CPF Itron Meter Test

Homeowner

Name: _____

Street: _____

City: _____ State: _____ Zip: _____

Technician Name: _____

Installer Company: Trinity Solar

Itron Serial Number: _____

ICS Code: 551   ____   _____   ____   ____   ____

Confirmation Number: _____

Date: _____

Confirm the following:

❑ Power on Itron Meter

❑ LED 2 & 3 Solid Red   ❑ LED 0 & 1 Blinking Red

❑ ◀ (Left)   ❑ ▲ (Up)   ❑ ▶ (Right)
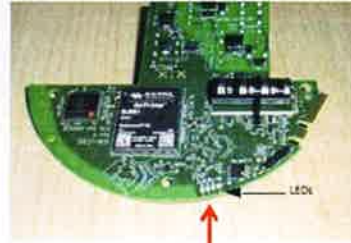
❑ Call CPF Monitoring **1-866-525-2123 ext. 5**

❑ Leave **Itron Meter Powered On.**

Procedure for CPF ITron Meter Test

1. Install and Power on ITron Meter + PV System

2. Confirmed ITron is installed correctly. Checklist

- ☐ ITron appears to be powered on and display is active
- ☐ Red LEDs (Heartbeat) behaving as expected
  - ○ Solid 3 – 2 LED Lights
  - ○ Toggling 1 – 0 LED Lights
- ☐ Arrow on Display Pointed in the Correct Direction
  - ○ Black Arrow Pointed Left,
  - ○ Bars moving right to left (when PV is ON)

3. Check Cellular Connection (See Below for Error Codes)

- ○ Wait for ICS Cellular Status Codes to scroll through
- ○ When Code = 551_105XX Installation is complete,
- ○ Prepare the following Information:
  1. Homeowner Name / Address
  2. Itron SN
  3. ICS / 551 Code
  4. Direction of Arrow
- ○ Contact CPF Monitoring to relay information
  - ▪ 1866-525-2123 ext 5 for verbal communication
  - ▪ OR Send email that includes
    - • Homeowner Name / Address
    - • Picture of Itron Meter with SN,ICS Code and Arrow legible to Monitoring@cleanpowerfinance.com

"PCB Notation" – RED LED
3 – 2 – 1 – 0

RED LED Definitions

- • 3 & 2 - SOLID ON
  - • Successful Network Registration
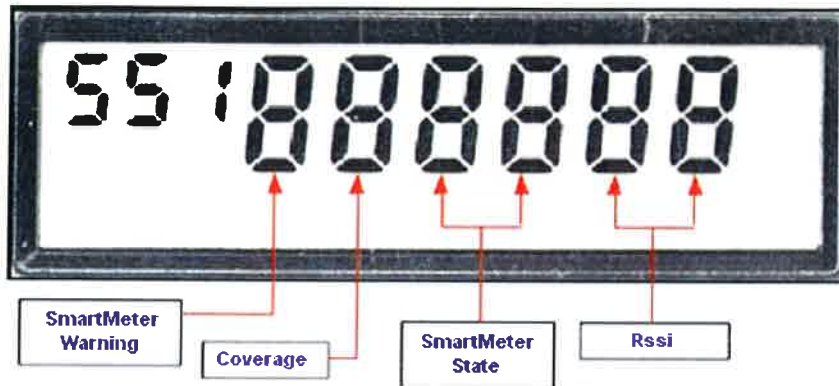
- • 1 & 0 – Blinking (Toggling)
  - • Successful Modem F/W Boot-Up (Heartbeat)

4. For Troubleshooting:
- ☐ Contact CPF Monitoring Support:
  - • 1866-525-2123 ext 5
  - • Monitoring@cleanpowerfinance.com
- ☐ For Tier 2 Support
  - • 1-877-487-6602
  - • support@itron.com

5. Before Leaving Site:
- ☐ Leave **ITron Meter Powered ON**

Smart Meter Warning

—	🟢	Normal operations – no errors
1	🔴	SmartMeter module's NVRAM error
2	🔴	Read/write failure in the Common Configuration area - NVRAM
3	🔴	Read/write failure in the App. Specific Configuration area - NVRAM
4	🔴	Actual firmware binary image is corrupted
5	🔴	Firmware image decompression error
6	⚫	Meter clock deviation is greater than the maximum correction limit

Coverage

0	No Cell Signal / Unable to Register
1	Register with Network, Good Coverage
2	Searching for Cell Network
3	Unable to Locate Cell Network

Smart Meter State

00	⚫	Initial state – SmartMeter not Quality Controlled yet
01	⚫	SmartMeter passed the Meter Integrator QC
02	🟢	SmartMeter passed Utility QC & is ready for deployment
03	🟢	SmartMeter is attempting to auto-configure with configuration server
04	🟢	SmartMeter is configured & is attempting to register with TMS
30	🔴	SmartMeter failed to automatically download configuration
05	🟢	SmartMeter has automatically registered with TMS
31	🔴	SmartMeter failed to automatically register with TMS
06	🟢	TMS has successfully provisioned the SmartMeter
80	⚫	SmartMeter failed to transmit messages in up to 24 hours
81	🔴	SmartMeter failed to transmit in at least 24 hours (# messages < 10)
82	🔴	SmartMeter failed to transmit in at least 24 hours (# messages >= 10)

