

ION System Security

PowerLogic™ ION™ system security consists of ION Enterprise™, ION Setup, and ION meter security.

- ◆ ION Enterprise and ION Setup security requires you to log on to its components with a user name and password. It restricts the use of ION Enterprise or ION Setup to view or setup configuration changes on the meter.
- ◆ ION meter security requests a password when you attempt to save a change on the meter through the front panel of the meter or using software (ION Enterprise, ION Setup or third party software).

Some ION meters support Advanced security, which allows you to configure the meter to recognize multiple users. The users can have different levels of access to the meter components and functionality.

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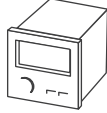
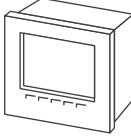

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Additional Information

- ◆ Your meter’s technical documentation
- ◆ *ION Reference*

Overview of Security

Two separate layers of system security protect your power monitoring system from unsolicited changes or tampering: ION Enterprise, ION Setup and ION meter security. Each type of security has its own password protection scheme. An optional hardware lock security is also available for revenue meters.

ION Enterprise and ION Setup Security	ION Meter Security		
			
<ul style="list-style-type: none"> ◆ Requires valid username and password when starting any ION Enterprise or ION Setup component ◆ Logon provides your security access level, which in turn determines the configuration changes that you can make ◆ Password-enabled access is separate from meter security ◆ You must still provide the meter's password to make any configuration changes 	<ul style="list-style-type: none"> ◆ Requires a password separate from the ION Enterprise or ION Setup password 		
	<p>Front Panel</p>	<p>Standard</p>	<p>Advanced</p>
	<ul style="list-style-type: none"> ◆ Requires single password with no username ◆ Meter password required for changes made through the front panel 	<ul style="list-style-type: none"> ◆ Requires single password with no username ◆ Meter password required for changes made through the front panel or using software 	<ul style="list-style-type: none"> ◆ Up to 16 different users allowed, each user has unique access rights ◆ Requires both user name and password
<p>Available security options vary depending on the type of meter.</p>			

Optional: Hardware Lock Security

- ◆ Meter is physically locked
- ◆ Denies any changes to revenue-related parameters
- ◆ Must unlock and place the meter in TEST mode to change revenue related modules

ION Enterprise Software Security

The ION Enterprise security system limits how you can view meter data and send configuration changes to ION meters. You must have a valid user account to log on to any ION Enterprise application. Your access level determines the type of operations you can perform.

Security Access Levels

Security access levels define how you can use the software to view and acknowledge meter data or set up configuration changes that are sent to a meter. The following table summarizes the user accounts and their permissions.

Type of Operation Allowed for User	Access Level				
	Observer (1)\ View Only	User (2)	Controller (3)	Operator (4)	Supervisor (5)
View Vista or Designer diagrams	YES	YES	YES	YES	YES
Acknowledge alarms ¹		YES	YES	YES	YES
Trigger events ¹			YES	YES	YES
Connect/disconnect sites or devices			YES	YES	YES
Modify network configuration (using Management Console)				YES	YES
Edit Vista or Designer diagrams					YES
Administer software security (i.e., add users)					YES

¹ Supervisors can configure Vista objects (i.e., control objects, global event log viewer) to set different access levels to different actions. See the Vista section of the *ION Enterprise Help* for more information.

NOTE

Vista control objects have a default “may operate” setting of Controller(3). If you want individuals with “User” security access to be able to perform a control object’s double-click action, you must change the “may operate” level to User(2).

Note that ION Enterprise access does not necessarily give you access rights to view or configure information on all meters.

For example, you log in to Designer with supervisor-level access. If you change a setting in an ION module and then send this change to a meter with Standard Meter Security enabled, the meter requests its own password before executing the change. In other words, supervisor-level access allows you to modify settings in ION Enterprise, but the meter provides its own, second layer of security.

If Advanced security is enabled on the meter, you must supply a username and password to connect to the meter and view data.

Creating or modifying ION Enterprise user accounts

1. Start Management Console and log in with Supervisor-level access.
2. Select **Tools > User Manager**.
3. Select the **Users** tab.
4. Click **New** to add a new user. A new row appears in the list of users and the fields in the Edit User Account area are empty.
5. Enter the user information in the Edit User Account area (username and password are required; other information is optional).
6. Click **OK** to save the changes and exit User Manager.

To modify a user account, select a user from the list and type the new information in the fields in the Edit User Account area.

