Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

INTRODUCTION
The SP PRO FRONIUS Selectronic Certified (SCERT) Primo Managed AC Coupling provides a method of linking the single phase Fronius Primo range of grid tie inverters to the SP PRO via the AC Load supply so that regardless of whether the grid or a generator is connected, the SP PRO can manage and control the Fronius grid tie inverters.

Each SP PRO can manage a maximum of five Fronius grid tie inverters by commanding each one to output the required amount of power to simultaneously supply the load, export to the grid and charge the battery bank as required at any particular point in time. This is done via a communications link between the SP PRO and the Fronius Primo.

This document only applies to Fronius SCERT inverters that have been pre-programmed by Selectronic and details the additional steps needed to install the managed system.

The SP PRO and Fronius inverters must be installed as per their individual installation instructions with the additional allowance of communications cables linking all of the inverters together.

Note: This document needs to be read in conjunction with the SP PRO Instruction Manual and the Fronius Primo Instruction Manual.

No SP PRO - Important information
If Fronius inverter is not connected to an SP PRO today see Fronius SCERT Backup Ready Connection instruction (page 3).

Only make adjustments to the Fronius configuration as indicated in this document.

The SP PRO SCERT Primo Managed AC coupling CANNOT be used with Fronius Smart Meter. Refer to Appendix III: Fronius Smart Meter Configuration (page 50).

Must contact Fronius for the Profile Settings access code.

Series 2 SPPRO : Single and Multi Phase compatible.

Series 1 SPPRO : Single Phase Only!

For Fronius SCERT that need to be re-programmed see Appendix II: Fronius Step Through Configuration (page 37)

ADDITIONAL INFORMATION
IN0049 Revision 05 (005273) – 1 of 53
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Installation check list
The follow table summarises the steps taken to set up a Programed Fronius SCERT in a Managed AC Coupled system. Once the system has been installed, use the following table to check off that each step has been completed.

Refer to the pages following the tables for detailed information on each of the installation steps.

<table>
<thead>
<tr>
<th>Installation step</th>
<th>Pages</th>
<th>SP PRO Series 1</th>
<th>SP PRO Series 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Install SP PROs as per manual</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2 Install and Configure batteries</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Installing Fronius SCERT without an SP PRO Inverter</td>
<td>3</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3 Fronius Inverter must be Selectronic Certified</td>
<td>4,5 &amp; 7</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4 SP PRO Firmware Requirement - 9.09 or higher</td>
<td>7</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5 Fronius AC Wiring</td>
<td>8</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>6 Communications Link (RS485) (Installed AC Coupled Interface PCA)</td>
<td>10</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>6a RS485 Communication connection between SP PRO Inverter and Fronius Inverter - Series II ONLY</td>
<td>13</td>
<td>❌</td>
<td>✓</td>
</tr>
<tr>
<td>6b RS485 Communication connection between SP PRO Inverter and Fronius Inverter - Series I ONLY</td>
<td>14</td>
<td>✓</td>
<td>❌</td>
</tr>
<tr>
<td>7 Fronius Communications connection for Fronius Inverter 01 (Master)</td>
<td>16</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>8 Fronius Communications link for multiple installed Fronius Inverters</td>
<td>17</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>9 Configure SP PRO Inverter Note: SP PRO Inverter must be configured via SP LINK “Site Configuration Wizard” before configuring Fronius Inverter</td>
<td>19</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>10 Configure the Fronius Inverter for the first time</td>
<td>20</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>11 Test system function</td>
<td>32</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>12 Step Through Config – for Fronius SCERT that need to be re-programmed</td>
<td>37</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>13 De-configure Fronius Smart Meter</td>
<td>50</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table key: ✓ – Applicable
❌ – Not Applicable
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

**Fronius SCERT “Backup Ready” Connection**

When Selectronic certified Fronius inverters are installed without an SP PRO, a **link** must be fitted to the orange “Fronius Datamanager Connector” from the “+” pin to IO “2” pin so that Fronius inverters can produce full power.

**PLEASE NOTE:**

a. The link is ONLY required when the Fronius inverter is installed without an SP PRO inverter.

![Link fitted in Fronius Datamanager connector without an SP PRO inverter connected](image-url)
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

OVERVIEW – SERIES 2
The diagram below shows a managed AC coupled system with five FRONIUS inverters.

SYSTEM REQUIREMENTS
To successfully install a SP PRO FRONIUS managed system, there are particular system requirements that need to be met.

