

Hubbell Power Systems Terms and Conditions

These terms and conditions of sales apply to the purchase by Buyer (as identified on the purchase order or purchase agreement) of any and all Hubbell Power Systems, Inc. ("HPS") products. HPS hereby gives notice of its rejection of any different or additional terms and conditions other than as stated herein or otherwise specifically agreed to in writing by HPS. Buyer's acceptance of the provisions of these terms and conditions shall be conclusively presumed upon Buyer's receipt of the product(s) or if no written objection is received by HPS within fifteen (15) days from the date on HPS's order acknowledgment, whichever event shall first occur.

PRICING

Refer to **www.myhubbell.com** or appropriate price sheet provided by HPS customer service, unless otherwise quoted. Unless otherwise agreed to in writing by HPS, orders will be billed at prices in effect at the time the order is shipped by HPS.

TERMS

Unless otherwise noted on the invoice, payment terms are net 30 days from the invoice date. Invoices will be dated the day of shipment. A service charge of 1.5% per month or, if such rate exceeds the maximum lawful rate, the maximum lawful rate shall be assessed on all past due accounts and shall be payable on demand.

QUOTATIONS

Unless otherwise stated in writing by HPS, HPS quotations remain valid for thirty (30) days from the date of issue.

SALES AND SIMILAR TAXES

Prices do not include any sales, use, excise or similar taxes. Consequently, in addition to the price specified herein, the amount of any present or future sales, use, excise or other similar tax applicable to the sale or use of the equipment sold hereunder, shall be paid by the Buyer unless prior to shipment Buyer provides HPS with a current tax exemption certificate acceptable to the relevant taxing authorities.

ACCEPTANCE OF ORDERS

All orders are subject to final acceptance by HPS. Any other terms proposed by Buyer are rejected unless expressly accepted in writing. Orders shall be deemed to be executed in the State of Missouri and shall be construed and performed in accordance with the laws of that State. Acceptance of any order is subject to availability of product and the ability of HPS to deliver

SALES BY AGENTS

Sales facilitated by agents or through overseas representatives shall be made directly by and between HPS and Buyer at prices, terms and conditions of sale specified by HPS. All invoices will be issued by and payment remitted to HPS.

DELAY

HPS will use reasonable efforts to meet shipment or delivery dates specified by HPS, but such dates are estimates only. In no case will HPS be liable for any special, consequential, liquidated or other indirect (including loss of profits) or direct damages due to any delay in delivery or shipment or non-delivery, whether or not excused hereunder. In no event shall HPS be liable for any delay or non-delivery if caused directly or indirectly by Acts of God, fire, flood, strike or lockout or other labor dispute, accident, civil commotion, riot, war, governmental regulation or order, whether or not it later proves to be invalid, or from any other cause or causes (whether or not similar to any of the foregoing) beyond HPS's control.

SHIPPING DEFERMENT

Buyer requests for shipping deferment must be approved by HPS and are subject to price negotiation.

LIMITED WARRANTY AND LIMITATION OF LIABILITY

HPS warrants to Buyer that the products sold will be free of defects in workmanship and material for a period of one (1) year from the date of original shipment by HPS when stored, installed, operated and maintained in accordance with recommendations of HPS and standard industry practice and when used under proper and normal use. HPS shall in no event be responsible or liable for damages or injuries resulting from modifications, alterations, misapplication or repairs made to its products by Buyer or others, or for damage caused or injuries resulting from negligence, accident or improper use by Buyer or others. This warranty does not include reimbursement for the expenses of labor, transportation, removal, installation or reinstallation of the products. This warranty shall run only to the first Buyer of the product from HPS or the first buyer of that product from that HPS Buyer (which may include an original equipment manufacturer reselling an HPS product for the first time), and is non-assignable and non-transferable and shall be of no force and effect if asserted by any person other than such first buyers.

ENGINEERING ANALYSIS OR STUDY BY HPS: HPS does not warrant the accuracy of or results from product or system performance recommendations resulting from any engineering analysis or study. This applies regardless of whether or not a charge is made for the recommendation. Responsibility for selection of the proper product for any application rests solely with the Buyer. In the event of errors or inaccuracies determined to be caused by HPS, its liability will be limited to the reperformance of any such analysis or study.

BUYER INSPECTIONS: Tests, inspections and acceptance of all material must be made at the HPS factory. Upon reasonable notice, Buyer's inspectors are welcome at the factories and are provided with the necessary facilities for carrying out their work. Name and phone number of who should be contacted for Buyer's inspection should be given to HPS no later than two weeks prior to scheduled shipment date. Buyer's inspectors may be required to execute a confidentiality agreement prior to such a visit.

<u>DISCLAIMER OF WARRANTY:</u> THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER WRITTEN, ORAL, EXPRESSED OR IMPLIED. THERE ARE NO WARRANTIES OF MERCHANTABILITY OR FITNESS OF ANY PRODUCT FOR A PARTICULAR PURPOSE.

EXCLUSIVE REMEDY: Any claim by Buyer that a product is defective or non-conforming shall be deemed waived by Buyer unless



submitted to HPS in writing within thirty (30) days from the date Buyer discovered, or by reasonable inspection should have discovered the alleged defect or non-conformity. Any warranty claim must be brought within one year of discovery of the alleged defect or non-conformity by Buyer or third party. Upon prompt written notice by the Buyer that a product is defective or non-conforming, HPS liability shall be limited to repairing or replacing the product, at HPS' option.

LIMITATION OF LIABILITY: IN NO EVENT SHALL HPS BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY, MULTIPLE OR PUNITIVE DAMAGES, EVEN IF INFORMED OF THE POSSIBILITY OF SUCH DAMAGES, WHETHER AS THE RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR ANY OTHER THEORY, INCLUDING WITHOUT LIMITATION LABOR OR EQUIPMENT REQUIRED TO REMOVE AND/OR REINSTALL ORIGINAL OR REPLACEMENT PARTS, LOSS OF TIME, PROFITS OR REVENUES, LACK OR LOSS OF PRODUCTIVITY, LOSS OF USE OF THE PRODUCTS OR ANY ASSOCIATED EQUIPMENT INTEREST CHARGES OR COST OF CAPITAL, COST OF SUBSTITUTE EQUIPMENT, FACILITIES, SYSTEMS, SERVICES OR DOWNTIME COSTS, DAMAGE TO OR LOSS OF PROPERTY OR EQUIPMENT. ANY INCONVENIENCE, COST OR DAMAGE ARISING OUT OF ANY DELAY IN PERFORMING, FAILURE TO PERFORM OR OTHER BREACH OF THE WARRANTY SET FORTH IN HEREIN OR OBLIGATIONS UNDER SUCH WARRANTY, OR CLAIMS OF THIRD PARTIES AGAINST BUYER, ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, USE OF, INABILITY TO USE, OR THE REPAIR OR REPLACEMENT OF THE PRODUCTS SOLD PURSUANT TO THESE TERMS. IN NO EVENT SHALL HPS'S TOTAL LIABILITY IN RESPECT OF ANY AND ALL CLAIMS OF ANY KIND WHETHER IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE ARISING OUT OF OR IN CONNECTION WITH, OR RESULTING FROM HPS'S SALE, DELIVERY, RESALE, REPAIR, REPLACEMENT OR FURNISHING OF ANY PRODUCTS, INCLUDING PERFORMANCE OR BREACH OF THE WARRANTY SET FORTH HEREIN OF THESE TERMS, EXCEED THE PURCHASE PRICE ALLOCABLE TO THE GOOD(S) THAT GIVE RISE TO THE CLAIM, AND ANY AND ALL SUCH LIABILITY SHALL TERMINATE UPON THE EXPIRATION OF THE APPLICABLE WARRANTY PERIOD FOR SUCH GOOD(S).

