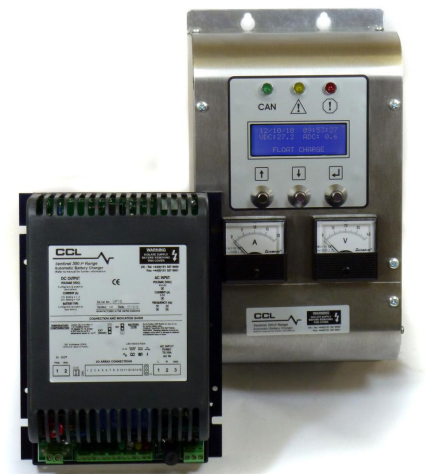


# SNTL300P-PCSUITE interface suite

Configuration and Monitoring software for  
Sentinel 300P automatic switch mode battery chargers

## Installation and Operation Manual



In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time.



Please read the following information before installing.

**BEFORE BEGINNING INSTALLATION OF THIS PRODUCT:**

Read and follow all product safety and installation instructions.

Please contact your Computronic Controls or F W Murphy representative immediately if you have any questions.

## Table of Contents

---

Table of Contents	3
System requirements	5
Installation Guide	6
Getting Started	7
Environment settings	7
Connecting To Charger	8
Using the Interface Suite	9
View Level Overview	10
Active Charger Settings	10
Remote Stored Profile	10
Charger Hardware	10
Charger DIP switch settings	10
Global Charger Settings	10
Battery Voltage Graph	10
Charger Current Graph	10
Engineer View Overview	11
Settings of Real Time Clock	11
Operator password	11
Remote Profile Settings	11
Global Charger Settings	11
Manger View Overview	12
Manager password	12
Remote Profile Settings	12
CAN Output	12
SNTL300P Configurable Settings	13
Charger Profiles	13
Preset Charger Profiles	13
Creating Custom Profiles	14
Deleting Custom Profiles	15
Applying Custom Profiles	15
24V Auto-Detect Lock in	16
Battery Check Routine	16
Setting Charger Address	17
Boost Drop Out Current	17
Auto-Boost Period	17
Factory Profile Boost Time	17
Resolving Communication Errors	19
Configuration of SNTL300-P via RS485	20

**(THIS PAGE INTENTIONALLY LEFT BLANK)**

## System requirements

---

The SNTL300P-PCSUITE is a PC-based software program for configuring and monitoring Sentinel 300P series battery chargers. Communication between the PC and Sentinel 300P is via a USB and RS485 network.

Minimum system requirements:

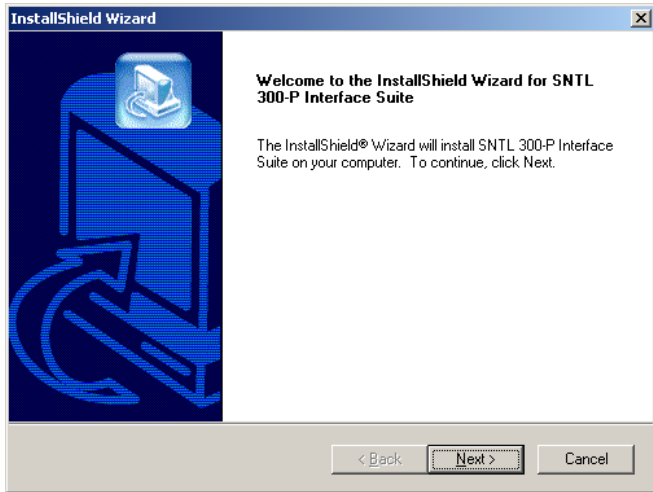
1. Sentinel 300P series battery charger
2. Personal Computer (PC):
  - Processor: x86 (32 bit), 1GHz
  - RAM: 1Gb
  - USB port
  - Display: minimum resolution 1024 x 768
  - Operating System: Windows 7, Windows Vista, Windows XP Professional or Windows XP Home with .NET framework 3.5 or higher
3. SNTL300P-PCSUITE software
4. USB / RS485 converter recognised as COM port on Windows OS
5. RS485 lead (connecting Sentinel to USB/RS485 converter)
6. USB lead (connecting PC to USB/RS485 converter)

Item 3 above (SNTL300P-PCSUITE software) is available on request, part number 42.70.3898: the software is supplied by email attachment.

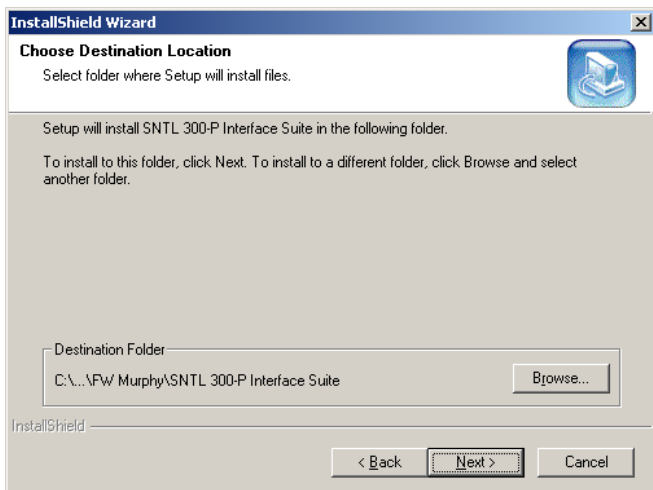
Item 3 is also available on CD-ROM, along with items 4 – 6, as a complete connection suite, model SNTL300P-PCCONN, part number 42.70.3899.

