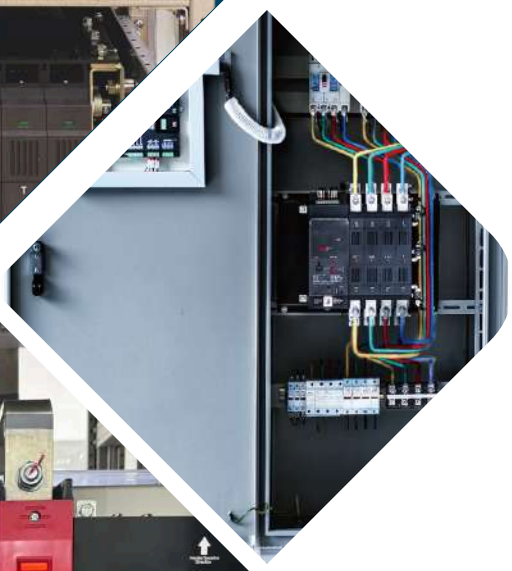
POWER TECHNOLOGIES™
Private Limited

PTS™

LOW VOLTAGE AUTOMATIC TRANSFER SWITCHES



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The Power Transfer Switchgear (PTS) Dual Power is a cutting-edge, highly reliable automatic transfer switch designed to ensure seamless power supply transitions. Built in accordance with **IEEE 446, 666, 241, 242 recommended of design for emergency and standby systems**, it undergoes independent testing to meet stringent international standards, including **GB14048.11-2008, EN/IEC 60947-6-1-2021, Class Power Control, UL 1008 and CSA C22.2.** Committed to environmental safety, PTS adheres to the RoHS Directive **(EU 2015/863)**, ensuring restricted use of hazardous substances in electrical and electronic equipment.

With smart, versatile features, PTS Dual Power is ideal for critical applications in diverse fields such as electrical equipment, automation systems, power plant commissioning, telecommunications, petrochemicals, hospitals, data centers, and smart buildings. Its robust reliability makes it a preferred choice in sectors including coal, metallurgy, railways, and municipal engineering, providing secure, uninterrupted power across demanding environments. Complying with NEC standards, including **NEC 700** (emergency), **NEC 701** (legally required), **NEC 702** (optional standby), and **NEC 708** (critical operational systems), the PTS Dual Power is particularly suited for special occupancies such as healthcare facilities **(NEC 517)**. Available in both standard and custom configurations.



Enclosure Structure: Optimized for Durability and Access

Sophisticated Finish: Our enclosures boast a sleek, Gray (RAL 7035) finish, achieved through a meticulous electrostatic powder coat process. This process includes a multi-step preparation of surfaces involving degreasing, rinsing, and iron phosphate coating, followed by a non-chemical sealing and dual oven phases for drying and curing the paint. This thorough application ensures a durable, corrosion-resistant finish ideal for both the interior and exterior of the enclosure.

Robust Frame Construction: The structural integrity of our enclosures is guaranteed by a stout frame made from steel, engineered to provide steadfast rigidity and withstand rigorous conditions.

Secure and Functional Doors: Doors crafted are securely hinged to the frame. These doors feature a locking mechanism that accommodates a key lock, ensuring secured access. The layout of the door allows mounted automatic controllers and device panels to be easily accessible, facilitating quick maintenance and monitoring. Doors are designed to open at a minimum angle of 90 degrees for optimal accessibility.

Accessible Covers for Easy Maintenance: Our enclosures include side and rear bolted covers made from steel, designed to be split into upper and lower sections for easier handling. These covers are easily removable, providing convenient access to cable terminations and internal components for hassle-free installation and maintenance.

Utility of Lifting Brackets: Strategically placed at the top of freestanding enclosures, the lifting brackets can be extended and locked in place for safe and efficient transport of the switch. When not in use, these brackets can be seamlessly retracted to maintain the enclosure's compact profile.

Versatile Mounting Options: Featuring multiple mounting points at its base, the enclosure can be securely anchored to the floor. Wall-mounted configurations include additional mounting points at the top and bottom for secure vertical installation.

IEC/NEMA Compliance and Flexibility:

Wide Range of Enclosure Types: Available in IEC (60529), our Class PC-type transfer switch enclosures cater to diverse environmental and operational needs. The standard offerings include steel constructions with a protective gray finish.