INTELLECTUAL PROPERTY INDEMNITY: If HPS is using a design provided by or on behalf of Buyer, Buyer shall indemnify and hold harmless HPS for any and all claims or demands of infringement of a third party's intellectual property rights.

DELIVERY AND RISK OF LOSS

All shipments within the continental United States are F.O.B. Origin as defined by the Uniform Commercial Code, with risk of loss and title to products passing to Buyer upon delivery to the designated carrier. Shipments to Alaska and Hawaii are F.O.B. Origin freight prepaid to the Pacific Coast docks, as defined in the Uniform Commercial Code; collect beyond with risk of loss and title to products passing to Buyer upon delivery to the designated carrier. All shipments destined for locations outside of the United States, excluding Canada, are F.C.A. (Incoterms* 2010) with risk of loss and title to products passing to Buyer upon delivery to the designated carrier in the United States. All shipments destined to locations in Canada shall be Delivered Duty Paid (Incoterms* 2010) with the exception that risk of loss and title to products passes to Buyer upon delivery to the designated carrier in the United States.

Acceptance of a specified routing by HPS does not constitute a guarantee of ship date, transit time or arrival date. HPS will not be responsible for any cartage or storage charges at destination. HPS's responsibility for exception-free delivery ceases when the carrier receives the products for shipment in good condition. Claims for loss or damage occurring during shipment must be reported directly to the carrier by the Buyer. HPS's willingness to assist in claims against a carrier does not indicate liability for such claim or replacement product.

FREIGHT ALLOWANCE

Standard & OEM Customers: Freight is prepaid and allowed on all HPS shipments of products with a net order amount of USD\$5,000 or above to destinations within the continental United States and Canada, with the exception of tool trailers and RFL®, USCOTM and Turner Electric® brand products.

Packager & Communications Customers: Freight is prepaid and allowed on all HPS shipments of products with a net order amount of USD\$3,500 and above to destinations within the continental United States and Canada, with the exception of tool trailers and RFL®, USCOTM and Turner Electric® brand products.

Freight charges will be added to all standard shipments under the minimum net order amounts provided above.

For any and all USCO™ brand products, freight is prepaid and allowed on all shipments to destinations within the continental U.S. with a net order amount of USD\$20,000 and above. For Canada all shipments will be prepaid and add.

For any and all tool trailers and RFL® or Turner Electric® brand products, freight is excluded and not allowed.

All customer expedited orders will be billed freight charges plus an administrative fee of USD \$100.

HPS reserves the right to route all qualified freight allowed shipments via least expensive surface route within the continental United States and Canada. Buyer will assume all charges for transportation specified via more expensive means.

PARTIAL RELEASE

If an order has multiple releases specified by the Buyer, each release will be treated as an individual order, relative to freight allowance and minimum billing.

MINIMUM ORDER AMOUNTS

The following minimum order amounts are required for all purchase orders: Standard Orders -- USD\$750 net per order; Tools -- USD\$250 net per order; and Parts -- USD\$250 net per order.

ORDER ADD-ON POLICY

HPS "Add-On" policy allows you to add items to an existing unshipped order for up to fifteen (15) days from the entry date of the original order. The minimum value for added products is USD\$250 and for tools or parts is USD\$100.

DELIVERY SCHEDULE

Shipping dates provided by HPS are estimates only. HPS shall make every reasonable effort to meet Buyer's shipping requirements provided HPS promptly receives all necessary information from Buyer and approved drawings, if required by HPS. HPS will not assume liability because of delayed shipment for any reason.

CANCELLATIONS

Orders may not be cancelled unless HPS gives its written consent. For stock products, order cancellations will be allowed only upon



agreement as to applicable cancellation charges if work is in progress. Cancellation of orders for non-stock products may be made only if no work has been performed or material purchased. If a request for cancellation of an order for current stock product is not received at least five (5) days prior to actual ship date, then stock product orders shipped after the cancellation request was received, but before expiration of the five-day requirement, will be subject to all standard returned product conditions described below.

RETURNED PRODUCT

GENERAL CONDITIONS applying to all product return transactions:

- 1. Product is not returnable without the prior written consent of HPS.
- 2. Request for permission to return product must be made in writing within one year from date of original shipment by HPS, and Buyer must provide original HPS invoice number.
- 3. Product to be returned must be considered standard product by HPS.
- 4. HPS reserves the right to refuse returns of any special or made-to-order product, regardless of condition.
- 5. All returned products must be in excellent, re-saleable condition and packaged in the original carton. Products will be inspected upon return; and any service or repair needed to place them in first class, saleable condition will be charged and added to the restocking charge.
- 6. A 25% restocking charge will be deducted from all credits issued on authorized returns.
- 7. Return Material Authorization (RMA) Packing List, supplied by HPS, must accompany the return shipment.
- 8. Return freight must be prepaid. Product must be received by HPS within sixty (60) days of issuance of the RMA.
- 9. Net value of the return must not be less than USD\$750 for products and USD\$250 for tools and/or parts.
- 10. HPS reserves the right to deduct for any damage sustained in transit.
- 11. Unauthorized returns will be refused. Equipment returned without proper authorization from HPS will, at the sole option of HPS, be returned to the Buyer freight collect, or scrapped immediately with no issuance of credit. Unauthorized product included in a return will not be credited.

BROKEN PACKAGE QUANTITY POLICY

Shipments will be made in standard package quantities or multiples thereof. HPS Customer Service will notify the Buyer of any orders that do not comply with this policy, and Buyer shall authorize an adjustment to comply with standard package quantities before the order will be entered.

DROP SHIPMENT POLICY

A shipment charge of 10% of the net order amount will be added to all purchase orders requesting delivery to a location other than a recognized Buyer stocking warehouse, with the exception of full truckload and/or project material. This is in addition to any other charges to the net order.

ORDERS

All orders are taken and prices quoted only with the understanding that each order shall be subject to the acceptance of HPS upon such terms as we may specify when order is received. Invoice will include a charge for any sales or excise tax which now or hereinafter may be imposed by any taxing authority upon this product or the sale or manufacture thereof.