# Installation Guide

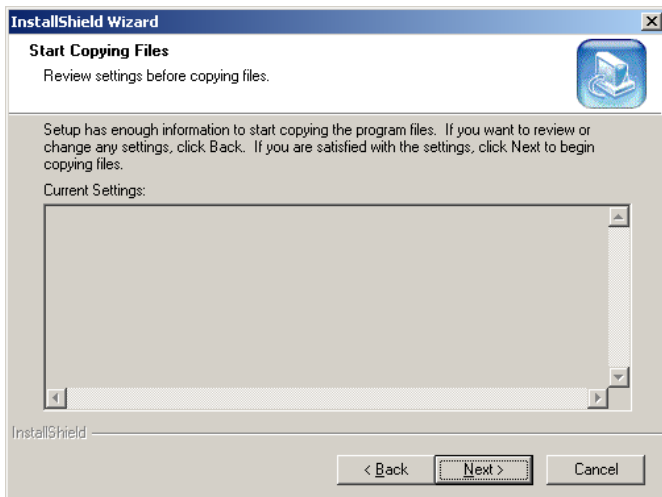
**1, Run the Sentinel 300-P Interface Suite.exe file to install software to PC**



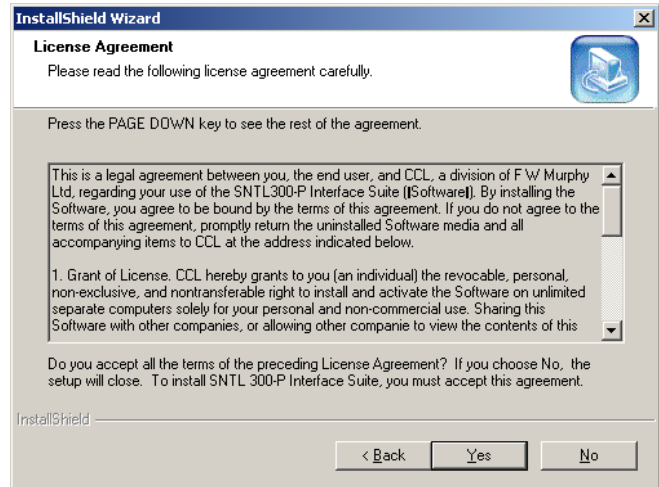
**2, Select Next to continue through installation process.**



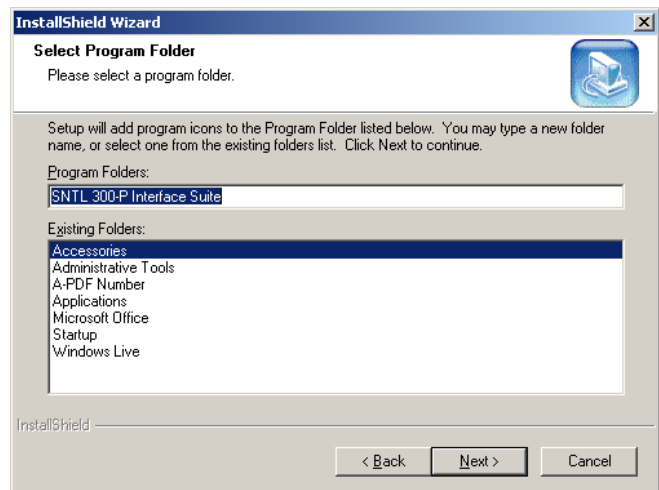
**4, Select installation folder**



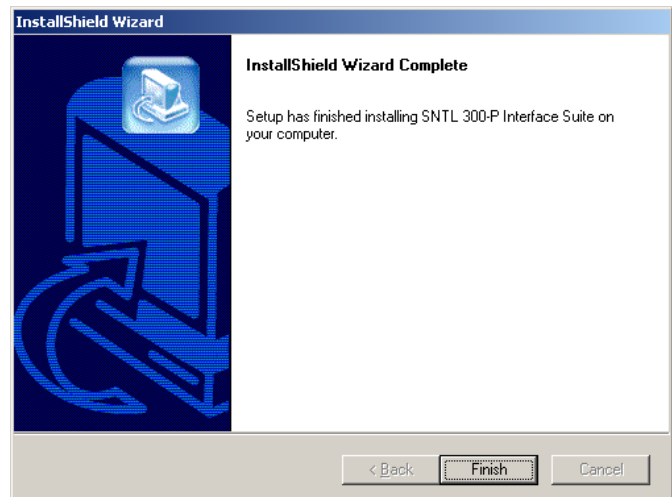
**6, Confirm installation by selecting Next**



**3, After viewing license agreement, select YES to proceed**



**5, Select program folder**



**7, Installation is complete, select Finish**

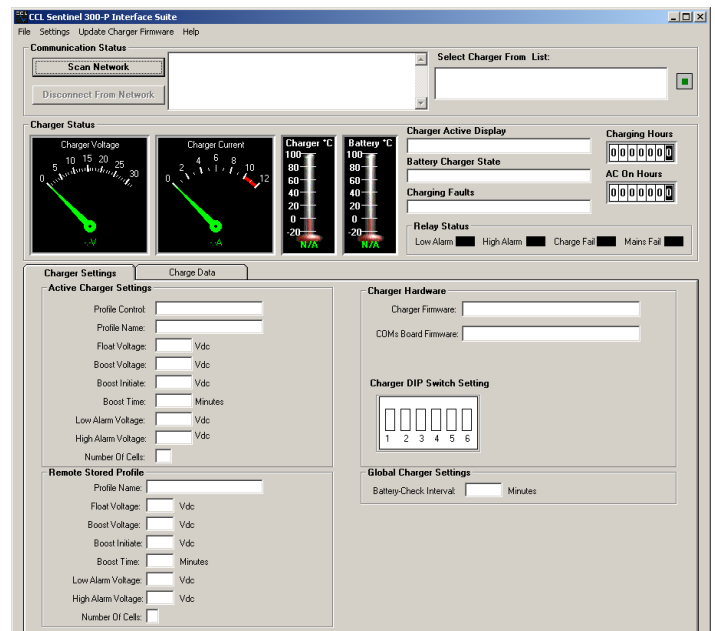
## Getting Started

After installing SNTL300P interface suite on your PC, a desk top icon as shown below will be added. Select this to launch the SNTL300P interface suite

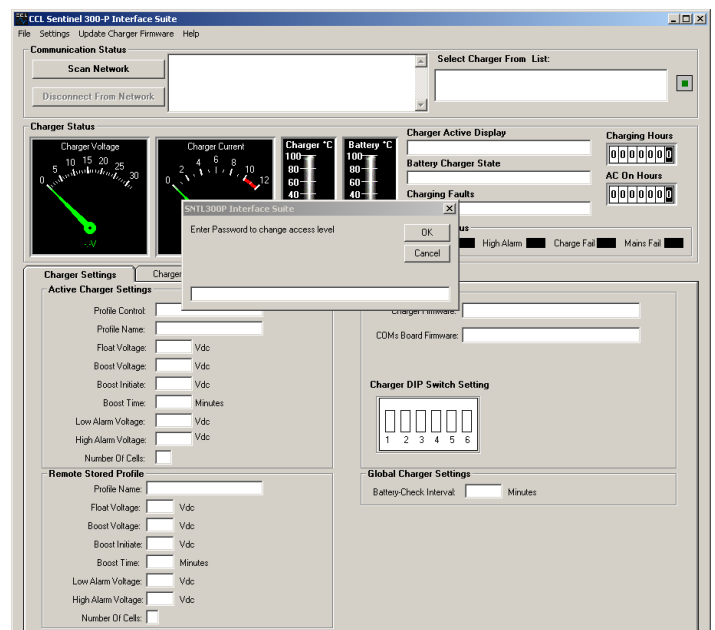


## Environment settings

From home screen, select **settings** from Menu Bar and then **environment**



When asked for **password**, enter the supplied password to access the appropriate level.