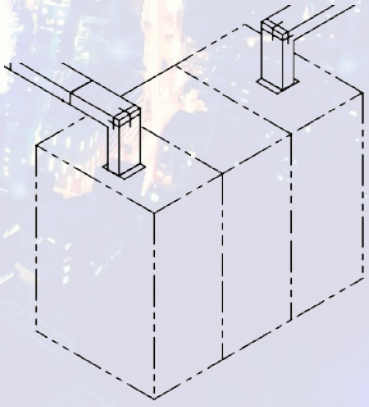
Adaptable for Varying Environmental Conditions: For enhanced air quality control, our enclosures can be equipped with vented panels and replaceable air filters, making them suitable for both indoor and outdoor applications.

Innovative Power Connection Solutions:

Reliable Power Bus Configurations: Our standard tin-plated bus meets the typical demands of most installations. For settings prone to chemical exposure, to prevent the growth of conductive filaments, ensuring safety and longevity.

Flexible Connection Methods: Power connections are facilitated via screw-type mechanical lug terminals.

Customizable Busway Integration: The enclosure's design allows for busway connections through the roof or via additional side cabinets, with provisions for increasing enclosure depth if needed, accommodating a range of busway installation scenarios.



Automatic Transfer Switch - Busway Flange Connection

Cable Entry and Configuration Options for ATS

Adaptable Entry Points: Our Solenoid-type automatic transfer switches (ATS) are innovatively designed to support cable entries from both the top and bottom, ensuring seamless integration into any system layout. Wall-mounted models feature primary power connections at the upper sections for straightforward access, while emergency and load power connections are strategically placed lower to enhance system stability and safety.

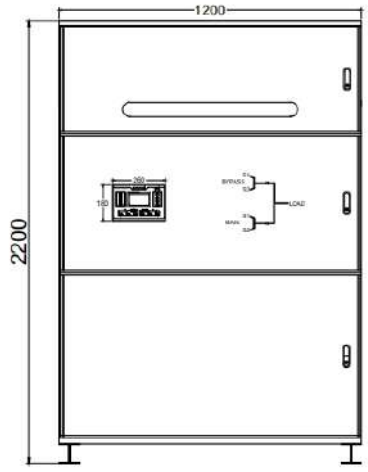
Specialized Configurations for Bypass Isolation: Our bypass isolation ATSs are available exclusively in freestanding enclosures. They are pre-configured at the factory to accommodate various cable entry points—top or bottom, as per your operational needs. Units with a fixed automatic bypass switch come with preset cable connections, whereas those with a drawout switch offer field-adjustable configurations, ensuring flexibility and adaptability in any setup.

Freestanding Setups: In freestanding units, the configuration optimizes space and accessibility: normal power connections are positioned near the top, emergency power at the bottom, and load connections centrally located to balance the system's physical and electrical demands. The unique 'source swap' feature offers customization by allowing the reversal of normal and emergency power connections to suit specific installation needs.

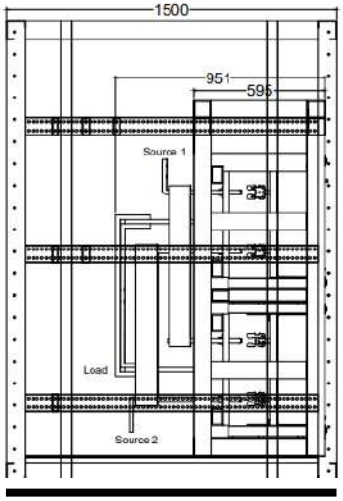
Enhanced Customization Through Modular Design: To meet diverse installation demands, freestanding enclosures can be modified in depth or supplemented with a side cabinet, providing ample space for all cable management requirements. Removable panels on all models ensure easy access to cable terminations, allowing for quick maintenance and adjustments.

This flexible design philosophy ensures our ATS systems can seamlessly integrate into existing infrastructures, providing reliable power management solutions tailored to the unique demands of any installation.

