POWERTECHCS
THE CONNECTED SOLUTION™

CSPRO Installation Guide

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PowerTechCS Introduction

The PowerTechCS is leading the future of Connectivity. The CSPro operates with global 4G/5G LTE cellular connectivity, includes options for both wired and wireless sensors, and includes a connection to the J1939 network. With a PowerTechCS subscription, you will have full access to your CSPro from our easy-to-use smart device app and fleet management site.

Please visit theconnectedsolution.com to purchase your choice of a 1 year, 2 year, or 3 year subscription.

As part of our power-saving routine, the LED indicator on the CSPro will turn off after five minutes. To restart the LEDs, double-tap the face of the unit with two firm taps.

Battery

Generator Data

Security/Entry

Tank Levels

5G Cellular Compatible

Shore Power

Temperature

Engine Metrics

Remote Switch Control

Satellite Compatible

DEF Level

Wired & Wireless Sensors

GPS Tracking & Geofence

Remote Start/Stop

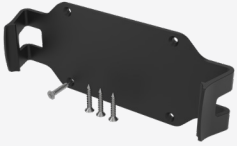
Package Contents

CSPRO

Wiring Cable 1 & Connection Hardware

Cellular & Wireless Sensor Antennas *(installation required)*

Mounting Bracket & Mounting Hardware



Installation Guide

Mobile App Guide

Main Harness

Installation Instructions

1. Unplug the remote panel harness from the remote lead connection on the genset, if equipped.
2. Connect the supplied "Y"-harness to the remote lead connection on the generator set. If equipped, reconnect the remote panel harness to the end of the "Y"-harness.
3. Connect the 4-pin connector the Main Harness to the connector on the "Y"-harness.
4. Unscrew the wiring cable connector cap labeled "HARNESS 1" on the bottom of the CSPro device to expose the cable connector.
5. Attach the Main Harness connector and device connector by carefully aligning the 12 pins and the keyed slot, then screw together firmly.
6. Unscrew the wiring cable connector cap labeled "CAN 2" on the bottom of the CSPro device to expose the cable connector.
7. Attach the Main Harness CAN connector and device connector by carefully aligning the 5 Pins and the keyed slot, then screw together firmly.
8. Connect the wiring pigtail to the connector on the Main Harness.
9. Connect wired sensors and relays to remaining wires as shown in the table.

WIRE COLOR	INPUT/OUTPUT	FUNCTION
White	Input	Battery Bank 2 (+)
Pink	Output	Blue Sea Battery Switch (#7713)
Orange	Output	Relay Control 2
Yellow	Input	Ignition Signal
Blue	Input	Security 1
Purple	Input	Switch Sensor 1
Green	Input	Ground (-)
Brown	Input	Arm/Disarm
Red	Output	Battery (+)
White/Black	Output	Relay Control 1
Black	Input	Shore Power

Sensor Harness (sold separately)

Installation Instructions

1. Unscrew the wiring cable connector cap labeled "HARNESS 2" on the bottom of the CSPro device to expose the cable connector.
2. Attach the Sensor Harness connector and device connector by carefully aligning the 12 Pins and the keyed slot, then screw together firmly.
3. Connect wired sensors and relays to remaining wires as shown in the table.

WIRE COLOR	INPUT/OUTPUT	FUNCTION
Red	Input	Switch Sensor 2
Orange	Input	Security 2
Yellow	Input	Security 3
Green	Output	Relay Control 3
Blue	Output	Relay Control 4

Antenna Connections *(Required)*

The CSPro comes with an external cellular/GPS antenna and an external wireless sensor antenna. ***These antennas are required and are not interchangable.***

Installation Instructions:

To connect antennas, remove caps on the cellular, GPS, and wireless connectors and screw antennas on as shown.