- Combined maximum AC output of all the connected Fronius inverters must be checked in the SP LINK Wizard.
- Battery bank must be sized to suit the SP PRO model and the combined maximum AC Output power of the Fronius inverters, check the SP LINK Wizard.
- The SP PRO must have firmware 9.09 or higher to support Fronius.
- The Fronius Primo must be Selectronic Certified.
- Maximum of five Fronius inverters per SP PRO.

To configure the SP PRO Fronius system, the Site Configuration Wizard in SP LINKs Easy Start Guide must be used.

The Site Configuration Wizard calculates and shows the sizing for:
- the maximum AC Coupled power, and
- the battery bank sizing.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

OVERVIEW – SERIES 1

SUITABLE FOR SINGLE PHASE SYSTEMS ONLY
The diagram below shows a managed AC coupled system with five FRONIUS inverters.

SYSTEM REQUIREMENTS
To successfully install a SP PRO Series I - Fronius managed system, there are particular system requirements that need to be met.

- To install an AC coupled system using a Series I SP PRO inverter an additional AC coupling adaptor (stock code 005077) is required.
- Combined maximum AC output of all the connected Fronius inverters must be checked in the SP LINK Wizard.
- Battery bank must be sized to suit the SP PRO model and the combined maximum AC Output power of the Fronius inverters, check the SP LINK Wizard.
- SP PRO inverters must have firmware version 9.09 or higher installed.
- The Fronius Primo must be Selectronic Certified.
- Maximum of five Fronius inverters per SP PRO

To configure the SP PRO Fronius system, the Site Configuration Wizard in SP LINKs Easy Start Guide must be used.

The Site Configuration Wizard calculates and shows the sizing for:
the maximum AC Coupled power, and
the battery bank sizing.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

MINIMUM battery capacity for Solar Hybrid & Off Grid Systems

Each application will have a minimum battery capacity and a maximum allowable PV, please refer to the battery manufacturers data sheet as well as the guidance given in the SP LINK Site Configuration Wizard.

Note:

a. For a Solar Hybrid (grid connected) system, the minimum battery capacity that must be connected to the SP PRO varies depending on SP PRO model.
   When the system is islanded (e.g. during a grid outage) the SP PRO will limit the output of the AC coupled solar based on the actual installed battery size.

b. For an Off Grid system, the minimum battery capacity that must be connected to the SP PRO varies depending on SP PRO model, an overriding minimum battery capacity and the combined maximum Fronius Primo AC Output.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

SP PRO Firmware Requirements

1. All SP PRO Revisions are supported.

2. SP PRO Software Version 9.09 or higher is required. To check firmware revision run SP LINK, connect to the SP PRO and go to Data View – Technical Data – “SP PRO Revision” and “Software Version”.
   - Older revisions of firmware must be updated to firmware revision 9.09 or higher.
   - Do NOT change any configuration settings until firmware is updated.

Note: Selectronic web site – http://www.selectronic.com.au for latest SP LINK software with the SP PRO firmware included.

Fronius Primo Must be Selectronic Certified
The Fronius Primo inverter must be Selectronic Certified. Other Fronius Primo inverters will not operate correctly with the SP PRO in a managed AC coupled configuration.

NOTE: DO NOT UPDATE FRONIUS PRIMO FIRMWARE or DATAMANAGER FIRMWARE
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

**INSTRUCTION**
The SP PRO and Fronius inverters must be installed as per their respective installation instructions. Particular instructions directly related to Managed AC Coupling are listed below.

It is good practice to number each Fronius inverter from 1 up to 5 so that each inverter can be easily referenced within SP LINK.

**Series 2 Only** - In a Multi (three or split) phase AC coupled system label each Fronius inverter L1-1 to L1-5 for the Fronius inverters connected to SP PRO L1, L2-1 to L2-5 for those connected to L2 and so on.

This number 1 to 5 is used for the Communications Link addressing. See Configuration section.

**Fronius AC Wiring**
The Fronius AC output wiring must be connected to the AC Load terminals of the SP PRO in accordance with local wiring rules for correct operation.

---

**Fronius AC Wiring guide for Grid connected installation**
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Fronius AC Wiring guide for Off Grid connected installation

Note: The system will NOT function correctly if the Fronius inverters are installed on the AC Source side of the SP PRO.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

**COMMUNICATIONS LINK (RS485)**

The communication link always starts at the SP PRO and links to the “AC Coupled Interface PCA”, then connects to the first Fronius Inverter (Master). The Fronius link is used to connect subsequent Fronius inverters ON the same phase as the SP PRO. Do Not Connect Fronius inverters on different phases together.