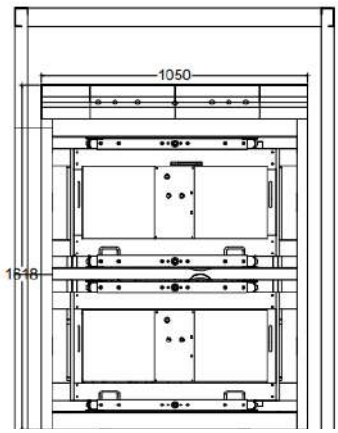
Front View



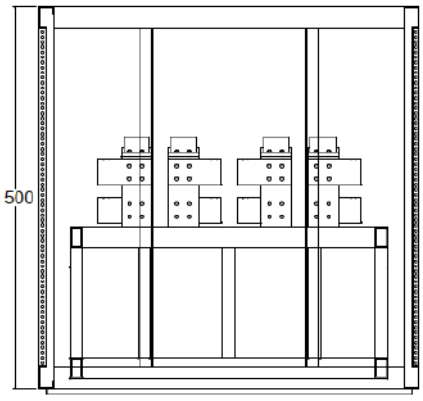
Section Side View



Internal Front View



Section Top View



PTS™ Mechanism

Power Pole Configuration

Each pole within the assembly features dual main contacts, crafted from high-conductivity silver alloy. These contacts are both electrically actuated and mechanically stabilized, ensuring robust and reliable operation. A dual interlocking system—mechanical and electrical—guards against the simultaneous connection of the power sources. Visual status indicators via colored flags display the active power source, ensuring clear and immediate feedback on operational status.

Structural Encasement

Encasing the power poles is a rigid structural housing meticulously crafted from materials chosen for their exceptional mechanical strength and superior dielectric properties. This housing is engineered to withstand severe dynamic forces, high thermal stresses, and environmental challenges, ensuring it remains robust and reliable even under the most demanding conditions. compromise performance.

Arc Management System

Positioned strategically over each set of main contacts are removable arc chutes within dedicated arc chambers. These chambers are essential for directing and dissipating arc gases efficiently, guided by the arc chutes. Constructed from strategically arranged metal plates and covered by a specially designed baffle, the arc chutes are instrumental in extinguishing electrical arcs swiftly, thereby extending the lifespan of the main contacts. For maintenance and inspection, these arc chutes can be easily detached to allow direct access to the underlying contact mechanisms.

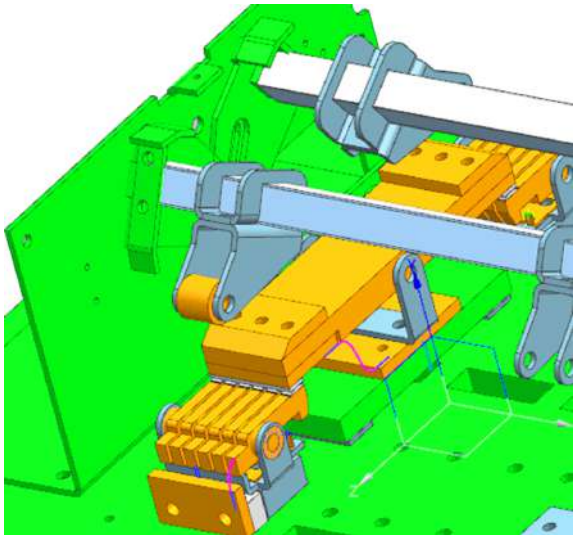
Solenoid-Driven Mechanism

ATS units use an electrically operated solenoid to open or close main contacts for efficient power transfer. Automatic models feature microprocessor-based controllers that monitor power conditions and manage seamless transfers. Manual models rely on local or remote switch panels for user-initiated operation, with control power sourced from the designated power supply for reliability.

PTS™ Switching Technology

Overlapping Neutral Configurations in Transfer Switches

For three-phase power systems that require switching of the neutral conductor, transfer switches can be equipped with a fully rated fourth pole, which functions identically to the individual phase power poles (A, B, C). In single-phase applications, a third fully rated pole is utilized**.**



Overlapping Neutral

Overlapping Neutral Benefits: A overlapping neutral is beneficial when the transfer switch sources power from independently derived systems. IEEE 242 advantages include:

- **Prevention of Circulating Ground Currents:** Stops ground currents from flowing between power sources via the neutral conductor, which can otherwise cause nuisance tripping of ground fault relays at the de-energized or unconnected source.

- **Protection of Ground Fault Relay Sensitivity:** Ground fault protection systems rely on precise current measurements to detect faults. If a neutral is not overlapping, parallel grounding paths may form between power sources, reducing the effectiveness of ground fault relays and leading to false readings or delayed response times. An overlapping neutral ensures that the ground fault relay at the connected source remains accurate, sensitive, and fully functional, enhancing overall system safety.

Simplification of Installation:
Implementing an overlapping neutral reduces the complexity of electrical system design and installation. Without it, additional ground fault sensing wiring is often required to detect and prevent improper neutral-to-ground connections. By integrating a fully rated neutral pole within the transfer switch, the need for extra wiring is eliminated, resulting in a more streamlined setup, improved reliability, and reduced labor and material costs.

Operational Mechanics
Closed Transition Switches: In switches with closed transitions, the phases pole operates in a make before break fashion, with overlapping or simultaneous closure of neutral contacts restricted to 100 milliseconds or less.