Connector Guide *(See numbers on image to the right)*

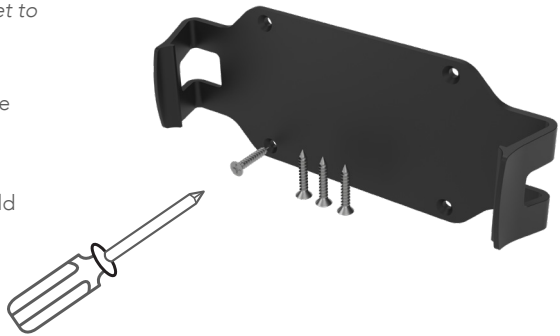
1. External Cellular Antenna
2. External GPS Antenna
3. Spare Antenna Connection *(Not in Use)*
4. Wireless Sensor Antenna
5. Wiring Cable 1
6. NMEA 2000 Connector
7. J1939 CAN Bus Connector
8. Wiring Cable 2 *(Optional Accessory)*

Mounting & Installation

The CSPro device is supplied with a mounting bracket and (4) #5 3/4" stainless flat head Phillips mounting screws. We recommend the CSPro be installed in a covered area, such as under the dash or in a cabinet and away from metal material that may cause signal interference.

Mounting Installation Steps:

1. Hold the mounting bracket in desired location.
   Optional: Mark each hole on the mounting bracket to drill pilot holes prior to installing supplied screws.
2. Using a small Philips-head screwdriver, tighten each supplied mounting screw to each hole on the mounting bracket to surface.
3. Ensure mounting bracket is secured to surface.
4. Push the CSPro device into the bracket. You should hear two clicks when device is secured in bracket.



Getting Started

Requirements

Before you begin, ensure that you have the necessary equipment and subscription needed to operate your CSPro:

CSPro

CSPro Wiring Cable 1

9-30 VDC Battery/ Power Supply

PowerTechCS Subscription

(available at theconnectedsolution.com)

PowerTechCS Mobile App (iOS / Android)

Connect to Power

The CSPro can operate on a power supply ranging from 9-30 VDC. The device contains an internal battery which is designed to provide backup power if external power is interrupted. In the event of external power loss, the internal battery power remaining will be displayed on the Mobile App. The internal battery is continually charged while the CSPro is connected to battery power.

To power your CSPro, plug the provided harnesses to the remote connection on the generator. The Battery 2 + lead is only used to provide the information of battery bank 2 voltage.

Connect to Power (Continued)

The LEDs on the CSPro will indicate connection activity for Cellular, GPS, Wireless Sensors, NMEA, J1939, and Satellite. Some features may require additional hardware, or may be for future product capabilities. See page 24 for complete LED indication table.

Main Battery Connection and Monitoring

The main battery connection powers the CSPro and can be monitored through the PowerTechCS App. This battery is displayed on the app in the Battery 1 tile by default. Please see the PowerTechCS App Guide to learn how to set voltage alert thresholds for this battery.

Sensors and Inputs

The CSPro can connect to a variety of external inputs and sensors with wired and wireless options. Each input will be displayed on the PowerTechCS App and Fleet Portal to indicate behavior and status.

Connecting Wired Sensors

Wired sensors connect directly to the corresponding lead in Main Harness pigtail and Sensor Harness pigtail (optional). When wired sensors are connected, the data from that sensor becomes available in the Mobile App and Fleet Portal.

Pairing Wireless Sensors

The CSPro can accommodate up to sixteen wireless sensors. Wireless sensors are paired to the CSPro using the PowerTechCS App. Each wireless sensor is equipped with a scannable QR code on the back of the sensor which is used for this pairing.

Follow these steps to add a wireless sensor to your CSPro system:

Ensure the tail is connected to the sensor prior to installing the supplied battery. The flat side of the battery indicating the battery type CR2430 should be facing up (+) in the sensor case.

1. Open the PowerTechCS App, then select the Settings icon.
2. Select “Add Wireless Sensor”. The screen will open your device’s camera to display an orange frame in the center.
3. Scan the QR code on the back of the wireless sensor by hovering the orange frame over the code. Select “Add” when prompted.
4. Select the wireless sensor type. This will determine the behavior of the wireless sensor in your app.
5. In the dialog box, rename the sensor to your preference, then select “Add”.
6. To add additional sensors, repeat above steps.

For more information on utilizing the PowerTechCS App, please reference the supplied PowerTechCS App Guide.

Battery 2 Input

The CSPro has the ability to monitor two 9-30 VDC batteries with hard-wired connections. Please note the main battery input is required to power the unit, while battery bank 2 is used for battery voltage monitoring of another battery only.