To install the AC Coupled Interface PCA, remove the bottom two screws from the Expansion Card and replace them with the provided 2x stand offs. Then mount the AC Coupled Interface PCA to the Expansion Card inside the SP PRO close to the Serial Communication PCA and connect the connector with the two blue wires to J2 on the Expansion Card as illustrated.

- Connect the RJ45 Connector lead from the AC Coupled Interface PCA “To RS485 Port 2” to the SP PRO Serial Communication PCA RS485 Port 2.
- Connect the second RJ45 lead from the AC Coupled Interface PCA “To Other AC Coupled Inverters” to Fronius Inverter 01 (Master), Fronius Datamanger connector (see section “Fronius RS485 Connection to Inverter 01 (Master)” page 11).
- Connect the AC Coupled Interface PCA power loom (12V) from AC Coupled Interface PCA “12V DC Power J4” to the SP PRO Serial Communication PCA 12V connector.

*Note: Do not connect any RJ45 leads to the AC Coupled Interface PCA “To ABB AC Coupled Inverter” connector as the pin out is different to the Fronius Inverter connection.*
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Fronius Communication link to SP PRO Green Communication Card

SP PRO Inverter

Fronius Inverter

AC Coupled Interface PCA supplied with Selectronic Certified Grid Inverters

Sync 1
Sync 2
RS485 Port 2
RS232 Port 2
RS232 Port 1

SP PRO Connections (inside unit) – RS485 Port 2 RJ45 connector to AC Coupled Interface PCA and to Fronius Datamanager connector
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Fronius Communication link to SP PRO Blue Communication Card

The below communication connection applies to the Universal Battery Communications Kit (Order Code 005295) and LG Chem Rack mount module Battery Communications Kit (Order code 005298) if installed in SP PRO.

SP PRO Connections (inside unit) – RS485 Port 2 RJ45 connector to AC Coupled Interface PCA and to Fronius Datamanager connector
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

**RS485 CONNECTION TO FIRST FRONIUS INVERTER (MASTER) – SERIES II**

Using the supplied ‘CAT5’ network cable connect one end to the AC Coupled Interface PCA “To Other AC Coupled Inverters” on the SP PRO. At Fronius Inverter 01 (Master), cut off the non-connected RJ45 connector, expose and crimp the wires using wire crimps or alternatively use a longer cable as required (not supplied) as outlined in the table below.

The Fronius link is used to connect subsequent Fronius inverters ON the same phase as the SP PRO. Do Not Connect Fronius inverters on different phases together.

**PLEASE NOTE:** There are two different colour coding for RJ45 plugs, T568A and T568B, it is common that either colour code is used. To ensure correct connections please check that the “RS485 RJ45 Adaptor pin #” (see below table) corresponds to the “Fronius RS485 Connector” connection by buzzing out the lead before connecting it to the Fronius or the SP PRO inverter.

---

**RS485 RJ45 Adaptor Pin 1 designation**

Cut off one RJ45 Connector (T568A colour code shown)

<table>
<thead>
<tr>
<th>RS485 RJ45 Adaptor pin #</th>
<th>Signal</th>
<th>T568A colour code</th>
<th>T568B colour code</th>
<th>Fronius RS485 Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
<td>Green/White</td>
<td>Orange/White</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
<td>Green</td>
<td>Orange</td>
<td>(minus)</td>
</tr>
<tr>
<td>3</td>
<td>RS485 - B</td>
<td>Orange/White</td>
<td>Green/White</td>
<td>D+ (RS485)</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
<td>Blue</td>
<td>Blue</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
<td>Blue/White</td>
<td>Blue/White</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>RS485 - A</td>
<td>Orange</td>
<td>Green</td>
<td>D- (RS485)</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
<td>Brown/White</td>
<td>Brown/White</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
<td>Brown</td>
<td>Brown</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Only the wires connected to Pins 2, 3 and 6 (on the RJ45) are used.
RS485 COMMUNICATION TO FIRST FRONIUS INVERTER (RS485) – SERIES I

The communication link always starts at the SP PRO end via Coupling Adaptor (Sena LTC100) and then connects to the first Fronius inverter (Master). The Fronius link is used to connect subsequent Fronius inverters ON the same phase as the SP PRO.

To install the Coupling adapter, use the RJ45 to DB9 lead and connect the Coupling adapter to the SP PRO Series I Serial Port 2. Then using 'CAT5' network cable or similar make, connect the Coupling adaptor to Fronius inverter 01 (Master) as per Table 1, Fronius Datamanager connector.