Open Transition Switches: Conversely, in open transition configurations, the phases pole operates as "break-before-make," avoiding issues that may arise with a solid three-pole neutral configuration.

Configuration Trade-offs

Three-Pole Configuration

Advantages: Lower cost.

Disadvantages: Potential for nuisance tripping of the ground fault relay; added complexity in ground fault relay circuit implementation.

Three-Pole (Overlapping Neutral) Configuration

Advantages: Potentially less expensive than four-pole configurations.

Disadvantages: Carries the same disadvantages as a three-pole switch during the overlap period.

Four-Pole (Switched Neutral) Configuration

Advantages: Eliminates circulating ground currents and associated relay tripping issues.

Disadvantages: Higher cost

Bypass Isolation Automatic Transfer Switches These switches provide dual switching functionality for enhanced reliability and simplified maintenance in critical settings. The primary mechanism manages daily power distribution, while a secondary (bypass) mechanism acts as a backup. This setup is particularly beneficial in healthcare and other critical applications where uninterrupted power is crucial. During maintenance, the bypass allows for continued power supply, ensuring that critical systems remain operational. The bypass switch can also be automatic, adding an extra layer of redundancy by monitoring and automatically transferring power if the primary source fails. These systems comply with IEEE446 / NFPA 110 standards, allowing for regular maintenance, inspection, and testing.

Installation types for transfer switches based on NFPA 70

Installation Type	Description	Regulatory Compliance and Transfer Timing
Emergency Systems	Supports critical life safety functions during emergencies in buildings like hospitals and arenas. Includes systems like fire alarms and emergency lighting.	Must transfer to emergency power within 10 seconds according to Article 700 of NFPA 70. Requires selective coordination of overcurrent devices.
Legally Required Systems	Provides power to essential services not classified as emergency but crucial for safety during outages, such as heating and lighting.	Transfer to emergency power must be completed within 60 seconds per Article 701 of NFPA 70. Overcurrent devices must be selectively coordinated.
Critical Operations Power Systems (COPS)	Powers designated critical areas vital to national security, economy, or public health, including HVAC and security systems.	Complies with Article 708 of NFPA 70. All overcurrent devices must be selectively coordinated with supply-side devices.
Optional Standby Systems	Supplies power to non-essential loads, typically in commercial buildings and residences, without automatic operation during outages.	Adheres to Article 702 of NFPA 70, without requirements for automatic operation during power failures.
Special Occupancies	Pertains to healthcare facilities, powering systems critical to patient care and safety.	Governed by Article 517 of NFPA 70, aligning with NFPA 99 and NFPA 110 for comprehensive standards adherence.

Mounting Options for Power Transfer Switches

Standard and Bypass Isolation Configurations

Robust construction options are available for its Class PC-type transfer switches. Standard models feature a fixed-mounted power switch, optimizing stability and cost-effectiveness. For enhanced flexibility and maintenance, the bypass isolation automatic transfer switches incorporate dual configurations: either both components as draw-out or a hybrid of draw-out and fixed. Specifically, the ATS is designed with a drawout mechanism in the lower compartment, while the automatic bypass switch in the upper compartment can be selected as either fixed or drawout based on operational needs.

Drawout Configuration

Conversely, the drawout option introduces enhanced versatility and ease of maintenance. This configuration houses the power switch within a robust steel cassette, featuring a built-in control power connection. At the rear, finger clusters smoothly engage with the main bus stabs, allowing for secure electrical connections. The cassette is supported by movable extension rails, facilitating easy handling and extraction of the power switch using a standard ratchet drive extension. This method significantly simplifies the processes of inspection, maintenance, and replacement without disrupting the system's operation.

Handling and Mobility Solutions

For operational convenience, we provide lifting tools such as trucks, hoists, and yokes, specifically designed for the safe removal of both fixed and drawout power switches. These tools are essential for handling heavy components in larger installations, ensuring that maintenance and upgrades can be performed safely and efficiently.

Drawout Mounting

This mounting style allows the switching mechanism to be positioned in three states within a cassette or cell: connected, disconnected, and withdrawn. This versatility supports safety, ease of testing, and serviceability. Drawout mechanisms are essential for bypass isolation transfer switches in critical applications, allowing for easy maintenance and lockout/tagout procedures. They typically operate on rail slides or rollers and can be removed for bench testing or replacement.

Integration with Bypass Isolation and Hot Swappable Functionality

A Bypass Isolation Switch (BIS), when integrated within a three-door compartmentalized bypass isolation transfer switch, offers a heightened level of safety for service technicians. This configuration enables critical loads to remain powered while facilitating secure maintenance operations.