ION Setup Software Security

ION Setup provides a four-level security access system. Supervisor-level personnel can control access and define which functions are available to each user by grouping the user according to security level, as follows:

- ◆ **Supervisor:** This level is for management or supervisory personnel. This permits access to all device configuration functions, including the security list, system/network configuration, and data display functions.
- ◆ **Operator:** This level is for high level system operators. This permits access to system configuration and data display functions. Operators should be well trained in operating ION Setup.
- ◆ **Controller:** This level allows a controller to display data but not to change ION Setup or meter configuration. This level also allows a controller to operate triggers.
- ◆ **User Security level 1:** This is suitable for personnel that use ION Setup on a regular basis and who inform Supervisors or Operators of alarm conditions.

Entering the software user name and password

Enter your valid user name and password when prompted.

Creating or modifying ION Setup user accounts

1. Start ION Setup and log in with Supervisor-level access.
2. In the Network Viewer, select **Tools > Options**. The **Options** dialog box appears. Select the **Security** tab.
3. Use the dropdown list to view or add users with a specific access level. Use the available buttons to Add or Delete accounts or Edit (for example, changing passwords) existing accounts. Please note that both the username and password are case sensitive.

ION Setup supports a maximum of 50 users.

ION Meter Security

Security options available, and the default setting, vary depending on the device.

Any configuration changes sent to the meter through its front panel must be validated with the meter's password before the change is set on the meter. Some meters also require a password before you can make changes via the meter's communication ports.

The Meter Password

The meter password is a numeric string of up to eight digits.

Front Panel Programming Register (ION7550, ION7650 and ION8600 only)

This setup register in the Display Options module lets you lock out any changes through the front panel. You can set this register using ION Setup or the Designer component of ION Enterprise.

Front Panel Meter Security

With front panel meter security, all configuration functions in the front panel are password-protected. The default password is 0 (zero).

If you make configuration changes to the meter via the front panel, the meter prompts you for its password before accepting any configuration changes. Once you enter the correct meter password and confirm the new configuration, the change is set on the meter.

The front panel prompts you for the meter password before you make your first configuration change. You do not need to re-enter the password for each subsequent change. However, if you perform no additional configuration changes for five minutes, you will need to re-enter the Setup menu and provide the valid meter password to resume making changes. This is because the meter returns from setup mode to data display mode after five minutes of inactivity.

Standard Meter Security

With standard meter security; all configuration functions in the front panel are password-protected. The default password is to 0 (zero).

If you make configuration changes to the meter via the front panel, the meter prompts you for its password before accepting any configuration changes. Similarly, if you make any configuration changes via ION Enterprise or ION Setup, you are prompted by the meter for its password (in addition to the password used to access ION Enterprise or ION Setup). Once you enter the correct meter password and confirm the new configuration, the change is set on the meter.

Note that the front panel prompts you for the meter password before you make your first configuration change. You do not need to re-enter the password for each subsequent change.

If you do not perform any additional configuration changes for five minutes, you will need to re-enter the Setup menu and provide the valid meter password to resume making changes. This is because the meter returns from setup mode to data display mode after five minutes of inactivity.

Configuring Standard meter security in Designer

1. Start Designer and log in with Supervisor-level access.
2. Open your meter. Select **Options > Show Toolbox** if the toolbox is not displayed.
3. Select **Options > Change Standard Meter Security**.
4. Enter the meter password when prompted. You must enter the existing meter password before you can change security settings.
5. Make the desired changes:
 - ◆ Type a new numeric password and confirm it by re-typing the password in the appropriate fields.
 - ◆ If you are sure you want to disable Standard security, check the Disable Standard Meter Security check box and click **OK**.

CAUTION

Do not disable security unless it is absolutely necessary. Disabling Standard security leaves your meter configuration open to tampering (intentional or unintentional) through communications and the front panel.

Configuring Standard meter security in ION Setup

1. Start ION Setup and log in with Supervisor-level access.
2. Connect to the meter.
3. Once connected, double-click the Setup Assistant and select Security.
4. Select Standard Mode and click **Edit**.
5. In the **Open File** dialog, select the Standard.scf file and click **Open**.
6. Select the check boxes of the security options you want enabled. Some options may be unavailable due to existing security settings. Click **Finish**.

You can also change your meter's password on this screen. Type a new numeric password and confirm by re-typing the password in the fields.

7. Click **Send** to send the changes to the meter.

Advanced Meter Security

Advanced meter security allows you to configure up to 16 users, each with unique access rights to the meter. Access rights consist of the following levels:

- ◆ **Read:** view any parameter except the security configuration.
- ◆ **Peak Demand Reset:** perform a reset of peak demand values (for example, sliding window demand for kW, kVAR, kVA, etc.).