Note: Ensure that the Sena LTC100 adaptor switch is set to RS485.

<table>
<thead>
<tr>
<th>Coupling Adaptor Connections</th>
<th>Signal</th>
<th>T568A colour code</th>
<th>T568B colour code</th>
<th>Fronius RS485 Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>RX-</td>
<td>Not Used</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RX+</td>
<td>Not Used</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GND</td>
<td>Ground</td>
<td>Green</td>
<td>Orange</td>
<td>- (minus)</td>
</tr>
<tr>
<td>TX- / TRX-</td>
<td>RS485-A</td>
<td>Orange</td>
<td>Green</td>
<td>D- (RS485)</td>
</tr>
<tr>
<td>TX+ / TRX+</td>
<td>RS485-B</td>
<td>Orange/White</td>
<td>Green/White</td>
<td>D+ (RS485)</td>
</tr>
</tbody>
</table>

Table 1: Coupling Adaptor to Fronius connections and wire colours
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

To SP PRO Port 2 via RJ45 to DB9 cable

Set Sena LTC100 adaptor Switch to RS485

Sena LTC100 adaptor to Fronius invert 01 (Fronius Datamanagement connector)

SP PRO Port 2 RJ45 connector to Sena LTC100 and to Fronius Datamanager connector
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Fronius Connection

Connect the three wires from the CAT5 network cable to the Fronius Datamanager connector, D+ (RS485), D- (RS485) and “-“ (GND). The RS485 terminals are located on the right hand side edge of the connector as illustrated.

Connection of AC Coupled Interface PCA “To Other AC Coupled Inverters” to Fronius Datamanager connector, colour code T568A is shown above

For Fronius inverter 01 only, set the Master/Slave switch (located on the left hand side of the orange connector) to “MASTER” as illustrated.

Master/Slave switch set to “MASTER” for Fronius inverter 01

Make sure that the Datamanager 2.0 plug-in card – IP switch is set to position B for Fronius inverter 01 (Master) only.

The Datamanager 2.0 plug-in card – IP switch is set to position B

Note: Make sure that the “X” LED is Green for Fronius inverter 01. If the LED is Red then the Fronius Solar Net Connector IN/OUT might not be connected correctly to all inverters (e.g. correct connection: Fronius Inverter 01 OUT connected to Fronius Inverter 02 IN...etc), or termination connectors are not fitted, or connectors are not plugged in correctly.
Connecting Fronius Link Between Inverters 02 to 05

The following configuration outlines the connection for multiple Fronius Inverters to the Master Fronius Inverter (Fronius Inverter 01). If only a single Fronius Inverter is installed, skip to the next section page 19 (Configuration – Additional Settings).

Note: When connecting multiple Fronius inverters together it is important that the IP Switch must be set to position B for Fronius Inverter 01.

The Datamanager 2.0 plug-in card – IP switch is set to position B

Inside the Fronius Inverter there are two RJ45 connectors (Fronius Solar Net Connector) with termination connectors installed. The Fronius Solar Net connectors are designed to interface with multiple Fronius inverters in a daisy chain arrangement via the input “IN” and output “OUT” connectors.

Fronius Solar Net Connectors with termination: “IN” located on LHS & “OUT” located on RHS

NOTE: The Fronius Solar Net Connector MUST be fitted to any unused connectors otherwise the SP PRO will not communicate to any Fronius inverters in the system.

Using a network patch lead connect the “OUT” (Fronius Solar Net) from Fronius Inverter 01 (Master) to the “IN” of Fronius Inverter 02.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Fronius link - Fronius Inverter 02 “IN” & Fronius Inverter “OUT” (Fronius connection on intermediate inverters)

Using another patch lead, connect the “OUT” from inverter 02 (above) to the “IN” of inverter 03 and so on until all inverters in the system are connected.

Fronius link - Last Fronius Inverter on communication link (“IN”)

For all the inverters numbered 02 and above, set the Master/Slave switch (located on the left hand side of the orange connector) to “SLAVE” as illustrated.

Fronius Inverters 02 to 05: Master/Slave switch set to “SLAVE”

Note: When Master/Slave switch is set to “SLAVE”, the LED’s on the Datamanager 2.0 plug-in card will be OFF.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

CONFIGURATION – ADDITIONAL SETTINGS
It is recommended that the Site Configuration wizard (in SP LINK 9.4 or higher) be used to configure the SP PRO settings. Using the wizard will ensure all SP PRO settings are compatible with the managed AC coupled system.