The two-position MIS can be adjusted to isolate the control compartment from system and control voltages, reducing electrical shock risks. Hot-swappable components allow for replacing or servicing key modules without interrupting power, minimizing downtime and ensuring continuous operation during maintenance or failures.

Leading the Industry in Power Transfer Solutions, Delivering the Most Advanced and Reliable Transfer Switches

IDCA SDS CERTIFIED SYSTEM SYS4864411084 G1.G2.G3.G4.Applicable

PTS-WN3 Series

The PTS-WN3 Series Power Transfer Switch is available in the conventional, three-position transfer configuration and closed or delayed transition modes of operation. Additionally, switched or overlapping neutral options provide for the reliable operation of ground fault protection systems and the reduction of voltage transients from unbalanced load switching.

PTS-WN3 Double Throw Automatic Transfer Switches are the standard of the industry. High-speed transfer of loads between alternate power sources, regardless of ampacity size, is achieved by a reliable, field proven double throw solenoid operating mechanism. When combined with a programmable microprocessor controller with LCD display, they offer the most advanced method of transferring all types of loads, such as, motors, electronic drives, UPS's and microprocessor based systems. PTS Series automatic transfer switches are available open or enclosed, in ampacity sizes from 32 through 6300 amperes with the largest selection of optional accessories offered anywhere.

Ampere Interrupting Capacity (AIC) Ratings

Ampere Rating	16 - 250	300 -630	800 - 1250	1600 - 2600	3200 -6300
Utilization Category	AC - 33A/B	AC - 33A/B	AC - 33A/B	AC - 33A/B	AC - 33A/B
Withstand Short Time Rating (KA)	25 - 35	50 - 65	65 - 80	80 - 100	80 -100
Rated Conditional Short Circuit Current (KA) FUSE	200	200	200	200	200
Low Voltage (V)	AC - 480/400	AC - 480/400	AC - 480/400	AC - 480/400	AC - 480/400
Impulse Withstand Voltage (KV)	8	8	8	8	8
Rated Insulation Voltage (V)	1000	1000	1000	1000	1000

PTS™ WN3 Series

The PTS-WN3 Series ATS enables efficient load transfer between alternate power sources. Available in two sizes—one for lower ampere loads and another for higher ampere loads—these switches can be customized to match specific load requirements and configured for either closed or open transitions with or without bypass isolation.

These switches are equipped with a microprocessor controller for precise operation. Reliable, efficient, and tailored for performance, these switches are the ideal solution for your load transfer requirements.

- **Configuration Options:** Available in open and enclosed models
- **Ampacity Range:** Supports loads from **32 to 6300 amperes.**

PTS-WN3 Closed Transition Series

Product Type:

- Open Transition Transfer Switch (PTS-WN3)
- Closed Transition Transfer Switch (PTS-WN3CT)
- Delayed Transition Transfer Switch (PTS-WN3D)
- Open Bypass Isolation Transfer Switch (PTS-WN3B)
- Closed Bypass Isolation Transfer Switch (PTS-WN3BCT)
- Drawout type transfer switch (optional)

PTS-WN3B- 2600A-4P Open Transition Transfer Switches with Maintenance Bypass

PTS-WN3CT-250A-4P Closed Transition Transfer Switches (Fire Pump Panel)

PTS-WN3-1600A-4P Open Transition Transfer Switches

PTS™ WN3B Series

Product Features

General Features

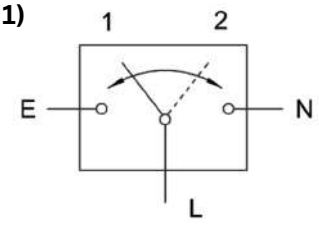
- Transfer Model : ATS
- Class : PC
- Utilization Category : AC-33A / AC-33B
- Rated up to 480/400 VAC
- Sizes from 32 through 6300 amperes
- Optimal Design of 800 through 6300 amperes Driven by Dual-driving mechanism.