Wired Input Installation

Connect the white wire of the Main Harness pigtail to the positive (+) voltage post on the secondary battery. Connect the green wire of the Main Harness pigtail to the negative (-) voltage post of the secondary battery.

Wireless Battery Voltage Sensor

Wireless battery sensors can be used to monitor the voltage of additional batteries. The wireless battery sensor can be connected to DC batteries ranging from 12V-60V maximum.

Battery 2 Input (Continued)

Wireless Sensor Installation

Before connecting a wireless battery sensor to a battery, pair the sensor to your PowerTechCS App using the QR scanning process outlined in the wireless sensor pairing guidelines.

Once you have successfully paired and mounted the wireless sensor, connect the positive (+) lead on the sensor tail (red) to the positive (+) post on the battery source. Connect the negative (-) lead on the sensor tail (black) to the negative (-) post on the battery source.

Note: The wireless battery tail is three feet long (.91m). This should be considered prior to permanent installation.

Manual Arm/Disarm Switch

The brown wire is designated for a manual Arm and Disarm switch (switch not supplied).
Mount this Arm/Disarm switch in a hidden area. This gives you the option to manually arm and disarm the system without requiring the PowerTechCS App if you are outside cell coverage.

Security 1, 2, & 3

The CSPro security inputs are used to indicate intrusion or motion with a variety of PowerTechCS security sensors.

Wired Input Installation

These are normally-closed (N/C) inputs designated for PowerTechCS security sensors including motion sensors and magnetic entry sensors.

Please reference the specific accessory wiring instructions included with the security accessory you are connecting.

Wireless Sensor Installation

The wireless security sensor is used to provide an alert for entry into entrance ways, lockers or hatches. Please refer to the Wireless Sensor Guide accompanying your wireless sensor purchase for more details.

1. Install wireless sensor battery.
2. Pair the wireless sensor module to the PowerTechCS App.
3. Mount the sensor bracket to the hatch, locker, or other entry point using the supplied screws or adhesive strip.
4. Mount the magnet directly opposite the wireless module using the supplied adhesive strip. The magnet should be parallel to the long side of the sensor.

Note: When the entry point is opened, a notification will be sent to the PowerTechCS App. The system must be armed to receive alerts. There are 4 output relays that can be programmed in the mobile app and fleet portal to alert if a security sensor has been triggered. These can be used to switch on lights, sirens, or other devices to deter intruders.

Switch Sensor (switch status)

This sensor is designated to detect the operation of any normally-open (N/O) switch or relay that closes to a ground (-) connection. Example: Pressure switch, float switch, etc. The sensor must be the only device connected to the switch/relay. Connecting the additional power and/or ground connections could cause improper operation of the sensor, failure to alert, and/or damage to the CSPro or wireless sensor.
Do not connect the sensor leads to line power. An appropriate relay must be used to monitor line voltage items.

Wired Input Installation

1. Connect one pole from the switch/relay to the purple wire on the main harness pigtail or the red wire on the sensor harness pigtail.
2. Connect the ground pole of the switch/relay to the green wire on the Main Harness pigtail.

Wireless Input Installation

1. Plug the switch sensor tail into the wireless module and tighten the two hex screws.
2. Install the wireless sensor battery.
3. Pair the wireless sensor module to the PowerTechCS App.
4. Mount the sensor bracket to an area near the switch/relay using the mounting bracket or adhesive strip, secure the end of the tail to the connections of the switch/relay and snap the wireless sensor to the bracket.

Note: Notifications will be sent to the PowerTechCS App if the switch is closed. The wireless sensor tail is three feet long (.91m). This should be considered prior to permanent installation.

Shore Power

This input is designated to detect the presence and loss of shore power and can be monitored using a PowerTechCS Shore Power Sensor Plug or a PowerTechCS AC Relay (120V or 240V).

Wired Sensor Installation

The Shore Power Sensor Plug is installed by connecting the black lead to negative (-) and the trace lead from the plug to the black wire of Main Harness pigtail (See page 8).

The PowerTechCS AC Shore Power Relay is installed by wiring directly from the shore power circuit breaker. Please reference the installation guide supplied with the Shore Power Relay for more detail.