The settings detailed below will be set when the Site Configuration Wizard is used to configure the SP PRO. Only the settings required to enable Fronius Managed AC Coupling are shown. The remainder of systems settings will be set by the Site Configuration Wizard.

The SP PRO must be configured before any of the Fronius inverters are energised.

The Fronius inverters are configured to Solar Net as default and the Inverter Number must be set sequentially from 01. (See “Programming the Fronius” section).

Make sure in the SP LINK tab CONFIGURATION SETTINGS > SYSTEM the follow settings are set.

- Set String Inverter to Fronius.
- Number of Devices is set to the number of Fronius inverters installed in the system.

SP LINK - Configuration Settings – System tab

Note: Port 2 Communication settings will not be available once Fronius has been enabled. This is normal operation.

In the example used above, two Fronius inverters are connected to the SP PRO.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

FRONIUS CONFIGURATION
The settings listed below are required to be configured in each Fronius inverter in order for the system to operate correctly.

1. Isolate the DC solar from the Fronius inverter(s) (via the appropriate DC circuit breaker). Note: **DO NOT** connect the PV solar until system is configured.
2. Ensuring that the SP PRO AC Load supply is present at the Fronius Inverter, switch ON the AC supply to the Fronius inverter.
3. When the Fronius inverter is powered for the first time, select the “language” for the inverter and press the ENTER (↵) key.

Then “Select Country”,
- For **Grid connect**, scroll to **AU-Australia** (↓) and press the ENTER (↵) key.
- For **Off Grid**, scroll to **MG50-Microgrid 50Hz** (↓) and press **ENTER (↵)**.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Set the “Date” for the inverter and press the **ENTER** (↵) key. Use the ‘**UP**’ (+) and ‘**DOWN**’ (-) keys to shift the numerical values in an ascending/descending order.

*Note: “Date” will flash after the first **ENTER** (↵) key press, a second **ENTER** (↵) is required to proceed to the next step.*

Set the “Time” for the inverter and press the **ENTER** (↵) key. Use the ‘**UP**’ (+) and ‘**DOWN**’ (-) keys to shift the numerical values in an ascending/descending order.

*Note: “Time” will flash after the first **ENTER** (↵) key press, a second **ENTER** (↵) is required to proceed to the next step.*

Set the “MPP Tracker 2” for the inverter to “ON” if installing more than one string of panels, otherwise set to “OFF” and press the **ENTER** (↵) key.

*Note: When the Fronius inverter is powered without the DC and the “MPP Tracker 2” is “ON”, “INFO STATE 523 LOW PV VOLTAGE” will be displayed on the screen.*
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

4. Once the display is active on the Fronius inverter, access the main menu. To enter the main menu, press the **ESC (←)** key once, then using the **LEFT (←)** or **RIGHT (→)** keys to scroll through the main menu. To access any of the menu items, press the **ENTER (↵)** key on the selected item. The **ESC (←)** key is also used to return back to the previous menu or to edit previous digits.

The menu is continuous, when the end is reached the display automatically returns to the first menu item. The ‘**UP**’ (↑) and ‘**DOWN**’ (↓) keys are used to scroll through menu options or to shift numerical scales in ascending/descending order, they are manly used in submenus to scroll through the various menu items.

5. Scroll to **DATACOM (↓)** and press **ENTER (↵)**.
6. Scroll to **Inverter Number (↓)** and press **ENTER (↵)**.

   ![Image of Inverter Number](image)

   a. If only one Fronius inverter is installed then the address must be set to 01.
   b. If more than one Fronius inverter is installed then the address must be allocated sequentially starting from 01 (i.e. first Fronius = 01, second Fronius = 02, third Fronius = 03 etc).
   c. Once the "Inverter Number" is selected, press the **ENTER (↵)** key to configure and return to the "DATACOM" menu.

   ![Image of Inverter Number Configuration](image)

   **Note:**
   a. The Fronius inverter address starts from 01 to 05, where inverter 1 in SP Link is connected to Fronius inverter Address 01, i.e. Fronius inverter 01 address 01 = inverter 1 SP Link, Fronius inverter 02 address 02 = inverter 02 SP Link, Fronius inverter 03 address 03 = inverter 03 SP Link etc.
   b. Do Not skip any address numbers in the sequence when using multiple Fronius inverters.

7. Scroll to **Display Setting (↓)** and press **ENTER (↵)**.

   ![Image of Display Setting](image)
8. Scroll to Night Mode (↓) and press ENTER (↵).

a. Set the Fronius inverter “Night Mode” to “ON”, this will allow the Fronius inverter to control the display operation during the night.