Certifications

- IECEE CB Scheme IEC 60947-6-1: 2021
- CCC Certified compliant with GB/T 14048.11-2008
- UL 1008:2022
- CSA C22.2 #178.1:2022

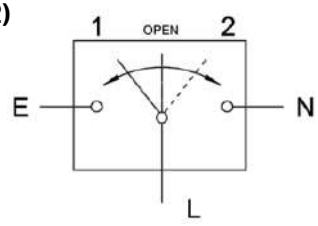
Transition Types

1)



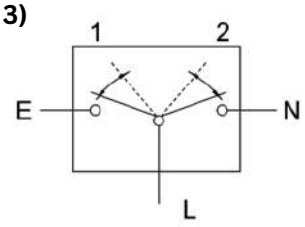
Standard Type

2)



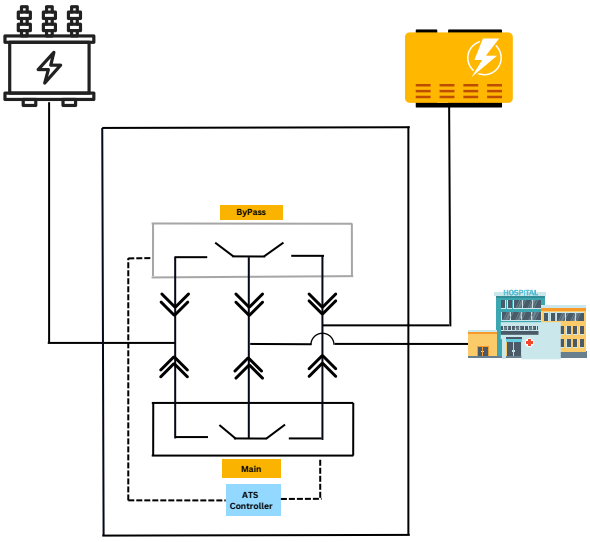
Delayed Transition

3)



Closed Transition

1) Open Transition Type with standard switching neutral. Overlapping neutral conductor (options).
2) Delayed Transition PTS-WN3 Series Automatic Transfer Switch has 3 positions, conventional two-position transfer configuration, plus closed and delayed transition modes of operation. All configurations available with either automatic or non-automatic control.
3) Closed Transition Transfer Switches, Source momentarily parallel time of less than 100 milliseconds, Closed transition operation (no power interruption) during transfer (manual mode) and re-transfer when sources are within specified parameters.
4) A two-way bypass mechanism in an Automatic Transfer Switch (ATS) ensures uninterrupted power supply by allowing direct connection between the power source (utility or generator) and the load during ATS maintenance or failure. It typically includes a manual or automatic bypass switch that isolates the ATS for servicing while maintaining power to critical loads. Equipped with safety interlocks to prevent simultaneous source connections, the bypass system is designed to operate seamlessly, often in a non-load break manner to avoid interruptions. This feature enhances reliability, reduces downtime, and simplifies maintenance without disrupting the power supply to essential systems.



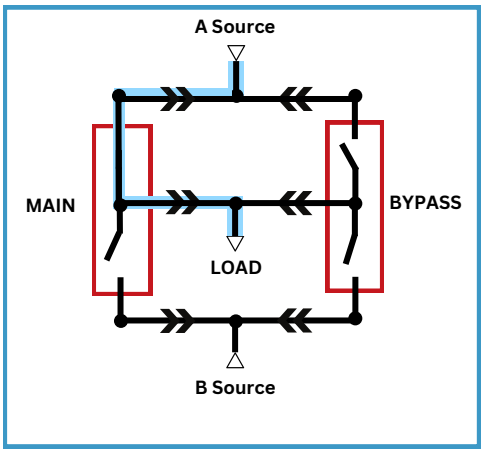
4) Two Way Bypass Mechanism

- Electrically operated and mechanically held and double throw type.
- Mechanical interlocked contact mechanism.
- Fast Contact time 30-100msec.
- High withstand and close-on with reliable and field-proven solenoid operating mechanism ensures maximum performance.
- The switch can positively locked and unaffected by momentary outages, so that contact pressure is maintained at a constant value and contact temperature rise is minimized for maximum reliability and operating life.
- The top and bottom interlocking mechanisms serve as crucial safety features these interlocks help prevent unintentional switching or unauthorized tampering, which could otherwise lead to costly equipment damage, system downtime, or even serious safety incidents.

Operating Procedure for a two way Bypass Isolation

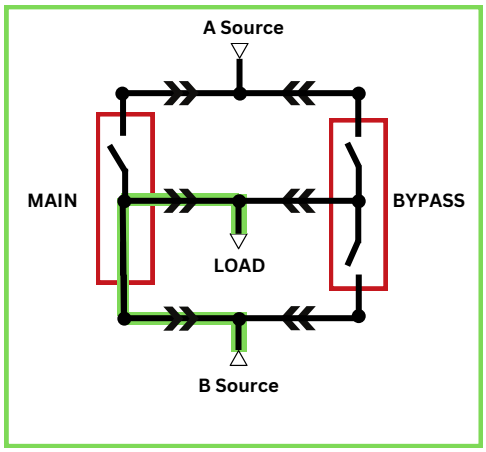
Normal Operation

This mode shows how the ATS operates under standard conditions, with a diagram depicting the flow of power from two sources (A and B) to the load. The power can be routed directly or bypassed around the ATS.