PRODUCT SPECIFICATION

HPS reserves the right to discontinue products, modify designs, and change specifications or prices without incurring obligation.

INVOICING

All invoices are due and payable per the standard terms stated herein. In the case of an apparent discrepancy in a line item charge, Buyer is obligated to advise HPS Customer Service in writing of the nature of the claimed discrepancy within five (5) days of receipt of the invoice. This includes all requests for proof of delivery. A claim of discrepancy does not relieve Buyer of the absolute obligation to pay the remaining balance of the invoice in accordance with the standard terms of payment. Upon review, HPS will have sole discretion to resolve the discrepancy; and the Buyer expressly agrees to abide by the HPS decision. HPS will promptly advise Buyer of its decision regarding any disputed items or charges.

OSHA

HPS warrants that at time of shipment, the products will conform to the applicable occupational safety and health standards promulgated pursuant to the Federal Occupational Safety and Health Act of 1970, which are in effect on the date that HPS enters its acknowledgment of Buyer's order. Buyer's exclusive remedy and HPS's sole liability for breach of this warranty is limited to replacement of the nonconforming products.

EXPORT REGULATIONS

Buyer acknowledges that the products, and all related technical data, that have been or will be purchased from HPS are subject to the Export Administration Regulations (EAR) and the U.S. Department of Commerce. Buyer further agrees that, except as permitted by applicable U.S. laws and regulations, the export, re-export, resale, or transfer of HPS products will NOT involve (i) persons or entities included on Restricted Parties Lists published by the U.S. Government or any entities 50% or more owned by any such designated persons or entities; (ii) any country or region subject to comprehensive or significant U.S. trade sanctions; or (iii) any other person or entity if Buyer knows or has reason to believe the Products are intended or likely to be used for any restricted purpose (i.e. chemical, biological, or nuclear weapons, terrorism, sanctioned military uses). Buyer also agrees that HPS products will be used in compliance with all applicable laws and regulations of the country(s) in which Buyer does business.

FAIR LABOR STANDARDS ACT AS AMENDED

HPS represents that any goods to be delivered hereunder will be produced in compliance with the requirements of the Fair Labor Standards Act of 1938, as amended.

NOTE

These above terms and conditions supersede all those published and previously issued by: Anderson Electrical Products, Inc., Chardon Electrical Components, Fargo Manufacturing Company, Inc., Fiber and Cable Accessories, Inc., Hubbell Canada LP, Hubbell Power Systems, Inc., RFL Electronics Inc., The A.B. Chance Company, The Ohio Brass Company, all entities for Turner Electric® brand products, and USCO Power Equipment Corporation.





Power Systems

The Versa-Tech Single Phase Recloser was introduced in 2007. It was the first single phase recloser to provide the ease of use of an OCR with advanced features of electronic reclosers into one lightweight, compact design. The Versa-Tech is a versatile, wirelessly programmable, selfcontained, and self-powered data collecting mechanism that is not only easy to use but also virtually maintenance free.

Today there are four Versa-Tech product types to fit any single-phase application on a system from outside the substation to the end of the line. All four models have the same basic functionality and features which make the Versa-Tech Recloser an easy adaption for engineers and linemen.

The Versa-Tech Recloser has been tested to meet or exceed IEEE Standard C37.60-2003. The Versa-Tech Recloser is manufactured in the Boonton, New Jersey facility which is ISO 9001:2015 Certified.

Features

- Self-contained control
- Self-powered
- Vacuum interruption

ONE SIZE FITS ALL DESIGN

- 29.3Kv. 125kv (BIL) rated
- User settable minimum trip
- Programmable time current curves

COMMUNICATION OPTIONS

- Short range communication (on all models)
- Long range communication (on select models)

RECORDING FEATURES

- Fault history
- Load monitoring: Real time reporting of line current
- Historical load usage

ADVANCED SECURITY

- Password-protected programming
- Advanced Cyber Security Features (as per IEEE 1686-2007) on select models

- Reduced inventory requirements
- Versatile
- Easy to use
- Convenient wireless access to data through PC, iPad, or iPhone (dependent on radio option selected)
- Easy to install / Easy to handle
- Compact size
- Lightweight
- No auxilary power required
- No grounding required
- Environmentally friendly, no oil
- Reduced dielectric issues
- Increased lightning immunity
- Greater knowledge of system and recloser conditions
- Customer security
- User-Level permissions (on select models)

Description The Versa-Tech® Single Phase Recloser Family incorporates a unique and patented approach to recloser design. The interrupter, drive mechanism, control, and housing are raised to the system potential. The entire assembly is then insulated from ground using a standard polymer post insulator. This approach allows a compact, simplified design and also eliminates the potential for an insulation breakdown failure. The Versa-Tech® Recloser is an electronically controlled recloser configurable with a User Interface (UI) through wireless or serial communications.

Magnetic/vacuum-interruption technology

Fault interruption occurs in the recloser's vacuum interrupter. The vacuum interrupter's state-of-the-art contacts utilize axial magnetic fields to interrupt in a diffuse mode for maximum interrupter life. The vacuum interrupter is supported by an insulating support housing with bonded cycloaliphatic epoxy composite over-molding to provide maximum weather

The drive mechanism for the vacuum interrupter is a robust magnetic actuator. The actuator has a rare-earth neodymium magnet that provides the latching and holding force for the vacuum interrupter in the closed position. A spring provides the pressure to hold the vacuum interrupter in the open position. Together, the rare-earth magnet and the spring arrangement allow the mechanism to be stable in the open or closed position without the need for external power. To open the vacuum interrupter, a coil on the magnetic actuator is pulsed in one direction. To close, the same coil is pulsed in the other direction. Capacitors provide the necessary energy to open and close the recloser contacts.

Microcontroller electronic control

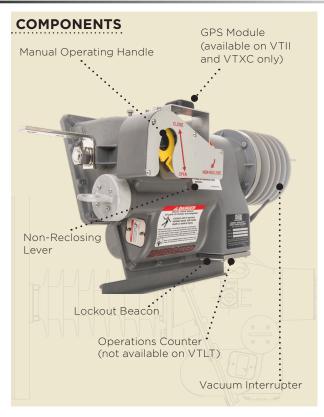
The Versa-Tech® Recloser incorporates a robust control board assembly with microcontroller-based electronics. The control is designed to allow complete flexibility for programming through user-selectable minimum trip, time-current curves, and sequencing parameters. User access to all parameters is provided through either a serial connection, radio module, or optional cellular modem (available on VTXC only). Current sensing for the control occurs through a 1000:1 current transformer.

Self-powered operation

The Versa-Tech® Recloser is self-powered and requires no external transformer power to operate on the line. Power for the control and the interrupting mechanism is harvested from fault and load current using two power current transformers. The open and close capacitors needed to drive the interrupter assembly also are charged by the load and fault current through the power current transformers. Using this approach, the recloser is able to perform all protection (open and close) operations as programmed and lockout without the need for any external power or even the hotstick-replaceable lithium battery pack.