   Note: Setting the "Night Mode” will allow communications between the SP PRO and Fronius inverter to stay awake at all times.

b. Once the “Night Mode” is set to set, press the ENTER key to configure and return to the “Display Setting” menu.

9. Press the ESC (⤴) key twice to return to the main menu.
Access PROFI Menu

10. From the main menu press the third button from the left five to six times until “00000” is displayed on the screen.

11. Enter the “Access Code” provided by Fronius and press ENTER (\(\uparrow\)). The “Access Code” will flash after the first ENTER (\(\uparrow\)) key press, a second ENTER (\(\uparrow\)) is required to proceed to the next step.

Note: PROFI Access Code required: Contact Fronius for details.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

**AC Voltage Derating**


13. Scroll to **GVDPR On/Off (↓)** and press the **ENTER (↵)** key.

14. Set to “**OFF**” (+) and press the **ENTER (↵)** key.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

**AC Frequency Derating**

15. Press the ESC (↑) key once to return to the PROFI menu.

16. Scroll to Freq. Dep. Power Red (↓) and press the ENTER (↵) key.

17. Scroll to GFDPR On/Off (↓) and press the ENTER (↵) key.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

18. Use (+) to change between On/Off and press the **ENTER** key.

19. Press the **ESC** key **once** to return to the **PROFI** menu.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

**SoftStart**

20. Scroll to **Softstart** (↓) and press the **ENTER** (↵) key.

21. Scroll to **Softstart On/Off** (↓) and press the **ENTER** (↵) key.

22. Set to “**OFF**” (+) and press the **ENTER** (↵) key.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Note: Power Change Gradient – for AU country code – not available in MG50

These settings must be checked and changed if it appears in the Menu. Some versions/countries have this removed.

23. Press the **ESC** (↑) key once to return to the **PROFI** menu.

![PROFI menu screen](image)

24. Scroll to **PowerChangeGradients** (↓) and press the **ENTER** (↵) key.

![PROFI menu screen with PowerChangeGradients highlighted](image)

25. Scroll to **UpRamp On/Off** (↓) and press the **ENTER** (↵) key.

![PROFI menu screen with UpRamp On/Off highlighted](image)
26. Set to “OFF” (+) and press the ENTER (↵) key.

27. Scroll to DownRamp On/Off (↓) and press the ENTER (↵) key.

28. Set to “OFF” (+) and press the ENTER (↵) key.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

29. Press the **ESC (↑) key twice** to return to the main menu.

30. If there are multiple Fronius inverters installed, repeat for all others.

31. When all is configured, the Fronius inverter display screen will cycle through the amount of energy currently fed automatically when no key is pressed for 2 minutes or by selecting the “Now” menu.

The Fronius inverter is fully programmed and ready for operation in a SP PRO managed AC coupled system.

You are not required to make any changes to the Fronius inverter from here.

Default values have been entered into the Fronius, such as PV size is equal to the Primo Power rating, passwords as well.

**Admin password : selectronic**

**Service password : selectronic**

If you want to adjust any settings, proceed to “Appendix II: Fronius SolarWeb Configuration” page 34.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

**SYSTEM COMMISSIONING – ADDITIONAL TESTS**

In addition to the normal system testing that would be performed, the following additional tests must be performed as detailed below.

**COMMUNICATIONS LINK VERIFICATION**

The correct operation of the Fronius Managed AC Coupling relies on the Communications Link. It is vital that the communications link connection has been setup correctly before operating the AC coupled system.

1. Check that all the communication cables have been connected correctly.
2. Connect AC to the Fronius inverters. DO NOT connect the PV until commissioning is complete.
3. Using SP LINK, connect to the SP PRO inverter. In the Data View > Now tab there should be a model number displayed for each of the installed inverters.

**Make sure to reset the SP PRO inverter and the Fronius inverters after configurations and wiring of both the SP PRO and Fronius are complete.**

The communication link may be further tested using the AC Solar Link Test found in SP LINK under the Service Settings tab.

1. In the Service Settings tab click the “Reset Counters” button

Wait 2 minutes and check that the error count remains at zero for all the connected Fronius inverters. (An error count of 5 or less per minute is acceptable but in this case it is good practice to check the wiring and that the termination resistors are set correctly in the SP PRO and Fronius Inverters.

Once the Communications link has been verified for each Fronius inverter, the DC feeds to each inverter can be switch on and full system testing and verification can be performed.

**VERIFICATION OF FALLBACK MODE:**

When the Fronius inverter loses communications with the SP PRO, the output of the all the Fronius inverters will drop to zero power after 10 seconds.