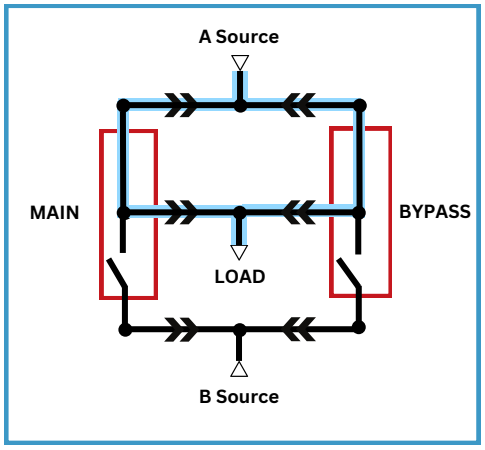


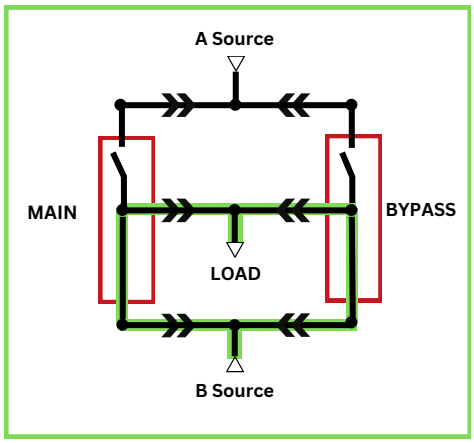
Emergency Operation

This mode displays the system's operation in an emergency, indicating that if one source fails, the ATS can still supply power from the remaining source directly to the load or via a bypass

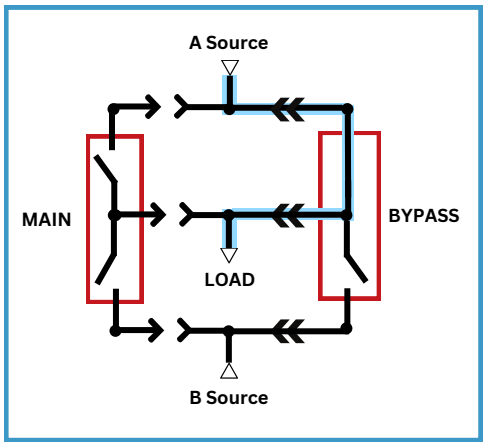


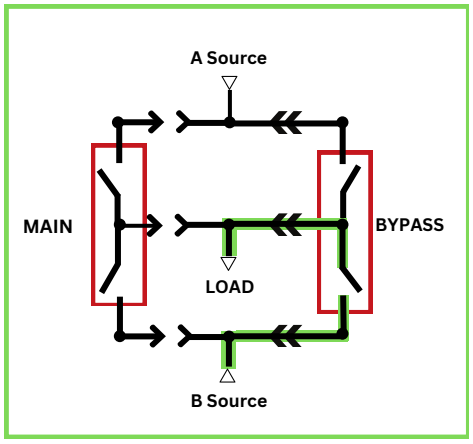
This section depicts a configuration for checking and testing the ATS. It shows that the ATS can be configured to check both power sources simultaneously or each source individually while bypassing the ATS.





This section illustrates the ATS in an isolated position, indicating a maintenance or test mode where the ATS is disconnected from both power sources, ensuring safety during inspection or maintenance.

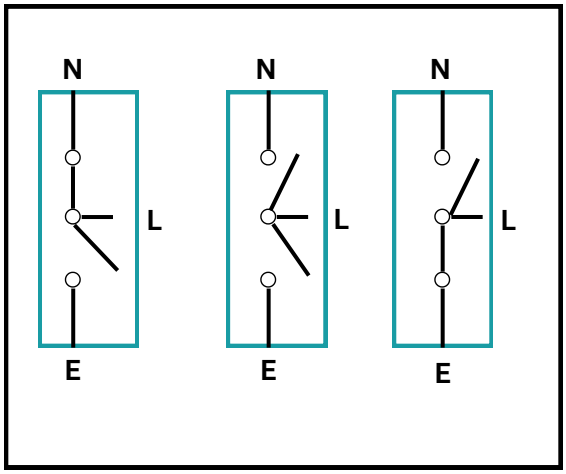




Sequence Operation (CTTS)