## Connecting To Charger

Once connected to charger and SNTL300P has either DC or AC power, select **Scan Network** to initiate scan

See **resolving communication errors** section of this document should you have problems connecting to the SNTL300P

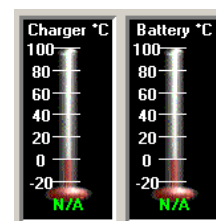
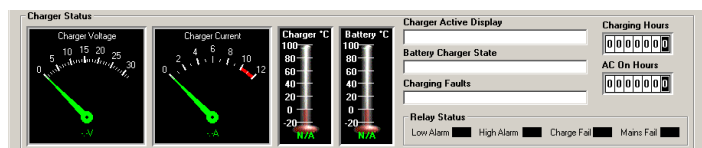
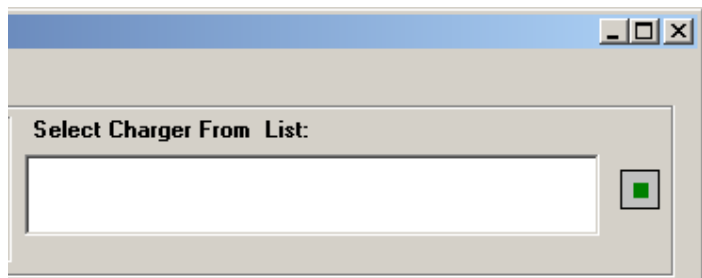
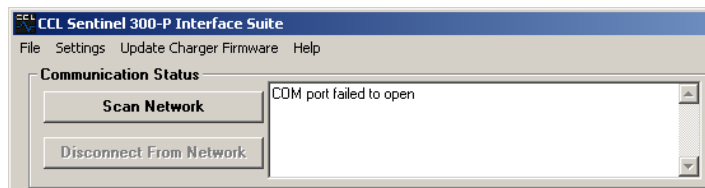
Upon connection to the SNTL300P the **Select Charger From List** section shown below will list all SNTL300P units that are active on the connected RS485 MODBUS. Select the appropriate charger to connect to.

Once communication is established with that unit, the Voltmeter, Ammeter and Charger Status windows and indications will become active and reflect the SNTL300P's current condition

The two thermometers will indicate SNTL300P local temperature as well detected battery temperature should a remote temperature compensation lead be connected.

Temperature is shown in °C

Note: *Local Charger temperature is for information purposes only.*





## Using the Interface Suite

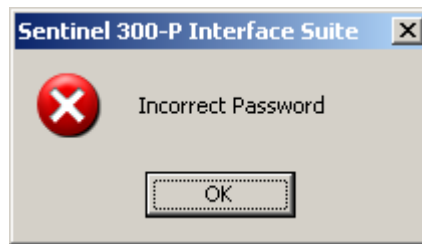
---

There are 3 modes of operation for the SNTL300P Interface Suite

- Basic View Level
- Engineer Level
- Manager Level
- CCL/Admin Level (Reserved)

Under **settings/environment** enter password to access either: Operator, Engineer or Admin level (see **SNTL300P Interface Suite Environment** settings section of this document)

Should an incorrect password be entered then the system will state the following:



And limit access to **View Level** only

## View Level Overview

If no password is entered when requested or environment level not changed then the Interface Suite works in **view mode** only. From this setting the following two screens are available:

### Charger settings screen

This provides information of the set conditions of the SNTL300P.

#### Active Charger Settings

This provides information on what the SNTL300P charger is currently configured to.

#### Remote Stored Profile

This provides information on what the SNTL300P charger has stored when configured to Remote Profile

#### Charger Hardware

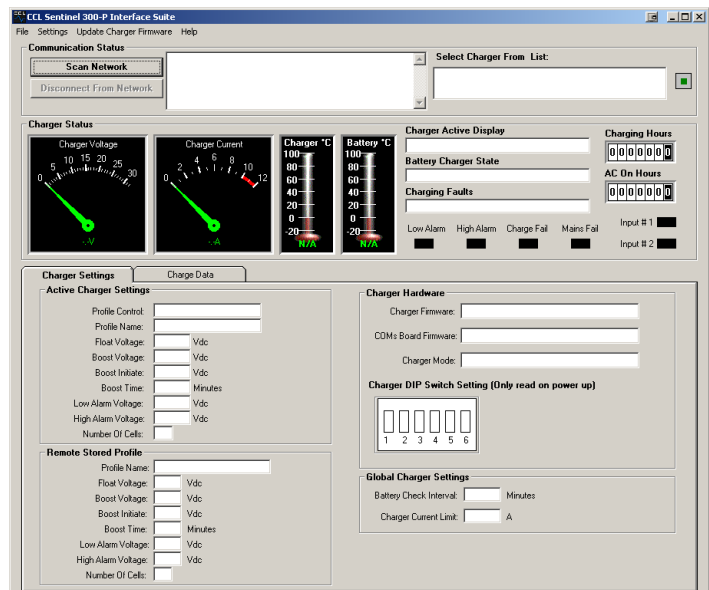
The SNTL300P provides information on what revision firmware it contains along with COMs board firmware if attached.

#### Charger DIP switch settings

The current configuration of the DIP switches located on the rear of the SNTL300P is shown.