To verify this function, disconnect the communications lead between the SP PRO and Fronius inverter, wait 10 seconds. Go to INFO > Readings menu on the front display of the first Fronius inverter and check that the external limit (ext. Lim.) drops to 0%.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Appendix I: Fronius SolarWeb Configuration

The following section is only required if you wish to connect the Fronius inverter to Fronius SolarWeb via internet.

For LAN connection and No internet, please refer to Appendix II: Fronius Step Through Configuration (page 37).

The settings listed below are all that is required to connect the Fronius inverter to the end device (e.g. Laptop) for monitoring and communication to the Fronius inverter. The settings are ONLY carried out for Fronius inverter 01 (Master).

**Note:**

a. This section needs to be read in conjunction with the Fronius Datamanager 2.0 manual.

b. The IP Switch must be set to position B for Fronius inverter 01.

c. Fronius Solar Net termination connectors must be inserted into each empty IN or OUT Solar Net connector socket of the last inverter.

1. From the main menu, scroll to **SETUP** and press the **ENTER** (↓) key.

2. Scroll to **WiFi Access Point** (↓) and press **ENTER** (↓).
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

a. Select “Activate WiFi AP?” and press ENTER (↵).
   
   Note: “Activate WiFi AP?” will take a couple of seconds to appear on the screen.

b. The “WiFi Access Point” will activate automatically “active” and the Network Name “SS” and Password “PW” will be displayed on the screen.

Notes:
1. DO NOT select “Deactivate WiFi AP?”, the WiFi signal will be lost.
2. The WLAN WiFi signal stays open for one hour.
3. If “[active read only]”, check IP switch position is set to “B”.

c. Connection to the Fronius inverter can be established via an end device (e.g. PC, tablet).

   Note: If using a Tablet, download the Fronius Solar.web App from Google play or App Store.

d. From the end device, search for the Network Name displayed on the Fronius inverter and establish a connection to the network. The password network is displayed on the LCD display of the inverter (Default PW: 12345678).

   Note: The Fronius inverter establishes a direct WiFi connection between the end device and itself. No internet is required.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

e. Open an internet web browser and type the IP address:
   i. IP address for WLAN connection: 192.168.250.181

   ![Image of IP address](image)

   **Note:** If using a Tablet, Run the Fronius Solar.web App.

f. The Fronius Datamanager 2.0 website start page appears

   ![Image of Fronius Datamanager 2.0](image)

   **Note:** The image is used as an example only, settings may differ.

g. Defaults for the setting menu in the Fronius Datamanager 2.0 website
   Username **admin** : password **selectronic**

   ![Image of Fronius Datamanager 2.0 settings](image)

   h. Defaults for the setting menu in the “DNO EDITOR”
   Username **service** : password **selectronic**

   ![Image of DNO EDITOR settings](image)

   **Note:**
   a. Both the admin and service username and password are configured for Fronius SCERT Managed AC coupling inverters **ONLY**.
   b. In “settings” it is required to update the “GENERAL” tab and “INVERTERS” tab with the appropriate information.
Appendix II: Fronius Step Through Configuration

This is required when dealing with Fronius that have had configuration changes made.

LAN Connection – NO Internet

1. Set the IP switch on the Datamanager 2.0 plug-in card to **position A** on **only** Fronius inverter 01 (Master).

   ![Datamanager 2.0 plug-in card and IP switch](image)

   **Note:** Make sure to set the IP switch back to position B when the “Modbus Communication & Fall Back Function Setting” section is complete otherwise the Fronius inverter will not communicate to the SP PRO inverter.

2. Connect a network cable from the LAN connector located on the Fronius inverter to an end device (e.g. computer or laptop).

3. Open an internet web browser and type the appropriate address for the appropriate connection:
   - IP address for LAN connection: 169.254.0.180

   ![Web browser with IP address](image)

   **Note:** Make sure that the computer is **NOT** connected to the internet.
4. The IP address for the WLAN is linked directly to the start page of the Commissioning Wizard, select the “SOLAR.WEB WIZARD”.

Note: Read in conjunction with the Fronius Datamanager 2.0 manual.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

5. Complete the “General” section with the appropriate information and select “Forward”.

6. Complete the “Inverter” section, the PV[Wp] and “Device name” are required to be completed, select “Forward”.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

7. A notification box will appear before the next section. It is required to select the “Accept” button to proceed to the next section.