Ratings and Specifications	VTLT	VTI (FW v3.xx)	VTII	VT-XC
Rated Maximum Voltage	29.3kV	29.3kV	29.3kV	29.3kV
Rated Continuous Current	100A	400A	400A	400A
Fault Make Capacity	4kA	8kA	8kA	8kA
Fault Break Capacity	4kA	8kA	8kA	8kA
Mechanical Operations	10,000	30,000	30,000	30,000
Withstand Current	3 sec. @ 4kA	3 sec. @ 8kA	3 sec. @ 8kA	0.5 sec. @ 8kA
Lightning Impulse Withstand	125kV	125kV	125kV	125kV
60Hz, 1-Minute Withstand Voltage	60kV	60kV	60kV	60kV
Operating Temperature	-40 to 60C	-40 to 60C	-40 to 60C	-40 to 60C
Weight kg (pounds)	21 (46)	21 (46)	21 (46)	22 (48)







*Applicable to VTI, VTII and VTXC only.

REPLACEMENT ITEMS



Manual operating handle

The Manual Operating Handle (yellow handle) is designed to allow manual open and close operations of the recloser with only the use of a hotstick. This handle makes load breaking and load making safe and easy with the self-contained vacuum interruption.

Non-Reclose/Hot Line Tag lever

The Non-Reclosing Lever (red lever) is shown in its normal (or UP) position. The Versa-Tech User Interface allows the programming of this lever in a dual functionality mode (Non-Reclose/Hot Line Tag) or a single functionality mode (Hot Line Tag Only). The dual "Non-Reclose/Hot Line Tag" option allows the recloser to be put into either a one-shot trip mode (Non-Reclose) on shot 1 TCC programming or an instantaneous trip (Hot Line Trip/Tag) mode. The appropriate mode is determined by the number of toggles of the red lever to the down position. The "Hot Line Tag Only" option allows the recloser to always be in Hot Line Tag mode when the lever is placed in the down position.

The red lever is also used to power the radio module from the battery if the load current drops below the 6A/10A threshold (dependent on VT model type).

Lockout beacon

The Lockout Beacon is a unique feature designed to aid utility lineman in identifying a locked out recloser in both dark and light conditions. The high intensity sunlight visible amber LED flashes a steady on and off blink pattern when the recloser has sequenced to lockout. The beacon will continue to flash until the manual handle is closed (pushed UP) or 4 hours have passed at which time the beacon will shut off. The beacon is additionally utilized when the recloser is manually opened and when placed in Hot Line Tag mode. Although powered by the recloser's lithium battery pack, the beacon's duty cycle is set to have a negligible effect on battery life.

Operations counter

The operations counter is an electromechanical counter that counts open operations initiated by the control. Manual operations initiated by the user are not counted. (Applicable to VTI, VTII and VTXC only)

Global Positioning System (GPS) module

The Versa-Tech II and XC have an integrated GPS module which is used to update the real time clock (RTC) of the micro-controller. It is also used to read the latitude, longitude, and number of satellites in view of the recloser.

Vacuum Fault Interrupter

Fault interruption occurs in the recloser's vacuum interrupter which is encapsulated in an insulated support housing with bonded cycloaliphatic epoxy composite formulated over-molding which also provides maximum weather resistance.

Catalog No.	Description	Weight (lb./kg.)
PSC8620064	Replacement Battery Bayonet	1.79 / 0.810
PSC8620253	Non-Reclose Hookstick Adapter Kit	0.085 / 0.038
PSC8620255	Versa-Tech Nameplate Bracket (compatible with Versa-Tech Reclosers manufactured after July 2016)	
PSC8620083	Custom USB to DB-15 Cable (applicable to VTII and VTXC only)	0.183 / 0.083
PSC8620066	Pole Mount Hardware	5.4 / 2.45
PSC8620067	Underhung Hardware	12.5 / 5.67
PSC8620397	Battery Pack Replacement Kit	0.395 / 0.179
PSC8620482	Versa-Tech Battery Tester	1.09 / 0.495
PSC8620061	Replacement Digi/XBee 900MHz Remote Radio (applicable to VTI and VTLT only)	0.84 / 0.380
PSC8620062	Local Digi / XBee 900MHz Radio	1.25 / 0.565
PSC8620084	Replacement WiFi Remote Radio (applicable to VTI and VTLT only)	0.325 / 0.147
PSC8620087	Verizon SCADA Cellular Modem. Compatible with VTXC part number PSC8626xxxxx1 or PSC8627xxxxx1	.53 / .24
PSC8620088	AT&T SCADA Cellular Modem. Compatible with VTXC part number PSC8626xxxxxx1 or PSC8627xxxxxx1	.53 / .24





Easy-to-Program Protection Settings

The Versa-Tech Recloser's solid-state circuitry provides flexible user-programmable control of minimum trip, TCC times, and all other control functions through a Windows-based User Interface or iPad application (with WiFi radio option). The recloser is shipped with generic settings and must be programmed prior to installation for proper coordination with the rest of the distribution circuit. To receive the User Interface Software for the respective VT Recloser, please contact your local Hubbell Power Systems Representative or email HPSUtilityAutomation@hubbell.com.

Protection Features	VTLT	VTI (FW v3.xx)	VTII	VT-XC	
Programmable Minimum Trip	30A - 200A		30A - 800A		
Programmable # of Operations to Lockout	1 to 4 shots				
TCC Curves	11 Legacy (3 Modifiers), 4 IEEE		11 Legacy (with 3 Modifiers), 4 ANSI (with vertical multipliers), 1 IEEE (with vertical multipliers), 5 IEC (with vertical multipliers), Up to 4 User configurable custom TCC curves		
Sequence Coordination (SC)	Not Shot S	Specific	Shot Specific		
Cold Load Time	0-300 se	econds	0-6	0-600 seconds	
Cold Load Pickup	No		1-20 in increments of 0.1		
Inrush Restraint	No		Programmable		
Reset Time	1-240 seconds		1-240 seconds Available with advanced options		
Hot-Line Tag (HLT)	Hot-Line Trip (Allowed closing in HLT mode)		Ho (Unit CANNOT be clos	ot Line Tag ed until HLT mode is removed)	
Ability to set Non-Reclose with 1 shot to lockout on TCC1	Yes				
Ability to set Hot Line Tag for instantaneous trip	Yes				
Remote HLT	No		via VTU	via VTU & SCADA Cell Modem	
Remote NR	No		via VTU	via VTU & SCADA Cell Modem	
Remote Open/Lockout	No		via VTU	via VTU & SCADA Cell Modem	
Commands supported from User Interface (UI)	Beacon Flash only	Beacon Flash only (Available only on the units built after July 2011)	HIT ND Open Class Locksut Flash Beasen		

Minimum Trip Value

The Minimum Trip Value is the minimum current sensed that will cause the recloser to trip. This current value is programmable.