#### Global Charger Settings

Battery Check Period and Charger Current Limit are shown



### Charger data screen

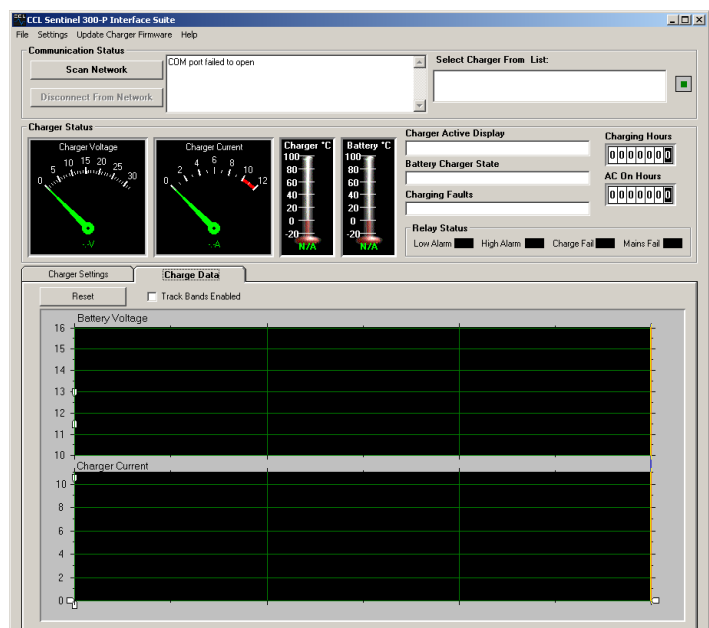
This provides a scrolling display of the chargers output voltage and current.

#### Battery Voltage Graph

This displays a record of the chargers output voltage (VDC)

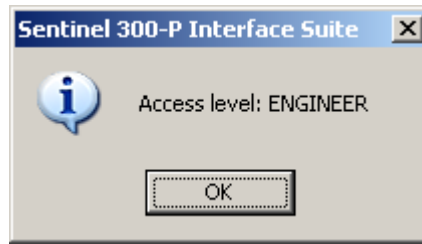
#### Charger Current Graph

This displays a record of the chargers output current (ADC)



## Engineer View Overview

As well as the basic view screen, an additional tab of **Charger Configuration** is now available



Within the **charger configuration** tab the following additional settings are available:

### Settings of Real Time Clock

(COMs Option only)

The SNTL300P can be synced to PC clock

American or European Date Layout can be selected

Select from a pre-defined list of Battery Profiles

### Operator password

The engineer password can be changed or viewed

### Remote Profile Settings

From the predefined list of battery profiles a new charger profile can be selected and downloaded to charger

### Global Charger Settings

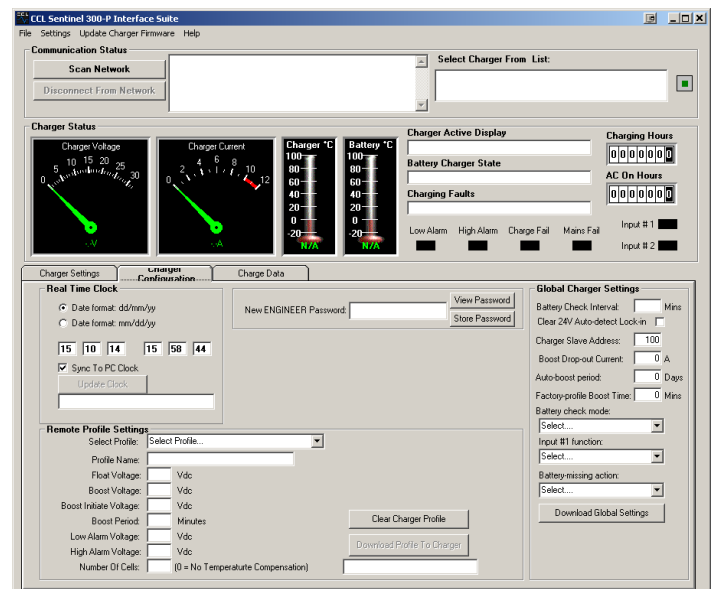
Amend Battery Check Interval – see SNTL300P configurable settings for details

Clear 24V Auto-Detect Lock in– see SNTL300P configurable settings for details

Amend Charger Node Address– see SNTL300P configurable settings for details

Boost Drop Out Current - see SNTL300P configurable settings for details

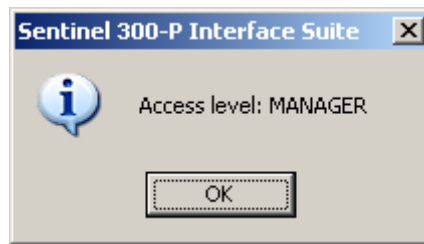
Factory Profile Boost Time - see SNTL300P configurable settings for details



**Download Profile To Charger** is only enabled if charger DIP switch is in remote setting

## Manager View Overview

As well as the basic view screen, an additional tab of **Charger Configuration** is now available



Within the **charger configuration** tab both the **operator configuration levels** are available plus the following additional settings are now available:

### Manager password

The manager password can be changed or viewed

### Remote Profile Settings

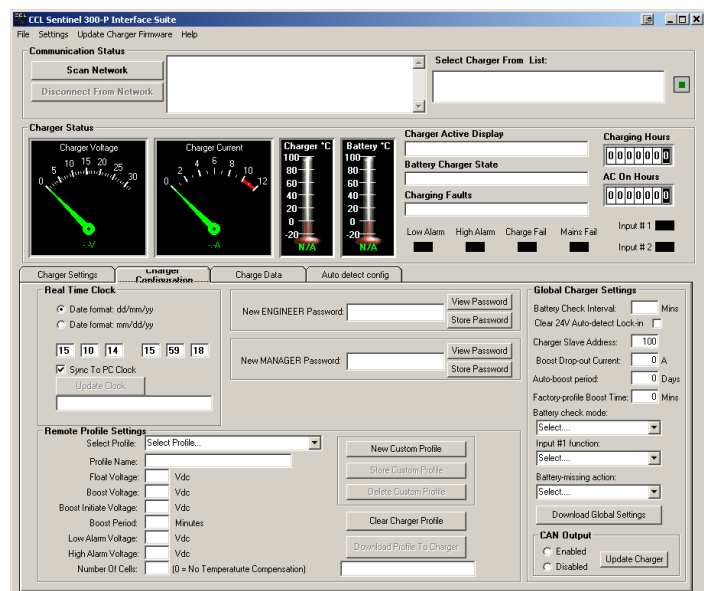
From the predefined list of battery profiles a new charger profile can be selected and downloaded to charger. New charger profiles can also be both created and deleted – see SNTL300P configurable settings for details

### CAN Output

The SNTL300P can now be configured to deliver a J1939 CANBUS compliant output from terminals 12 and 13 from CN2 (IO Array).