8. Select “Solar web via LAN” and then select “Connect”.

---

IN0049 Revision 05 (005273) – 40 of 53

POWER PERFORMANCE PASSION
9. When “Connect” is selected, “Connection buildup” will be displayed.

- Set the **IP Switch** to **position B** and then refresh the webpage.
- Wait for one second.
- Then set the **IP Switch** back to **position A** and then refresh the webpage.

**Note:** When the Fronius inverter is reconnected to the end device (e.g. computer or laptop) the wizard will automatically proceed to the next section.
10. The “Network status” outlines the network detail, select “Forward”.

11. A password is required to be setup, create a password that is easy to remember and contains both letters and numbers and select “Finish”.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

12. The Commissioning Wizard is complete, select “To Homepage”.

Congratulations!

The setup of your Fronius system monitoring was finished successfully.

To Homepage
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

When “To Homepage” is selected, the Fronius Datamanager 2.0 website start page appears.

Note: The image is used as an example only, settings may differ.

i. On the Datamanager 2.0 website, select “Settings”.

Note: The image is used as an example only, settings may differ.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

j. Select the “PASSWORDS” tab.

k. Under “User name service”, create a password that is easy to remember and contains both letters and numbers.

Note: The service password is required to access the “DNO EDITOR” tab

Note: The image is used as an example only, settings may differ.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

1. Save the changes made in “PASSWORDS” by selecting the tick (✓) in the top right hand corner of the page. A popup message will appear to indicate the changes made were saved.

m. Select the “DNO EDITOR” tab.
n. A user name and password are required to access the “DNO EDITOR” tab. Enter the service username and password created in step “s”, select “OK”.

o. In the “IO Control” table, toggle the boxes in “I4” column and the forth row to white.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

p. Make sure that the “Active power” for the fourth row is 0%.

q. Save the changes made in “DNO EDITOR” by selecting the tick (✓) in the top right hand corner of the page. A popup message will appear to indicate the changes made were saved “The settings were saved successfully.”
r. In “DNO EDITOR” tab, scroll down to “Controlling Priority” and set:
   i. “IO control” to 2
   ii. “Dynamic power reduction” to 3
   iii. “Controlling via Modbus” to 1

s. Save the changes made in “DNO EDITOR” by selecting the tick (✓) in the top right hand corner of the page. A popup message will appear to indicate the changes made were saved “The settings were saved successfully”.

t. Carry out the System Commissioning on Page 32.

Fronius configuration is now complete

NOTE:

For ONLY LAN Connection – NO Internet
Make sure to set the IP switch back to position B for Fronius inverter 01 (Master) at this point, otherwise the Fronius inverter will not communicate to the SP PRO inverter.
Appendix III: Fronius Smart Meter Configuration

The SP PRO Fronius SCERT Primo Managed AC Coupling cannot operate with the Fronius Smart Meter. To establish communication between the SP PRO and Fronius inverter the following must be configured in the Fronius Datamanager webpage.

The Fronius Datamanager webpage can be accessed in two ways:

1. Wi-Fi connection:
   - Activate the Wi-Fi Access Point on the Datamanager card, can be accessed via the font panel display.
   - Connect the computer or smart device to the “Fronius_240.XXXXXX” Wi-Fi network.
   - Open an internet web browser and go to http://192.168.50.181
     Alternatively can use Fronius SolarWeb App (Tablet/Smart Phone), go to ‘Settings’ and click ‘PV Inverter Homepage’ (IOS) or My System Monitoring (Android)

2. LAN connection - NO internet:
   - Connect the computer to the Datamanager via a network cable.
   - Set the Datamanager IP Switch to position “A”.
   - Open an internet web browser and go to http://192.254.0.180

Note: For information on how configure the Datamanager card for Wi-Fi and LAN connection, refer to Appendix I (page 34).

When the Fronius Datamanager webpage appears, select “Settings”.

Note: The image is used as an example only, settings may differ.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Make sure the Service password is configured in order to access the “METER” and “DNO EDITOR”.

Select the “METER” tab.

A user name and password are required to access the “METER” tab. Enter the service username and password created and then select “OK”.

![Diagram of the meter settings interface]

- Authentication Required
- User Name: service
- Password: **********
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Set the “Meter” to “None selected” and select the tick (✓) to save all changes.

Select the “DNO EDITOR” tab.
Installing a Selectronic Certified Fronius Primo in a Managed AC Coupled system

Scroll down to “Dynamic power reduction” and set to “No limit”, select the tick (✓) to save all changes.

The Fronius Smart Meter is now disabled and communication between the SP PRO and Fronis Primo can be established.