Sequence Coordination

The sequence coordination feature, if enabled, will prevent unnecessary operations of the recloser when used in a series arrangement upstream from other fault interrupting devices. Shot selectable Sequence Coordination and Lockout on Sequence Coordination options are also available.

Operations to Lockout

The settings can be set to 1, 2, 3, or 4 operations before the recloser goes to Lockout.

Manual Closing Time Delay

The manual operating handle can be programmed to have a closing time delay. The time delay is the time from when the manual handle is activated until the recloser begins closing the circuit. This provides an added safety feature in case a fault is still present on the line when closed

Time-Current Curve Selection

Time Current Curves (TCC) are plots of time vs. current that define the tripping time responses of protective devices. TCC's are used to calculate a recloser's response trip time, also known as control response time, when a fault is detected.

Minimum Response Time
Minimum response time is used to achieve coordination between fault interrupting devices where fault levels may cause two devices in series to trip out of sequence. When minimum response is enabled, tripping is inhibited until the programmed

minimum response time is less than or equal to the fault current time. Once the minimum response time is met, the trip time will correspond to the regular trip time of whichever TCC curve is selected for that shot.

Reset Time

Reset time is the amount of time from the last reclose operation until another operation occurs or the reset timer expires. Once the reset timer expires, the count is reset to zero. It is also defined as the amount of time from the last momentary overcurrent event (current above minimum trip) until the transient timer expires. When the recloser goes to lockout, the count is reset to zero as well.

Reclose Time

Reclose Time is the amount of time from when the recloser interrupts the overcurrent until the recloser attempts to close the circuit again.

Cold Load Time

During this programmed interval, the pick-up (minimal trip) threshold is elevated to a Cold Load Pickup (CLPU) value and the control recloser is placed in one operation to lockout mode following the TCC2 curve. Cold Load Pickup is active after the recloser is opened manually or has gone to Lockout. Cold Load Time start's when the contacts have been closed by replacing the yellow handle to the UP position.

Cold Load Pickup

The range of the minimum trip can be elevated by multiplying the minimum trip by the Cold Load Pickup factor during the Cold Load Time.





Real-Time Monitoring, Recording and Logs	VTLT	VTI (FW v3.xx)	VTII	VT-XC
Real-Time Load Current Monitoring	Up to 200 A		Up to 400 A	
Load Profiling (Demand Log)	Non-programmable, Time interval fixed at 60 min., Can record 45-days worth of data logs (total 1080 entries)		Programmable (between 5- 60 min), Can record 90-days of hourly data (total 2160 entries)	
Demand Log Graphical Display	Basic		Display available with time and date stamp. (zoom-in option available)	
Sequence coordination designation in event history when enabled				
Scratchpad with maximum of 256 character input	Yes			
Event Log	80 En	tries	256 Entries (w/ advanced logging options)	
Event Log Setup	Non-progr	ammable	Programmable	
Oscillography	Not Supported Programmable pre-trip and cycles, Total of 12 cycles can			
Device Log (per IEEE 1686 Cybersecurity Std.)	Not supported		Programmable device log setup, 1000 Entries	
Audit Log (per IEEE 1686 Cybersecurity Std.)	Not Supported 2048 E		2048 Entries	
User Profiles (per IEEE 1686 Cybersecurity Std.)	2 default users and 8 configura Not Supported User Type is programmable (Ba Plus, Intermeidate, Advanced,		programmable (Basic, Basic	
Time Synchronization	RTC only (manual	GPS time stamping available along w RTC		
GPS Status	Not Supported		Shows Latitude, Longitude and Number of Satellites in View	
FW Upgrade Capability	Supported over - Digi/XBee 900MHz, WiFi, Serial		Supported over - WiFi	Supported over - WiFi and XBee 900MHz radios
Battery Status Monitoring	Not Supported		Supported	
Recloser Report Format	Available in TXT		Available in XML and PDF	
Internal Operations Counter	Yes			
External Mechanical Operations Counter	No Yes			

Time stamp

The recloser has a built in time stamp circuit which records the time and date following each recloser operation. The recloser time can be synced to the time of the PC on which the User Interface is installed. The Versa-Tech II and XC also have an integrated GPS module used to update the Real Time Clock of the internal controller when line load is sufficient to power it.

Instantaneous Load Current Monitoring

The recloser has real time monitoring features that automatically update following a successful connection.

Load Profiling Log

The recloser provides a record of the average and max RMS current seen by the recloser in defined intervals of time.

Diagnostic Event Log

The recloser has built in diagnostic features and records the operations count, control response time and the maximum current after each overcurrent operation. These values, as well as the time and date for the operation, are stored in a log which can be read from the control using the recloser programmer software. After each over-current interruption, the most recent record will be stored at the top of the log in a first in, first out method, with the oldest entry being discarded when the log is full.

Scratchpad memory

The recloser has a convenient scratchpad built into its non-volatile memory. The memory can store 256 characters of information in text form. This feature could contain any information pertinent to the maintenance or tracking of the recloser such as substation name, physical address, install date, counter value when installed, phase, firmware upgrade date, battery date, etc. The scratchpad can be accessed through the User Interface.

Low Maintenance / Long Life

The Versa-Tech® Recloser has been designed for a minimum mechanical life of 10,000 (VTI / VTLT) or 30,000 (VTII / VT-XC) operations. No routine maintenance is required other than occasional firmware upgrade and battery replacement.

The Versa-Tech's performance is tested per the IEEE/IEC Standard operating duty and X/R ratio for legacy recloser equipment and the equivalent respective interrupt rating category. Refer to the Standard for the equipment type categories (See, IEEE 37.60/IEC 62271-111 Standard, Col. 3). Per the Standard, the legacy (Recloser; Recloser; Agecloser; Agecloser; are shown to have a standard operating duty representative of only the half-life (50%) of the interrupter. (See, Table 9, IEEE 37.60/IEC 62271-111 Standard, note b). Therefore, in compliance with the Standard, the Versa-Tech is very robust and has a long life expectancy.





Battery replacement

Battery power is used for the following functions only:

- To close the recloser after installation or lockout.
- To power the communication radio module if load current is less than 6A (VTXC) / 10A (VTLT, VTI, and VTII).
- To flash the beacon after lockout.

The batteries are made of a very stable lithium chemistry that is designed for a shelf life of 10 years. Hubbell Power Systems recommends that users replace the batteries on a 6 to 8 year cycle.

The battery bayonet is designed to be replaced using a shotgun hot stick while the recloser is in service. The battery bayonet utilizes a twist lock design. It is easily removed by pushing in slightly and turning.



Versa-Tech® Battery Bayonet (PSC8620064)

Battery Pack Replacement Kit

The option to replace the Lithium battery pack inside Versa-Tech battery bayonet is available. Order Part No. PSC8620397



Versa-Tech® Nameplate Bracket

INCLUDED WITH EACH UNIT - This bracket slides onto the bottom of the recloser allowing ample space to affix the included VT Recloser product type identification sticker.

