

NOTES The information required is determined by the type of interface to the Intelligent End Device (IED) (Serial or Ethernet).

IP address is for the Edge Gateway device, not the connected IED. The IED is configured via its user interface.

8. Click on **Save**.

Troubleshooting

NOTE In order to cycle power, both the USB and power cables must be disconnected from the Edge Gateway device. Power down takes approximately 1 minute. If power is reconnected before 1 minute, the Edge Gateway device may not properly reboot.

CHAPTER

4

SUPPORT

There are several ways to get help when you have a question, an issue, or would like to speak with Aclara's support personnel.

Support

- Aclara Connect

  Aclara's customer portal (https://connect.aclara.com) enables you to access our frequently-updated knowledge database, easily access product documentation, submit and track your Support cases and RMAs, access Aclara University's Online Learning Center (OLC) and learning library, track your orders, join communities and groups, join in discussions with other Aclara customers and Aclara personnel, and much more. If you do not have access to Aclara Connect, email AclaraSupport@Hubbell.com and request access.

- Aclara University

  Aclara's on-demand training makes content available to you in a convenient, cost-effective online environment. The OLC has recordings of several webinars, streaming educational videos, software simulations, and short videos which walk you through a specific task. Access the OLC by going the Training tab of Aclara Connect and clicking the Aclara University link.

- Technical Support

  Email AclaraSupport@Hubbell.com or call 1-800-892-9008 to speak with an Aclara representative.

Returning Product

To return Aclara products for repair, complete an RMA Request on Aclara Connect https://connect.aclara.com), providing as much detail about the problem as possible. If you have any questions regarding your return, please call 1-800-892-9008 or email Aclararma@Hubbell.com.