**Note: Firmware Revision v003 or above is required**

To configure your hardware for CAN, set Jumpers J5a and J5b, located just above LED's, from position 2-3 as shown to positions 1-2. CAN output is now from 12 & 13 of the IO array.



## SNTL300P Configurable Settings

---

### Charger Profiles

Depending upon access password entered, the selection or creation of new charger profiles is available. The configurable fields are as follows:

<b>PROFILE NAME</b>	Name of profile
<b>FLOAT VOLTAGE</b>	This should be according to manufacturer recommendations for battery type, i.e. Wet Lead Acid = 2.25V/p/c = 12V Settings = 13.5Vdc
<b>BOOST VOLTAGE</b>	This should be according to manufacturer recommendations for battery type, i.e. Wet Lead Acid = 2.23V/p/c = 12V Settings = 14.1dc
<b>BOOST INITIATE VOLTAGE</b>	The voltage at which the SNTL300P Initiates Boost Function. This should be a voltage lower than Float voltage, typically nominal (i.e. 12V or 24V)
<b>BOOST PERIOD</b>	Amount of Time for Charger to remain at Boost Voltage before returning to Float
<b>LOW ALARM VOLTAGE</b>	Low Alarm Voltage Setting
<b>HIGH ALARM VOLTAGE</b>	High Alarm Voltage Setting
<b>NUMBER OF CELLS</b>	Used for correct calibration of Temperature Compensation. If, such as in the case of Power Supply modes, no temperature compensation is required enter '0'

### Preset Charger Profiles

The SNTL300P contains an inbuilt list of the most common type of batteries used, these can be selected from the drop down menu:

**12V Wet Lead Acid**  
**12V Wet Lead Acid for Fire Pump\***  
**12V Calcium Calcium**  
**12V Lead Acid Antimony, Hybrid Sb-Ca (Antimony-Calcium)**  
**12V VRLA – AGM**  
**12V VRLA – Gel**  
**10 Cell NiCd**  
**12V Power Supply Mode**  
**18 Cell NiCd**  
**20 Cell NiCd**  
**24V Wet Lead Acid**  
**24V Wet Lead Acid for Fire Pump\***  
**24V Calcium Calcium**  
**24V Lead Acid Antimony, Hybrid Sb-Ca (Antimony-Calcium)**  
**24V VRLA – AGM**  
**24V VRLA – Gel**  
**24V Power Supply Mode**

**\*Fire Pump Calibrations are only available on SNTL300P-FP Fire Pump Models**

### Creating Custom Profiles

Only available in Manager Mode

Select **New Custom Profile** this will allow entry of charger profile parameters as outlined above.

The 'Remote Profile Settings' form contains the following fields and buttons:

- Select Profile:
- Profile Name:
- Float Voltage:  Vdc
- Boost Voltage:  Vdc
- Boost Initiate Voltage:  Vdc
- Boost Period:  Minutes
- Low Alarm Voltage:  Vdc
- High Alarm Voltage:  Vdc
- Number Of Cells:  (0 = No Temperature Compensation)
- Buttons: New Custom Profile, Store Custom Profile, Delete Custom Profile, Download Profile To Charger

Enter all parameters as required

This is a duplicate of the previous form, showing the 'Remote Profile Settings' interface with all input fields empty and ready for data entry.

Once complete, select **Store Custom Profile**

The 'Remote Profile Settings' form is now filled with the following values:

- Select Profile:
- Profile Name:
- Float Voltage:  Vdc
- Boost Voltage:  Vdc
- Boost Initiate Voltage:  Vdc
- Boost Period:  Minutes
- Low Alarm Voltage:  Vdc
- High Alarm Voltage:  Vdc
- Number Of Cells:  (0 = No Temperature Compensation)
- Buttons: New Custom Profile, Store Custom Profile, Delete Custom Profile, Download Profile To Charger

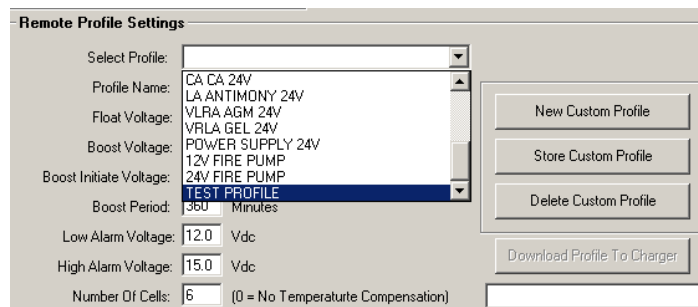
The newly created custom profile will now appear in the drop down list of profiles

The 'Remote Profile Settings' form shows the 'Select Profile' dropdown menu open, displaying a list of profiles. The newly created 'TEST PROFILE' is highlighted at the bottom of the list.

- Select Profile:
- Profile Name:
- Float Voltage:
- Boost Voltage:
- Boost Initiate Voltage:
- Boost Period:
- Low Alarm Voltage:
- High Alarm Voltage:  Vdc
- Number Of Cells:  Vdc
- Buttons: New Custom Profile, Store Custom Profile, Delete Custom Profile, Download Profile To Charger