Order Part No. PSC8620255

NOTE: VT Nameplate Bracket is only compatible with Versa-Tech Reclosers manufactured after July 2016.



Versa-Tech® with Nameplate Bracket



Battery bayonet in the recloser



Battery bayonet partially removed from recloser

Serial Port Cover



Versa-Tech® Battery Tester

Versa-Tech® Battery Tester

The Versa-Tech Battery Tester was designed to for use with the Versa-Tech® I, Versa-Tech® LT, and Versa-Tech® II, and Versa-Tech® XC Recloser Battery Bayonet.

Order Part No. PSC8620482



Non-Reclose Hookstick Adapter Kit

INCLUDED WITH EACH VERSATECH RECLOSER

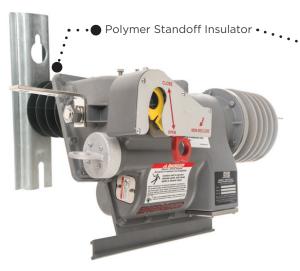
This adapter can be attached to the NR lever to allow for easier operation with a hookstick.

Order Part No. PSC8620253

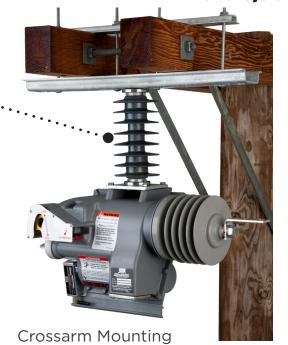


HUBBELL[®] Power Systems

Installation Options







Typical Installation Applications

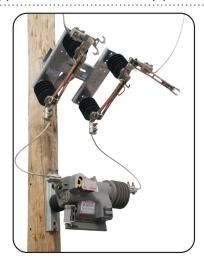


Figure A: 3-Pull Bypass Switch Arrangement

Type BP3 Switch shown. For ratings, specifications and ordering infomation, see Catalog Section 14B.



Figure B: Cross-arm Mounting



Figure C: Single Bypass Switch Arrangement

Type M3 Distribution Class Switch shown. For ratings, specifications and ordering infomation, see Catalog Section 14B.

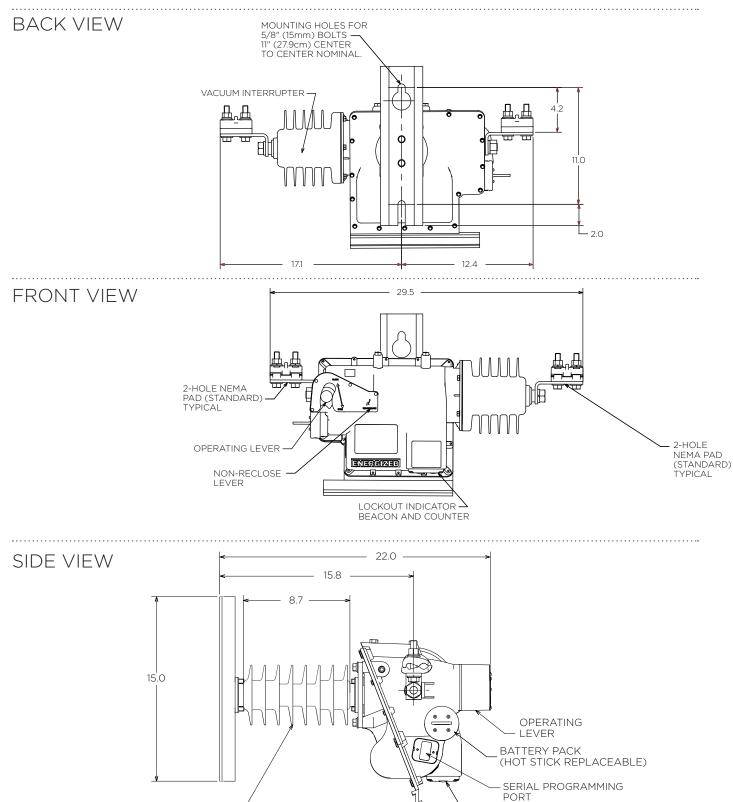


Figure D: 3-Phase Mounting Arrangement with Wing Rack Catalog No. C3MW24ML





Dimensions - Pole/Structure mounting





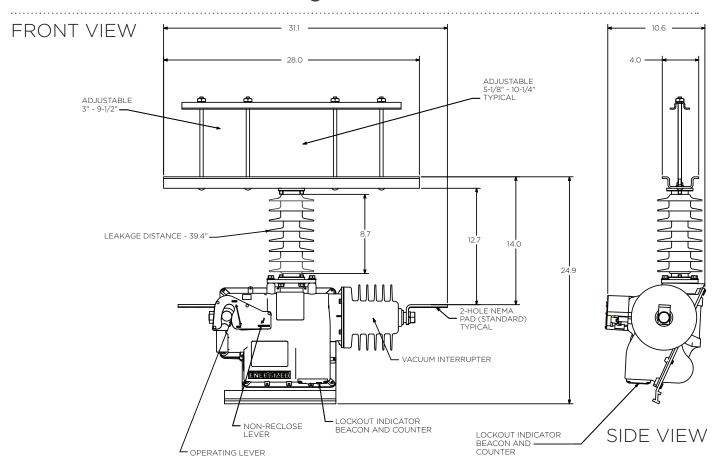
LEAKAGE DISTANCE -

LOCKOUT INDICATOR

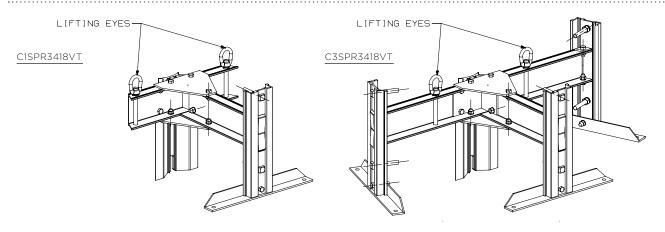
BEACON AND COUNTER

HUBBELL[®] Power Systems

Dimensions - Crossarm mounting



Recloser Mounting Bracket



Bracket Part No.	Description
C1SPR3418VT	Versa-Tech Recloser Single Position Mounting Bracket
C3SPR3418VT	Versa-Tech Recloser Three Position Mounting Bracket
C3SPR3418VTLU	Versa-Tech Recloser Three Position Mounting Bracket
C3MW24ML	Three Position Wing Type Transformer Bracket (see Figure D page 7)





VERSA-TECH® I AND LT RECLOSER

Easy-to-program controls

The Versa-Tech™ Recloser solid-state circuitry provides flexible, user-programmable control of current sensing, timing, and all other control functions. The recloser is shipped with generic settings and must be programmed prior to installation with settings required for proper coordination with the rest of the distribution circuit.

Software installation

Recloser Programming software must be installed on an iPad or a PC computer prior to use. Installation software is provided from your Hubbell Power Systems representative or by contacting the HPS Utility Automation Group at HPSUtilityAutomation@hubbell.com.