- ◆ **Timesync:** set the time on the meter.
- ◆ **Full Meter Configuration:** configure any programmable register on the meter except for registers related to the security setup, registers that result in a demand reset, or actions that place the meter in test mode.
- ◆ **Test Mode:** put the meter into test mode.
- ◆ **Advanced Security Configuration:** configure Advanced security for the meter, full meter configuration must also be set to YES.

When configuring users, in most cases you must set Read access to YES. However, you can set up a user without read access; for example, you may want to create a user who can only timesync the meter. In some cases (such as Advanced security configuration access) you must set multiple access options to YES. When you are configuring Advanced security, the software rejects unacceptable or unsafe user configurations.

 **NOTE**

Use only ION Enterprise or ION Setup v1.1 and later to configure Advanced security. ION Setup has a Setup Assistant that guides you through Advanced security setup.

When you attempt to view data or make a change to a meter that has advanced security enabled, you are prompted for a username and password.

 **NOTE**

User names are fixed as USER1 through to USER16.

Configuring advanced security using ION Enterprise

1. Start Designer and log in with Supervisor-level access.
2. Select **File > Open** and select the meter you want to configure with Advanced security. Select **Options > Show Toolbox** if the toolbox is not displayed.
3. If you do not want to allow front panel programming using the Standard security meter password, right-click on the Display Options module and change the Front Panel Programming register to disallow.

 **NOTE**

If you allow front panel programming when you set up Advanced security, the meter password (used in Standard security) is still active through the front panel. You may need to allow front panel programming if someone installs the meter in the field and needs to make setup modifications. Once the meter is installed, you can disallow front panel programming so that Advanced security user names and passwords must be used to view or change meter information.

4. Double-click on the Security Setup folder. For each user you want to configure, drag out a Security User module from the Toolbox and modify the appropriate access level setup registers.
5. Click **Change Password** at the bottom left of the module setup screen to configure a password. Click **OK** when you have configured the user.

6. Right-click on the Security Options module.
7. Double-click on any setup register and use the dropdown list to change the register setting or label.

You must set the *Enable Advanced Security* register to Enabled. See the Security Options module description in the *ION Reference* for more information.

8. Select **File > Send & Save**. Advanced security is now enabled on the meter.

Configuring advanced security using ION Setup

If you are using ION Setup, follow the instructions below. See the ION Setup User Guide for more details.

1. Start ION Setup and log in with Supervisor-level access.
2. Connect to the meter you want to configure with Advanced security.
3. Double-click the Setup Assistant and select the Security screen.
4. Select Security Mode and click **Edit**.
5. In the **Open File** dialog, select the Advanced.scf file and click **Open**.
The Advanced Security wizard appears and leads you through the configuration procedure.
6. On the first configuration screen, select the check boxes of the security options you want enabled. Some options may be unavailable due to existing security settings. Click **Next**.
7. On the second configuration screen, select the check boxes of the users you want to configure (1 through 16). Click **Password** to set a password for each user. Click **OK** then click **Finish**.

NOTE

Selecting the Test Mode Access check box is ignored on hardware locked meters. Users will still only be able to put a hardware locked meter into Test Mode using the front panel.

8. When prompted, type a new name for your advanced security file and click **Save**. If you want to overwrite your default advanced security file, select Advanced.scf and click **Save**.
9. Click **Send** to save the changes to the meter.

Device Security Access for ION Services

Many ION Services need constant access to your network's ION devices. These services include the ION Log Inserter Service, the Virtual Processor and ION Site Service that perform these types of functions:

Service	Function
ION Log Inserter Service	Reads the ION meter Data Recorder or Waveform modules and can automatically rearm recorders that are configured as Stop-When-Full.
ION Virtual Processor Service	Can be configured to read from a meter or perform control action using Distributed Control.
ION Site Service	Broadcasts time signals to the meter.

When Advanced meter security is enabled, these services may not have sufficient access rights to perform their operations. You must specify a user with sufficient access rights for these services.

NOTE

You may want to configure a separate user for accessing services. If you observe trouble with ION Enterprise components accessing the meter, it is likely that these services either do not have access rights or the original user name and password have changed.