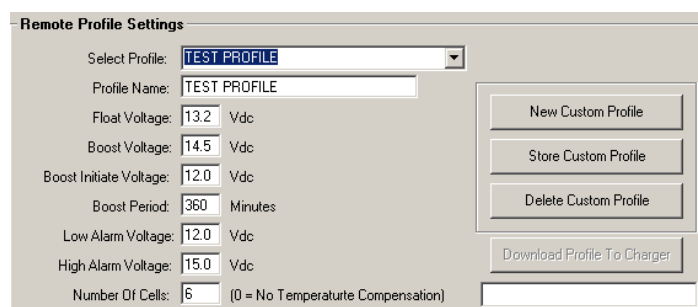
## Deleting Custom Profiles

Select the custom profile from the drop down list of profiles



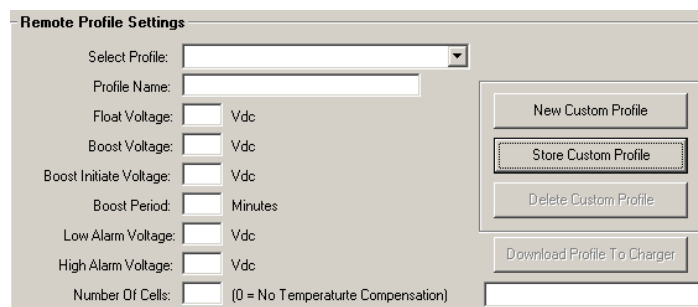
The 'Remote Profile Settings' window shows a list of profiles in the 'Select Profile' dropdown. 'TEST PROFILE' is highlighted. Other settings include Profile Name: TEST PROFILE, Float Voltage: 13.2 Vdc, Boost Voltage: 14.5 Vdc, Boost Initiate Voltage: 12.0 Vdc, Boost Period: 360 Minutes, Low Alarm Voltage: 12.0 Vdc, High Alarm Voltage: 15.0 Vdc, and Number Of Cells: 6. Buttons on the right include 'New Custom Profile', 'Store Custom Profile', 'Delete Custom Profile', and 'Download Profile To Charger'.

Once selected, as shown, select **delete custom profile**



The 'Remote Profile Settings' window shows 'TEST PROFILE' selected. The 'Delete Custom Profile' button is highlighted with a dashed border.

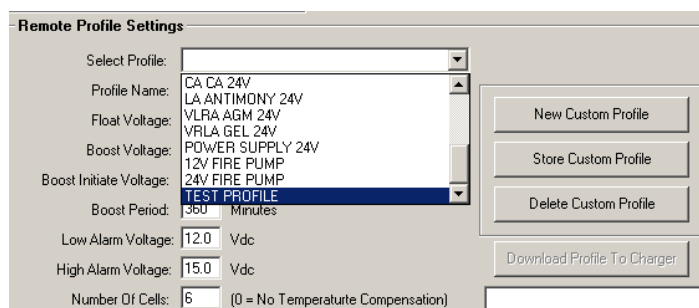
All data will now show as blank



The 'Remote Profile Settings' window shows all input fields (Select Profile, Profile Name, Float Voltage, Boost Voltage, Boost Initiate Voltage, Boost Period, Low Alarm Voltage, High Alarm Voltage, Number Of Cells) as blank.

## Applying Custom Profiles

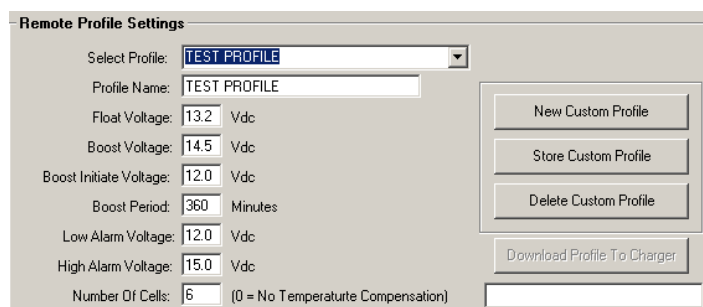
Select the profile you wish to apply to the SNTL300P Charger from the drop down menu



The 'Remote Profile Settings' window shows 'TEST PROFILE' selected in the 'Select Profile' dropdown. The 'Download Profile To Charger' button is highlighted.

Once profile is selected, select **download profile to charger**

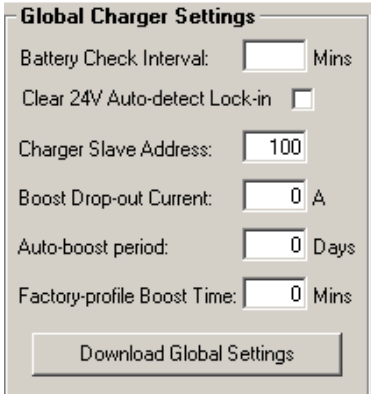
Notes: *The charger must be set to Remote Configuration settings via the DIP switches. Refer to Operation & Installation Manual of SNTL30P Charger*



The 'Remote Profile Settings' window shows 'TEST PROFILE' selected. The 'Download Profile To Charger' button is highlighted.

## 24V Auto-Detect Lock in

If the SNTL300P Battery Charger has been configured to Auto-Detect and on power up has detected 24V Battery Settings in accordance with voltage configuration, after 24 hours of operation, it will automatically lock itself into 24V operation. Once locked in, in event of AC mains failure and system reset, it will always default to 24V mode. To clear this timer and re-instate Auto-Detect Mode, from **Global Charger Settings**, check the **Clear 24V Auto-detect Lock-In** and then select **Download Global Settings**



**Global Charger Settings**

Battery Check Interval:  Mins

Clear 24V Auto-detect Lock-in ☐

Charger Slave Address:

Boost Drop-out Current:  A

Auto-boost period:  Days

Factory-profile Boost Time:  Mins

[Download Global Settings](#)

## Battery Check Routine

The Battery check process reduces the output of charger to nominal voltage and validates terminal voltage.

During this battery check it will report **Battery Check** in the **Battery Charger State** window.

If no battery is detected, or battery voltage is <9VDC (12v) or <18VDC (24v) then it reports **Battery Missing** in the **Battery Charger State** window.

The SNTL300P Performs a battery at the following instances if set to any profile that is not a Power Supply Mode:

On AC Power Up, before entering boost mode of operation



**Battery Charger State**

Battery Check.....



**Battery Charger State**

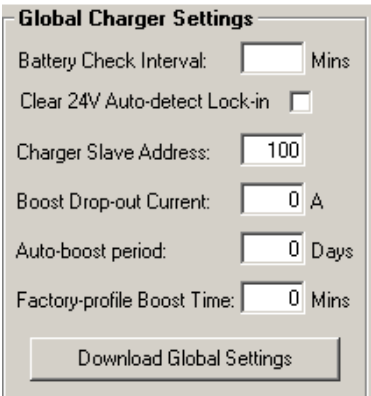
Battery Missing!