RSSI: Display Code Definitions:

27 to 31	Excellent
20 to 26	Good
12 to 19	Acceptable
08 to 11	Marginal
00 to 07	Not Acceptable to Poor

Troubleshooting ICS Cellular Communication Codes

D	Definition	Action Taken
103xx	In coverage, attempting to communicate with the Configuration Server.	Wait 5-10 minutes. If the display remains at 103xx, perform a magnet reset to the ICS module. After another 10mins if the display remains at 103xx, contact CPF Monitoring Support.
104xx	In coverage, successfully communicated to the Configuration Server. In process of attempting to register with the TMS Server.	Wait 5-10 minutes. If the display remains at 104xx, perform a magnet reset to the ICS module. After another 10 mins, if the display remains at 104xx, contact CPF
105xx	In coverage, successfully registered with TMS Server.	INSTALLATION COMPLETE. Contact CPF Monitoring Support to conduct a meter test.
003xx, 004xx, 005xx, 030xx, 031xx	Meter Out of Coverage.	After 10 mins, if the display remains at 0xxxx, perform a magnet reset to the ICS module. After another 10 mins, if the display remains at 0xxxx, use an alternate meter solution.
130xx	In coverage, failed to configure with the Configuration Server.	Report meter serial number & display error code to CPF Monitoring Support.
131xx	In coverage, failed to configure with the Configuration Server.	Report meter serial number & display error code to CPF Monitoring Support.
203xx, 204xx, 205xx	Attempting to register with the cellular network.	Wait 5-10 minutes. If the display remains at 20xxx, perform a magnet reset to the ICS module. After another 10 mins, if the display remains at 20xxx, use an alternate meter solution.
ICS Display with Signal Strength Value not populated (example: 280--)	The ICS module is unable to update the signal strength value in the meter display table. This issue is experienced when the ICS module is no longer able to	Replace the meter.
Blank ICS Displays (example: -----)	The ICS module is being booted up for the first time or it has never communicated with the meter register board.	Wait 5 mins for ICS code to appear. If the ICS code never appears, replace the meter.
106xx	In coverage and Provisioned successfully.	If field troubleshooting is required on a meter that is displaying 106xx, perform a magnet reset to the ICS module. Wait 5-10 minutes and ensure the display value returns back to 106xx. Contact CPF Monitoring

ICS Modem Red LED Troubleshooting Table

LED3	LED2	LED1	LED0	Definition	Action Taken
ON	ON	Blink	Blink	Successful Cell Network Registration and "Heart Beat"	None - observe ICS Comm Codes
OFF	OFF	Blink	Blink	Unable to Register with Cell Network and "Heart Beat" Successful	Use alternate cellular network meter or install an external antenna
OFF	OFF	OFF	OFF	ICS modem is powered OFF	Replace the meter

Note - if any additional Red LED statuses are experienced other than what is listed above, perform a magnet reset on the Red LEDs to confirm if it resolved the issue. If the magnet reset does not solve the issue, remove/replace the ICS meter immediately. See instructions below for magnet resetting the ICS modem.

Figure 1: I-210+c Error Codes

Error Display	Probable Cause	Remedy
Er 000 002	Power outage occurred and: a. Battery is disconnected. b. Battery is defective. c. Outage extended sustainable duration of super capacitor.	Set meter's date and time, read meter's load profile data, restart load profile recording (if applicable), and: a. Connect battery. b. Replace battery.
Er 000 020	Hardware failure	a. Check for proper installation. b. Check for proper grounding c. Call for factory assistance.
Er 000 200	Nonvolatile memory data error	a. Check for proper installation. b. Check for proper grounding. c. Call for factory assistance.
Er 001 000	Firmware ROM code error	Replace meter.
Er 100 000	Meter chip error	Replace meter.

Figure 2: I-210+c Caution Codes

Caution Display	Probable Cause	Remedy
CA 000 001	a. Low battery b. Battery failed test.	Replace battery.
CA 000 010	a. Meter is unprogrammed. b. Using default values	Program the meter.
CA 000 030	The current has exceeded the overcurrent threshold.	Reduce the load if there is a possibility.
CA 000 040	a. Loss of program b. Programming interrupted c. Using previous values.	Program the meter.
CA 000 050	Programming interrupted and meter returned to an unprogrammed state.	Program the meter.
CA 000 100	DC detected	Investigate cause of DC component.
CA 000 400	Low potential on phase A.	Check circuit voltage.
CA 000 500	DC detected and Low potential.	a. Check circuit voltage. b. Investigate cause of DC component.
CA 004 000	Demand overload warning has exceeded programmed threshold.	a. Check for service overload. b. Check programming threshold value.
CA 040 000	Leading kvarh warning.	a. Disable wiring. b. Check system operating parameters if leading kvarh is unexpected.
CA 400 000	Received kWh warning: a. CT polarity is incorrect. b. Energy is flowing from load to line. c. Meter's internal wiring is defective.	a. Check meter socket and CT wiring. b. Disable caution. Check system operating parameters if reverse energy flow is unexpected. c. Check that sensor connector is properly seated.