Note: A wireless shore power sensor option is not available at this time.

Temperature

Wireless Temperature Sensors

Detecting temperature with the CSPro is accomplished by adding wireless temperature sensors. It is possible to monitor multiple temperatures at the same time. Wireless Temperature sensors operate with or without the supplied temperature sensor tail.

Wireless Sensor Installation

1. Plug the temperature sensor tail into the wireless module and tighten the two hex screws. If using the wireless temperature sensor without the temperature sensor tail, select the “internal” option when prompted while pairing the sensor to the PowerTechCS App. Select the “external” option if using the sensor tail.
2. Install the wireless sensor battery.
3. Pair the wireless sensor module to the PowerTechCS App.
4. Mount the wireless module in the area to be monitored.
5. To monitor temperature of a specific area or piece of equipment such as the inside of a refrigerator, attach one end of the temperature probe to what you want to monitor. Connect the other end of the tail into the wireless module and tighten the two hex screws.

Relay Control Outputs (#1, #2, #3, #4)

The CSPro has the ability to control the power supply for up to four separate circuits. Each output on the CSPro unit has a max rating of 0.5 amps. Most loads will require the use of a DC or AC power relay.

Main Harness Pigtail (See page 8)

- Output 1: Black/White wire
- Output 2: Orange wire

Sensor Harness Pigtail

- Output 3: Green wire
- Output 4: Blue wire

Outputs can be conditioned to activate either when a direct output request is sent from the mobile app's Commands page, and/or automatically in response to user-defined rules set up in the mobile app and fleet portal. See the user guides for the PowerTechCS App for more information.

For power applications higher than 0.5 amps, such as an air conditioner, please match the external relay to the load requirements of the application. *Note: These connections switch to ground (-) and do not supply voltage*

Operation Sensor

This sensor monitors equipment activity. Use the mobile application to set up the parameters for when you will receive alerts about cycling activity and/or operation time. Do not connect the sensor leads to line power. An appropriate normally-open (N/O) relay will be required for operation.

Wireless Sensor Installation

1. Plug the monitoring sensor tail into the wireless module and tighten the two hex screws.
2. Install the wireless sensor battery.
3. Pair the wireless sensor module to the PowerTechCS App.
4. Mount the sensor bracket to an area near the relay using the mounting bracket or adhesive strip, secure the end of the tail to the connections of the relay and snap the wireless sensor to the bracket.

The wireless sensor tail is three feet long (.91m). This should be considered prior to permanent installation.

LED Indication Table

	Cellular	GPS	Wireless Sensors	CAN2	Bluetooth	WiFi	Satellite
Green Solid	Connected	Connected	Connected	Connected	N/A	N/A	N/A
Green Flashing	Attempting to connect	Flashes after 2 seconds of no connection	Attempting to connect	Attempting to connect	N/A	N/A	N/A
Red Flashing	Not connected	Not Connected Flashes after 5 seconds	No wireless sensor detected	No CAN detected	N/A	N/A	N/A
Blue Flashing	Updating software	Updating software	Updating software	Updating software	Updating software	Updating software	Updating software
Solid Red	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Depending on the sensors that you connect to your CSPro, some of the LEDs may not be applicable (for example, a satellite module is required for satellite connection). If you do not have a system connected that has a status light, the LED will remain off.

Technical Specifications

General

Dimensions	6.5 in x 4.5 in x 2.1 in	165 mm x 114.3 mm x 53.3 mm
Weight	1 lb.	0.5 kg

Environmental

Temperature (Operating)	+32°F to +113°F	0°C to +45°C
Temperature (Storage)	-4°F to +140°F	-20°C to +60°C
Humidity	0 to 90% RH	

Electrical

Operating Voltage	9-30 VDC
Internal Battery	24-48 hours backup power, depends on number of sensors and signal strengths

Wireless Communication

Signal	Standard	Antenna
Cellular	4G/5G LTE, with fall back to 3G	External
WiFi	Access Point or Client *(future functionality)*	Internal
Bluetooth	Bluetooth Low Energy (BLE) *(future functionality)*	Internal
Wireless Sensor	915 and 866 MHz bands	External