Allowing ION Services access to advanced security enabled meters (ION Enterprise)

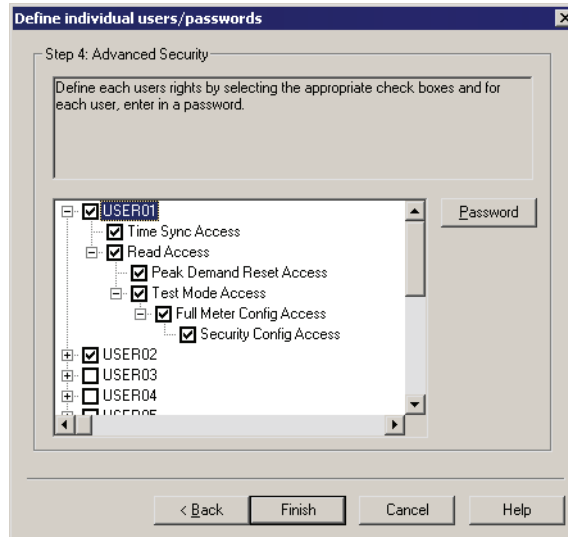
1. Start Management Console and click Devices on the System Setup Pane.
2. Highlight the ION device (or select multiple devices) with Advanced security enabled, right-click and select Security. The **Meter Security Settings** dialog box appears.
3. Select the username you want from the dropdown list. Select a user (configured in Designer) with the appropriate access settings (see "Configuring advanced security using ION Enterprise" on page 8).
4. Click **Match Password** and type the password for that user in the Password field then re-type it in the Confirm Password field.
5. Select the check box if you want to allow the software to send secure time synchronization signals to the meter.
6. Click **OK** to save your changes.

Allowing ION Services access to Standard security enabled meters (ION Enterprise)

1. Start Management Console and click Devices on System Setup Pane.
2. Highlight the ION device (or select multiple devices) with Standard security enabled, right-click and select Security.
3. Select Standard Security from the dropdown list. Click **OK**.
4. Type the meter password for Standard Security in the Password field then re-type the password in the Confirm Password field. Click **OK**.

Allowing ION Services access to advanced security enabled meters (ION Setup)

1. Start ION Setup and log in with Supervisor-level access.
2. Connect to the meter you want to configure with Advanced security.
3. Double-click the Setup Assistant and select the Security heading.
4. Select Security Mode and click **Edit**.
5. In the **Open File** dialog, select the Advanced.scf file and click **Open**.
6. On the first configuration screen, click **Next**. The user definition screen appears.



7. Select the check box of USER01 then select the rights you want to grant this user. Select Time Sync Access if you want to allow this user to send time synchronization signals to the meter.
8. Select USER01 and click Password to set a password for the user. Click **OK** then click **Finish**.
9. When prompted, type a new name for your advanced security file and click Save. If you want to overwrite your default advanced security file, select Advanced.scf and click **Save**.
10. Click **Send** to save the changes to the meter

Additional Revenue Metering Security

To meet government regulations and utility security requirements, the revenue meter incorporates additional security systems:

- ◆ a hardware-locked security system that prevents modification of revenue quantities after the meter is sealed.
- ◆ a traditional anti-tamper mechanical seal on the meter base unit.

Hardware Lock Security Option

Some ION meters offer a hardware-locked security feature. To make configuration changes on a hardware-locked meter, you must first place the meter in TEST mode. See your *User Guide* for instructions on placing your meter in TEST mode. On an ION meter with Hardware Lock option, you cannot activate TEST mode remotely.

Hardware Lock and Protected Values

The revenue-related settings on ION meters with the Hardware Lock option are factory configured and cannot be changed, even in TEST mode.

Typical values that are protected include:

- ◆ kWh, kVARh, kVAh delivered, received, del-rec, del+rec.
- ◆ kW, kVAR, kVA Thermal and Sliding Window demand min and max values.
- ◆ Digital Outputs controlling the energy pulsing applications.
- ◆ All Power system settings, including PT and CT ratios.

In certain countries, revenue certification is void if the hardware lock is broken.

The Hardware Lock Option can be combined with Advanced Security and the Front Panel Security to offer the highest level of security. Once TEST mode is activated, all rules above for Advanced and Standard Security still apply. When not in TEST mode, no changes to the locked parameters can be made. Those parameters that are not locked are outside the revenue metering space. However, if Advanced Security and Front Panel Security are enabled, the unlocked portion of the meter is secured by the rules for Advanced and Standard Security.

Locked Module Listings

For a complete list of locked modules specific to your meter and firmware, contact Technical Support.

Anti-Tamper Seals

Revenue meters incorporate one or two sealing cans through which traditional lead/wire seals are inserted. These seals effectively prevent unauthorized personnel from gaining access to meter internals, and are provided with the meter.