User-Friendly Programming Software Settings Display

- Automatic scan of communication ports
- Two-click radio connect
- One-click report generation
- Selectable tabs for accessing recloser functions
- Recloser serial number
- Communication indicators
- Bottle status indicator
- · Local and remote radio display
- Non-reclose and Hot Line Trip/Tag status indication
- Communication ports listed for all available reclosers



- Real-time current monitoring
- Real-time feedback of load
- · Last hour average load
- Peak load



- Event logHourly log
- Average load
- Peak load
- 45 days of data storage
- Download last week, last 2 weeks, or complete load profile log



Scratchpad memory



Radio communications

The Versa-Tech® Recloser can be fitted with an optional radio which will allow settings, diagnostics and scratchpad to be viewed and downloaded remotely while the unit is in service. The radios will also allow settings, timestamp and scratchpad to be changed while the recloser remains in service.

Remote radio

The remote radio is designed to be affixed to the recloser serial port. Access to the serial port is provided by removing the serial port cover. Two remote radio options are available for the Versa-Tech® I and Versa-Tech® LT Recloser: Digi/XBee 900MHz and WiFi.

Digi/XBee

The radios communicate with each other on a 900MHz channel which utilizes frequency hopping to minimize interference from other radio frequency sources. The radios use a two-part addressing scheme to help ensure that messages from only authorized sources are passed to a recloser.

First, all Versa-Tech® Recloser local and remote radios have a unique user transparent address which transmits with each communication. The recloser local radio will accept messages only from a remote radio with the same address. This helps prevent other 900MHz radios from making unauthorized communications with Versa-Tech® Reclosers.

Second, each remote radio is programmed with a unique fixed radio communications address. This address allows users to differentiate between multiple reclosers all within a 500-foot transmit/receive range. The remote radio will discard any message that does not include its unique radio communications address. The local radio has provisions through the recloser programmer software which permits selecting any recloser's remote radio communications address.







Remote radio connects to serial port of recloser

WiFi radio

The 2.4 GHz WiFi Remote Radio can be used to communicate with a Versa-Tech I or Versa-Tech LT Recloser without the need for a local radio. The WiFi radio is capable of communicating up to 100 feet from the recloser. Wireless communication can be established to the Versa-Tech I (running FW 3.xx or later) or Versa-Tech LT Recloser through the internal wireless card on a PC and the Versa-Tech Programmer software (User Interface v4.51.23 or higher). Wireless communication can also be established to the Versa-Tech I and Versa-Tech LT Recloser using the Versa-Tech Programmer iPad or iPhone app (version 3.3 or later).

SCADA communication

SCADA communications may be established with the Versa-Tech I Recloser (with SCADA Firmware v4.xx) through use of the Versa-Tech Terminal Unit (VTU). The VTU mounts in a customer supplied enclosure and communicates with the Versa-Tech I Recloser via 900MHz or WiFi radio. For more information on the Versa-Tech Terminal Unit, please refer to the Versa-Tech Terminal Unit Catalog 10F.





Local Radio

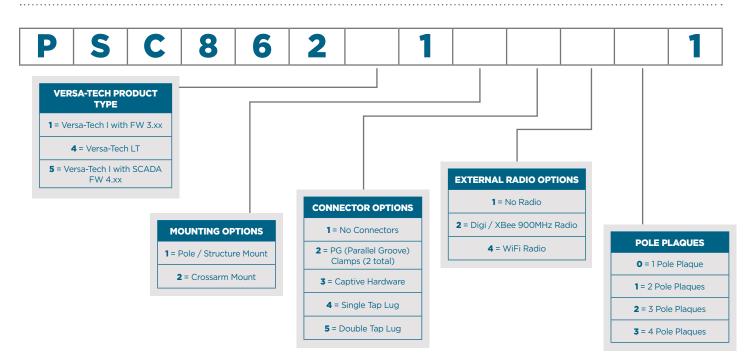
A local radio is needed when using the Digi/XBee remote radios.

The local radio is controlled and powered by connecting a USB cable between the module and a personal computer as shown below. Communication with the local radio is accomplished through the recloser programmer software. Installation software and drivers are provided from your Hubbell Power Systems representative or by contacting the HPS Utility Automation Group at HPSUtilityAutomation@hubbell.com.





VTI and VTLT Catalog





Versa-Tech I and LT





VERSA-TECH® II RECLOSER

Introduced in 2014, the Versa-Tech® II Recloser is the Second Generation of the innovative Versa-Tech recloser. Building on that foundation, it is an electronically controlled recloser configured through a User Interface (UI). The UI includes a number of additional features such as added TCC (Time Current Curve) options, enhanced system and diagnostic information, and improved cyber security per IEEE 1686-2007. The firmware is also compliant with IEEE C37.231-2006.

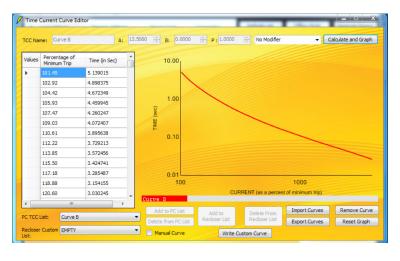


User-Friendly Programmable Software Settings Display

- Automatic scan of communication ports
- One-click radio connect
- One-click report generation
- Selectable tabs for accessing recloser functions
- Recloser serial number
- Communication indicators

- Non-reclose and Hot Line Tag status indicators
- Battery Status Monitor
- Informative Events Log
- Programmable Device Log
- Programmable Demand Log
- User-Enabled Inrush Restraint
- Up to 10 User Profiles
- Oscillography
- Audit Log
- GPS Time Stamping

Protection Features





Time Current Curves

11 Legacy Curves (with 3 modifiers), 4 ANSI Curves (with vertical multipliers), 1 IEEE Curves (with vertical multipliers), 5 IEC Curves (with vertical multipliers) and 4 User Programmable Custom Curves (using the TCC Editor)

Programmable Inrush Restraint







Advanced Reset Time Options



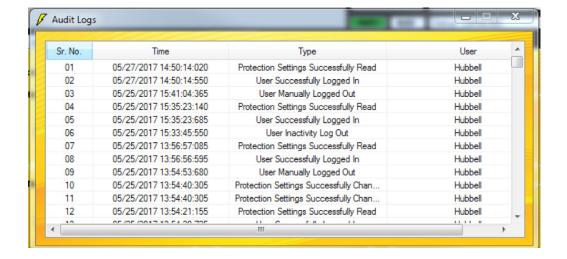
Remote Commands

User Permission Levels

- 10 User Profiles (2 fixed and 8 programmable)
- 5 Types of User Account Levels with Various Permission Levels

PERMISSION	USER LEVELS				
LEVEL	Admin	Advanced	Intermediate	Basic Plus	Basic
View/download events & data	×	×	×	×	х
View/download configuration settings	х	x	х	х	х
Change configuration setting	×	×			
Perform firmware upgrade	х			х	
Manage users and passwords	х				
View audit log	х				
Generate/download report	×	×	×	×	×
Issue Control Commands	x	×	x	Flash beacon only	Flash beacon only