Wired Communication

Interface	Standard	Connector
NMEA 2000	NMEA 2000	M12 (5 Pin)
CAN 2	J1939	M12 (5 Pin)

Positioning

Technology	Standard	Antenna
GPS	GPS/GLONASS with SBAS	External

Wired Inputs	Wired Outputs	Wireless Sensors
Battery 1 (+)	Relay Output 1	Magnetic Reed Switch (Entry)
Battery 2 (+)	Relay Output 2	Operation Sensor
Battery Gnd (-)	Relay Output 3	Temperature
Switch Sensor 1	Relay Output 4	Switch Sensor
Switch Sensor 2		Battery Bank Voltage
Security 1		
Security 2		
Security 3		
Shore Power		
Remote Arm/Disarm		

Technical Specifications (Continued)

Definitions

- End User refers to the owner of a PowerTechCS Device (CSPro).
- Service Provider is PowerTechCS.
- Distributor: The Service Provider's representative in the U.S.A. is PowerTechCS.
- Service means the communication and access to infrastructure and telecommunication systems needed to alert the End User of an occurrence on board detected by the installed PowerTechCS Device.
- Network means the public telecommunications system by which the PowerTechCS Service is made available.
- Service Contract Agreement means the contract between the Service Provider, PowerTechCS, and the End User.
- Minimum Contract Period means the period during which the End User has agreed to use and pay for the Service.
- Service Charge means the monthly payments the End User pays for the Service during the Contract Period.
- PowerTechCS System Server means the servers and other hardware and infrastructure needed in order to provide the Service.
- PowerTechCS Device is any and all hardware that is sold by or distributed through PowerTechCS LLC, including, but not limited to, the CSPro and all accessory sensors that are paired with the PowerTechCS base unit.
- Early Termination Fee is a fee of $9.00 which will be charged to the End User via the Service Provider if or when the End User terminates their Service Agreement with PowerTechCS prior to the assigned date.
- Action Plan is a pre-determined plan of events to be acted upon when or if any major event occurs on board of which you are notified via the PowerTechCS Device.

In order to use the PowerTechCS System, there must be a current Service Contract Agreement between the End User and the Service Provider. The Service Contract has a minimum Contract Period during which the End User is obligated to pay the monthly Service Charge. The Service Contract Agreement is normally entered on-line during the installation of the PowerTechCS Device. The Service Contract incorporates and includes by reference the current Terms & Conditions for the PowerTechCS Device.

Scope of Service

The service includes cellular (GSM) communication between the PowerTechCSh Device and the PowerTechCS System Servers, text (SMS) message communication between the PowerTechCS Server and the End User's mobile phone, e-mail communication between the PowerTechCS Server and the End User as well as access to the PowerTechCS Web Portal through the Internet. The server also includes access to Support during the Contract Period and free software upgrades as well as the right to use any software included in the Service.

Service Availability

The cellular (4G LTE-M) service is available both domestically within the U.S.A. and Internationally. All cellular communication between PowerTechCS Device and PowerTechCS System Servers is included in the monthly Service Charge. There are no extra roaming charges for systems used outside the U.S.A. The End User hereby acknowledges that the availability of the service may be affected by factors outside the Service Provider's control such as, but not limited to, physical obstructions, availability of Internet connections, routing of data over the Internet, atmospheric conditions and other causes of radio interference and by faults in other telecommunication networks to which the Network is connected. In connection with any such adverse effect on the quality and availability of the PowerTechCS Service, the Service Provider shall incur no liability to the End User whatsoever. Notwithstanding such effects to the Services during the Contract Period, the End User shall remain liable for the payment of the Monthly Service Charge.

Contract Period

Each Service Contract Agreement has a defined Contract Period, which commences on the date the first Billing Cycle starts. The Contract Period is defined in the Service Contract Agreement. The End User agrees not to suspend service more than once in a 12-month period.