Once charger is in Float mode, the charger performs a battery check in accordance with the **Battery Check Interval** setting as configured in **Global Charger Settings**

To change the interval time of the battery check routine, enter required time in minutes into **Battery Check Interval** and **Download Global Settings** to SNTL300P

Note: When download a new interval time, the changes will not take place until either:

- AC & DC power is cycled and SNTL300P has performed a system restart
- Until existing battery check period has elapsed



**Global Charger Settings**

Battery Check Interval:  Mins

Clear 24V Auto-detect Lock-in ☐

Charger Slave Address:

Boost Drop-out Current:  A

Auto-boost period:  Days

Factory-profile Boost Time:  Mins

[Download Global Settings](#)

Should the SNTL300P report a battery check, it will continue checking every 1 minute for battery until fault has cleared. Once a battery is detected it will revert to **Battery Check Interval** time



## Setting Charger Address

The SNTL300P Network address can be configured between 100 and 250, to change this enter new address in **Charger Slave Address** and then select **Download Global Settings**

*Note: If multiple SNTL300P units are connected to the same RS485 network, ensure that they have unique addresses configured.*

## Boost Drop Out Current

The SNTL300P will terminate its Boost cycle if the output current has dropped below a preset level. This prevents needless battery gassing and temperature rise, once the battery is fully charged.

Configurable **Boost Drop-Out Current** between 0 (Disable) and 5amps to a 0.1A resolution, and then select **Download Global Settings**

## Auto-Boost Period

The SNTL300 employs a configurable option to allow an auto-boost cycle to occur without the need to manually engage it. Should the charger not have recorded a boost cycle happening within a given period, it exercises the batteries, elevating their terminal voltage, recombining the partly separated water and strong sulphuric acid within the cells, preventing build up on the battery plates and maintaining battery life and performance

Enter required **Auto-Boost Period** in Days, 0 (Disable) - 31, and then select **Download Global Settings**

## Factory Profile Boost Time

The Standard Boost Extension Time of preset profiles can be configured via Global Charger Settings, Enter required **Factory Profile Boost Time** in Minutes and then select **Download Global Settings**

## Maximum boost period

**1440 (default)** the charger will monitor time spent in ramp to boost mode, should the charger not reach the expected boost target voltage in a given time period, the unit will alarm and turn its output off for 4 hours before attempting again. This provides increased protection against batteries with shorted cell(s). Bit 10 in the alarm status register provides indication of this fault.

**Global Charger Settings**

Battery Check Interval:  Mins

Clear 24V Auto-detect Lock-in ☐

Charger Slave Address:

Boost Drop-out Current:  A

Auto-boost period:  Days

Factory-profile Boost Time:  Mins

Maximum boost period:  Mins

Battery check mode:

Input #1 function:

Battery-missing action:

Baud Rate:

☐ Parallel charger operation

## Configurable options from drop down Menus

### Battery check mode

**10 second (default)** whereby the charger ramps its output voltage down looking for a voltage of >nominal voltage of battery, this check is performed according to the Battery Check Interval set in the Global Charger Settings and as described in the Battery Check Routine section in this document.

**Ultra Fast** for an immediate detection of removal of battery when in float mode of operation. *Note: panel load must be resistive >50mA and have no active capacitance value.*

### Input #1 function

The input can now be configured to either manually initiate a boost cycle (**default**) or completely disable all boost functions.

### Battery-missing action

The charger can be configured for float voltage output under battery missing alarm (**default**) or to shut off its own DC output until battery detected

*Note: Measured voltage must exceed nominal voltage of battery for re-detection to occur.*

### Baud Rate

**9600 (default)** the RS485 baud rate can be configured from the additional drop down menu. This baud rate only applies when the SNTL300P is in remote configuration mode (DIP switch 5 ON).

The SNTL300P must be restarted for this change to take effect.

### Parallel Operation

By enabling this option, the SNTL300P can now be connected in parallel for an increased current output. This option disables all battery checking functions and therefore the battery missing check interval, battery check mode and battery missing action options. It also disables the Auto Detect DIP switch function. If this option is enabled and DIP switches 1-4 are set to off for Auto Detect, the SNTL300P will not turn its output on and will alarm.

Select desired configuration then **Download Global Settings**

**Global Charger Settings**

Battery Check Interval:  Mins

Clear 24V Auto-detect Lock-in: ☐

Charger Slave Address:

Boost Drop-out Current:  A

Auto-boost period:  Days

Factory-profile Boost Time:  Mins

Maximum boost period:  Mins

Battery check mode:

Input #1 function:

Battery-missing action:

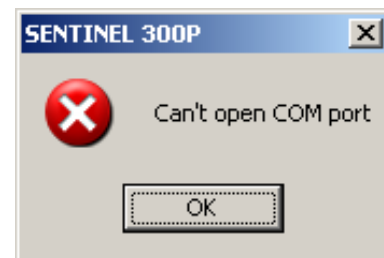
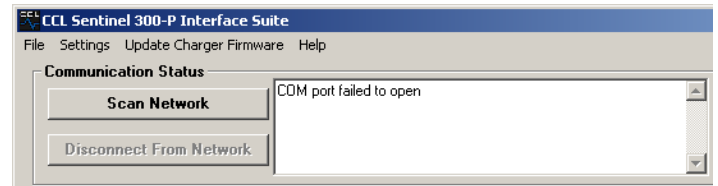
Baud Rate:

☐ Parallel charger operation

[Download Global Settings](#)

## Resolving Communication Errors

If the correct **COM** port settings have not been entered the following errors will occur



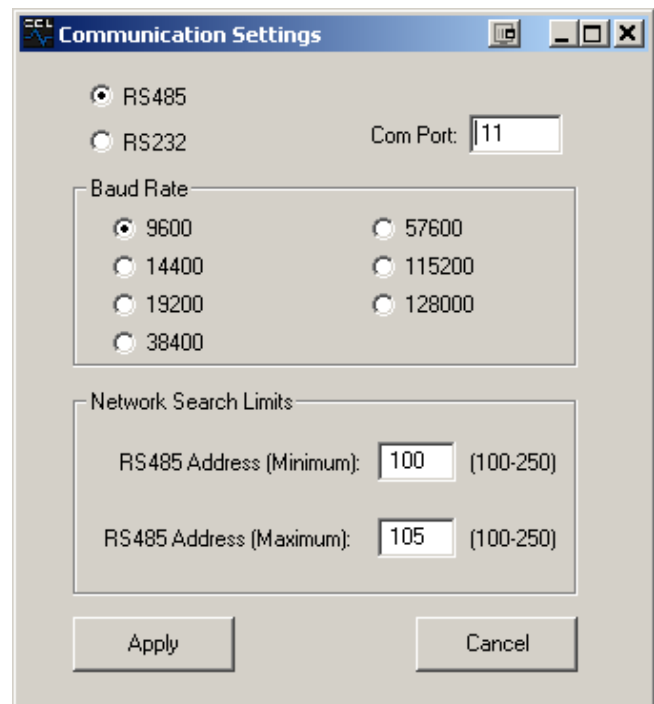
Under **settings – communication** settings set the following parameters.