Audit Log







Communications

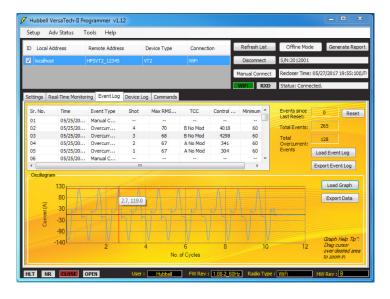
- WiFi communication (internal placement)
- SCADA DNP3 communications via Versa-Tech® Terminal Unit
- Direct USB (custom serial cable) communication





Monitoring and Logs

Real-Time Monitoring and Demand Metering with Programmable Time Constants



Oscillography with User Defined Pre-Trip Cycles

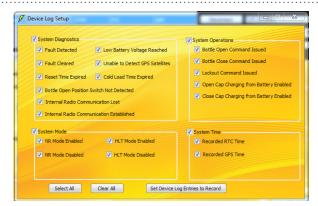




Programmable Event Log



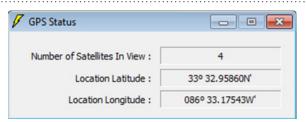
Programmable Device Log



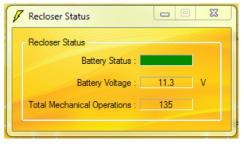
Recorded Device Log



GPS Status and Time Stamping



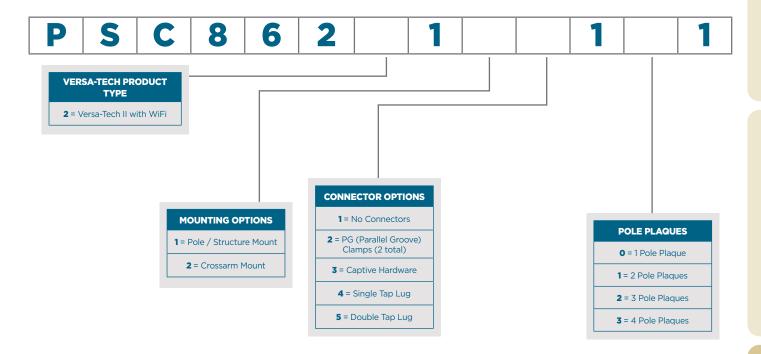
Battery Status







VTII Catalog Numbering







Versa-Tech II



VERSA-TECH® XC RECLOSER

The Versa-Tech® XC Recloser (VT-XC) is the newest addition to the Versa-Tech® Single Phase Recloser Family. The VT-XC was developed on the VTII platform and has the same ratings but includes added features and enhanced operational functionality. As with the entire Versa-Tech® product family, the VT-XC is an electronically controlled recloser configurable with a User Interface (UI) through wireless or serial communications. The VT-XC has enhanced power harvesting capabilities which can power WiFi communications at lower line loads (6A vs. 10A). These enhancements also provide the ability to power Hubbell's next generation VT-powered cellular modem which incorporates on-board SCADA communication. SCADA communication with the use of a Versa-Tech Terminal Unit is also available (separate control cabinet is required).



Additional Features

- New communication platform is capable of supporting many future products
- Enhanced power harvesting provides the ability to power an all new cellular platform with on-board SCADA communications (at 10A)
- Enhanced power harvesting allows lower local (e.g., WiFi) communication threshold of 6A for deployment further downline
- Developed on the VTII platform, having the same ratings, added features and enhanced operational functionality

Application

- In areas where local or VTU communication with less than 10A line current is desired
- In areas harder to reach with a hotstick (since the radio is always ON at 6A or greater line current)
- For SCADA compatibility via VTU (with a minimum 6A load current) further down the system's circuit when 10A load current is not available
- · When long range communication through a cellular modem is desired
- When on-board SCADA communication is desired.

User-Friendly Programmable Software Settings Display

- Automatic scan of communication ports
- One-click radio connect
- One-click report generation
- Selectable tabs for accessing recloser functions
 Programmable Device Log*
- Recloser serial number
- Communication indicators
- Non-reclose and Hot Line Tag Status Indicators

- Battery Status Monitor With Voltage Measurement*
- Informative Events Log *
- Programmable Demand Log*
- User-Enabled Inrush Restraint *
- Up to 10 User Profiles With 5 Permission Levels*
- · Oscillography*
- Audit Log*
- GPS Time Stamping*
- Ability to Power Radio Peripherals ON or OFF*
- Advanced Reset Time Options*
- Remote Commands*
- TCC options same as the VTII*



^{*} Refer to the Versa-Tech II section for further details on these items.

HUBBELL Power Systems

SCADA Communication

The Versa-Tech XC Recloser allows SCADA communication through DNP3 via the SCADA Cellular Modem or the Versa-Tech Terminal Unit.

SCADA CELLULAR MODEM

First of its kind, the SCADA Cellular Modem (SCM) is Hubbell's next generation cellular platform offering long range communications to the Versa-Tech XC Single Phase Recloser as well as on-board SCADA communications. The SCM is powered by the Versa-Tech XC and load current, thus eliminating the need for a separately powered control cabinet.

ADDITIONAL FEATURES OF THE SCM

- Direct implementation of DNP3 including unsolicited reporting
- Powered when load current is 10A and greater
- Ability to remotely configure network parameters
- Ability to poll the Versa-Tech XC Recloser as frequently as 15 seconds
- Ability to timestamp SCADA events with GPS timing
- Ability to upgrade the cellular modem firmware remotely through Over-the-Air Provisioning (OTAP)
- Currently available on Verizon and AT&T Cat-M1 LTE networks

For additional information on the SCADA Cellular Modem, refer to document no. SF10178E. For additional information on the Versa-Tech Terminal Unit, refer to the Versa-Tech Terminal Unit Catalog 10F.

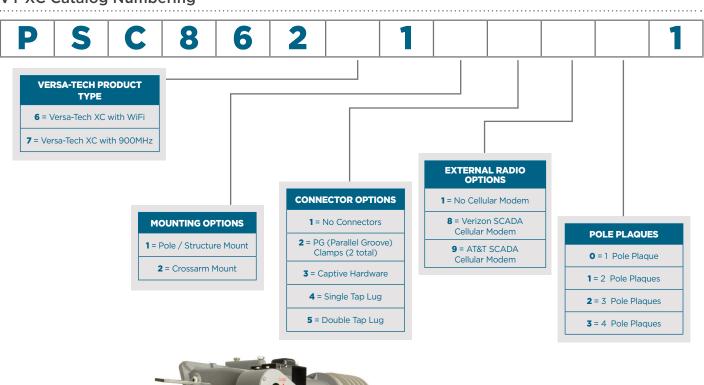


SCADA Cellular Modem with DNP3 direct implementation



DNP3 via VTU

VT-XC Catalog Numbering

























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