Use of the Built-in SIM Card

The PowerTechCS Device has a built-in SIM card, the title to which belongs to the Service Provider and not the End User. The Service Provider reserves the right to cancel the service and permanently terminate the SIM card if:

- The End User repeatedly fails to pay the monthly service charge agreed during the contract period.
- The system remains unused and the service agreement is not renewed or terminated after a period of six (6) months after the initial contract period has expired.
- The SIM card is abused in any way or is removed from the PowerTechCS Device.
- The Service is cancelled, the PowerTechCS System may be sent to Service Provider or Distributor for a replacement SIM card. A minimum service fee of US $100.00 will be charged for this. In case the PowerTechCS Device and/or its internal SIM card are lost or stolen, the End User is required to immediately notify the Service Provider.

Until such notification has been received by the Service Provider, the End User is liable for any and all charges incurred by the use of the PowerTechCS Device and/or the SIM card.

Monthly Service Charge

The End User is required to pay the monthly Service Charge on time during the Contract Period or as long as the Service Contract Agreement is valid. The monthly Service Charged is automatically billed to End User's credit card on the day or close to the day of original purchase each month (Billing cycle). The End User is required to maintain and enter valid credit card information into the system through the PowerTechCS Web Portal, so that the Service Charges can be billed each month.

Upon failure to pay the Service Charge the Service Provider reserves the right to limit the use of the system and/or terminate the Agreement. If terminated in such a way the End User shall remain liable to pay the Early Termination Fee. The Service Provider reserves the right to adjust price, terms and conditions when forced by factors outside its control. A minimum three (3) months' notice applies before any such changes can take effect.

The Reinstatement Fee

The PowerTechCS Service Agreement may be terminated before the expiration date of the Contract Period, upon payment to Service Provider with a Reinstatement Fee of US $9.00.

Automatic Continuation of Service Contract

After the initial Contract Period has ended, the service will be automatically extended until terminated by the End User. After the initial Contract Period, the End User has the right to terminate the Service Contract Agreement by giving notice, in writing, to the Service Provider. A three (3) month termination period shall apply during which the End User is liable to pay the monthly Service Charge.

Termination of Contract

After the Contract Period has ended, the Agreement may be terminated by the End User by giving notice, in writing, to the Service provider or its distributor in the U.S.A. either by mail or by fax. The agreement will be terminated after three (3) months, starting from the first date of the month after the notice has been received by the Service Provider. A confirmation of Termination will be sent by the Service Provider to the End User. The termination notice shall be addressed to the Service Provider or its distributor (In the U.S.A., PowerTechCS). For address information see Contact details above under Definitions.

Con identiality

The Service Provider agrees not to make available to anyone not directly affiliated with the Service Provider any data stored on its PowerTechCS Service Servers, unless the End User has agreed so. This includes, but is not limited to, positions or movements of the vehicle, information regarding the End User's address, status of alarms and warnings, telephone numbers, e-mail addresses as well as username and password. The End User hereby agrees to the Service Provider's and its Distributor's right to access data stored on the PowerTechCS System Servers in order to help the End User in case of support and for trouble shooting as well as for system maintenance and software upgrades. The Service Provider and Distributor reserves the right to contact the End User, using the contact information stored on the PowerTechCS System Servers, in order to notify the End User of any potential problems, improvements or other things that affect the quality and security of the Service. The Service Provider will not knowingly make data stored on the servers available to persons not affiliated with PowerTechCS except as agreed to by the End User and except as required by applicable law.

Liabilities

The Service Provider is not liable for any goods stolen or damages incurred as a result of the Service not being available. PowerTechCS is not liable for defects in the PowerTechCS Device or in the Service. The End User recognizes that factors outside the Service Providers control may affect the quality of the Service. Furthermore, it is the responsibility of the End User to act on notifications sent by the PowerTechCS Device and for maintaining an
up-to-date Action Plan online so that alarms and warnings can be sent to the right person(s). It is also the End User's full responsibility to inform any person(s) entered in the action plan of the desired action, should an alarm or warning be received. The Service Provider takes no responsibility for any data stored on the PowerTechCS System Servers by the End User that may be offensive, incorrect or fraudulent.

POWERTECHCS
THE CONNECTED SOLUTION™


Battery


Generator Data


Security/Entry


Tank Levels


5G Cellular Compatible


Shore Power


Temperature


Engine Metrics


Remote Switch Control


Satellite Compatible


DEF Level


Wired & Wireless Sensors


GPS Tracking & Geofence

Remote Start/Stop

Technical Support

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