RS485 Address (Minimum) 100

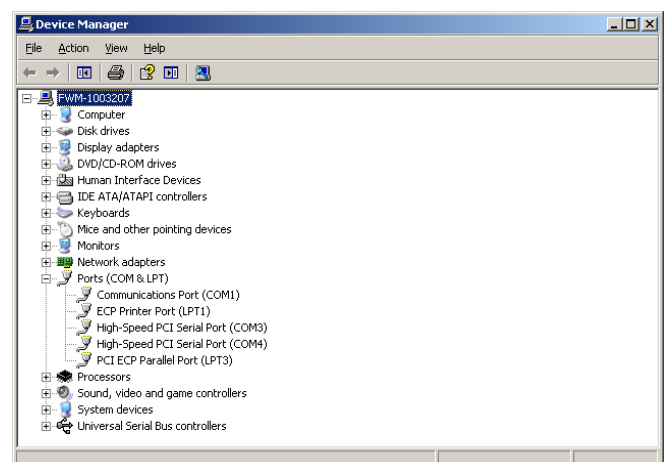
RS485 Address (Maximum) Up to 250

**Note:**

*The Higher the number the longer it will take for the system to scan node addresses, if possible limit the Maximum address number to as low as possible.*



**RS485 Com Port** must match the device settings within the Windows OS they can be found under **Control Panel/System/Device Manager** and should be listed under **Ports (COM & LPT)**



## Configuration of SNTL300-P via RS485

---

In order for customers to transmit their own remote profiles to the SNTL300P, the following protocol must be used:

Packet must be sent in MODBUS RTU format.

Use the 'Set multiple holding registers' command (0x10)

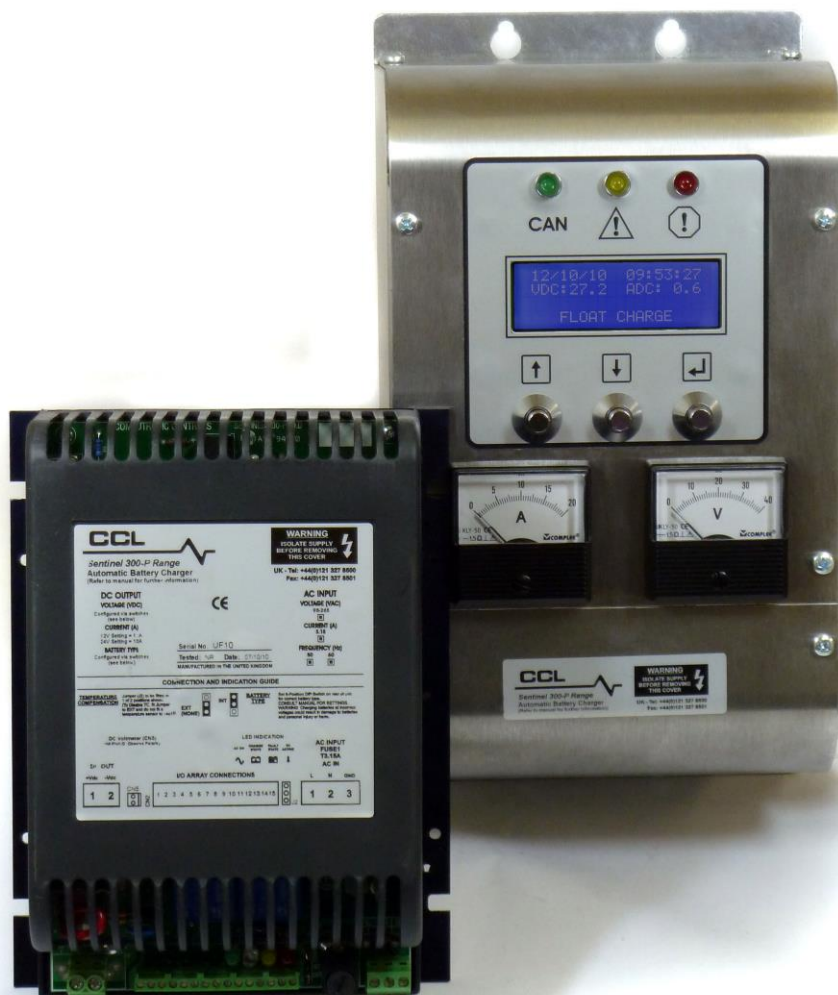
Slave address must equal that of the charger. (Default of 100)

Register start address = 64

Number of points = 17

Register	SNTL300P Function	Scaling
40064	Float voltage	Voltage X 10
40065	Boost voltage	Voltage X 10
40066	Boost initiate voltage	Voltage X 10
40067	Boost period	Minutes
40068	Low alarm voltage	Voltage X 10
40069	High alarm voltage	Voltage X 10
40070	Number of cells	Cells X 1
40071-40080	Profile name	2 ASCII characters per register

**(THIS PAGE INTENTIONALLY LEFT BLANK)**



**COMPUTRONIC  
CONTROLS**

by **ENOVATION CONTROLS**

41 - 46 Railway Terrace, Nechells,  
Birmingham, B7 5NG, United Kingdom  
Web: [www.computroniccontrols.com](http://www.computroniccontrols.com)

For sales & support, contact:

**ENOVATION CONTROLS LTD.**  
Church Road, Laverstock,  
Salisbury, SP1 1QZ, United Kingdom  
Phone: +44 1722 410055  
Fax: +44 1722 410088  
E-mail: [sales@novationcontrols.eu](mailto:sales@novationcontrols.eu)  
Web: [www.computroniccontrols.com](http://www.computroniccontrols.com)  
[www.fwmurphy.eu/computronic](http://www.fwmurphy.eu/computronic)

**ENOVATION CONTROLS**

5311 S 122nd East Avenue,  
Tulsa, OK 74146, USA  
Phone: +1 918 317 4100  
Fax: +1 918 317 4266  
E-mail: [sales@fwmurphy.com](mailto:sales@fwmurphy.com)  
Web: [www.fwmurphy.com](http://www.fwmurphy.com)