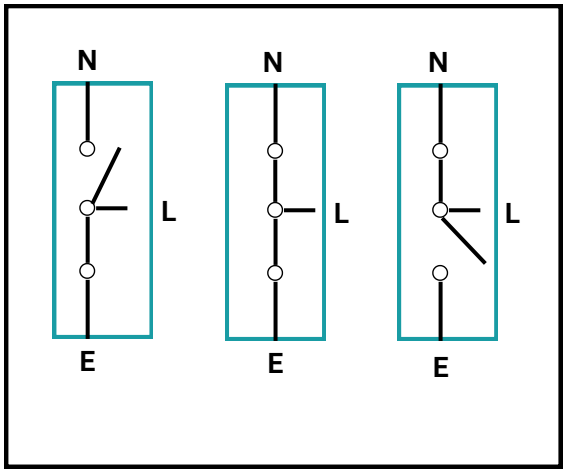
General ATS System
Open Transition Transfer Switch Function

Simplest form of an ATS where the switch transitions between the normal (N) and emergency (E) power sources. The transfer involves a break before make, which means there is an interruption in power supply during the switch.



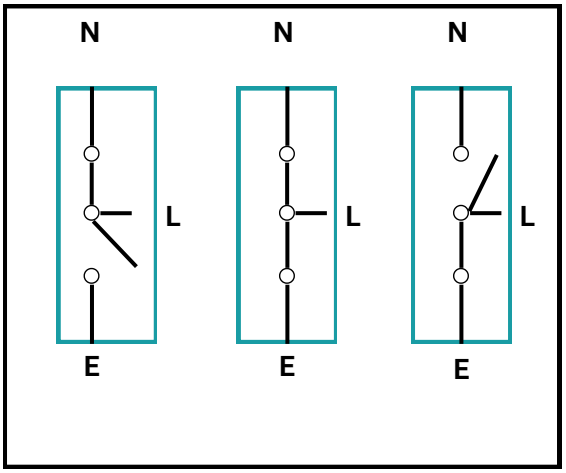
Closed Transition Transfer Switch (CTTS) Uninterrupted Power Supply from Emergency Power to Normal

CTTS ensures a seamless transition from emergency to normal power sources without interruption, using overlapping contacts to maintain continuous power supply



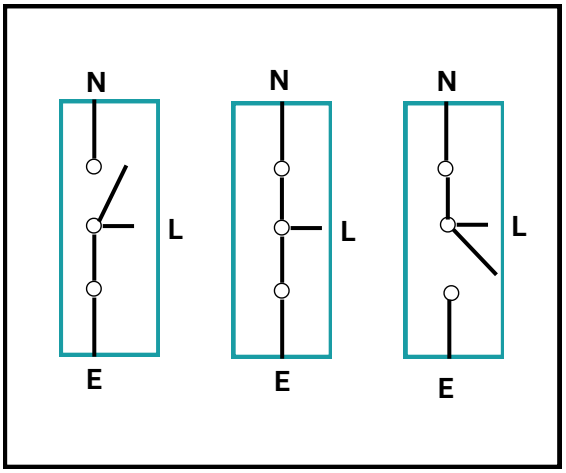
Closed Transition Transfer Switch (CTTS) Uninterrupted Power Supply from Normal to Emergency

Transition from the normal power source to the emergency power source. The transition is overlapped, allowing for an uninterrupted power supply.



Closed Transition Transfer Switch Function (CTTS)

Switch's ability to maintain an uninterrupted power flow through overlapping the disconnection and connection sequences, ensuring no break in power during transitions.



Dimensions

Dimension for PTS-WN3 Open Transition Non-Bypass

ATS Type	WN3				WN3 in Enclosure		
Rating	No of Poles	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)
32 - 63	2P	202	196	112	500	600	250
	3P	224	196	112			
	4P	246	196	112			
80	2P	218	200	112			
100	3P	248	200	112			
125	4P	278	200	112			
160	2P	228	200	112			
200	3P	263	200	112			
250	4P	298	200	112			
350	2P	255	255	132	600	800	350
400	3P	300	255	132			
	4P	345	255	132			
500	2P	287	291	132			
	3P	349	291	132			
	4P	410	291	132			
630	2P	308	325	195			
	3P	369	325	195			
	4P	430	325	195			
800	3P	410	395	210	680	1800	680
	4P	475	395	210			
1000	3P	455	395	250			
1250	4P	535	395	250			
1600	3P	515	395	255	800	1800	680
	4P	615	395	255			
2000	3P	685	485	280	1000	1800	800
2600	4P	855	485	280			
3200	3P/4P	1100	565	304	1250	2075	1000
4000							
5000							
6300		1170	585	337	1600	2075	1200

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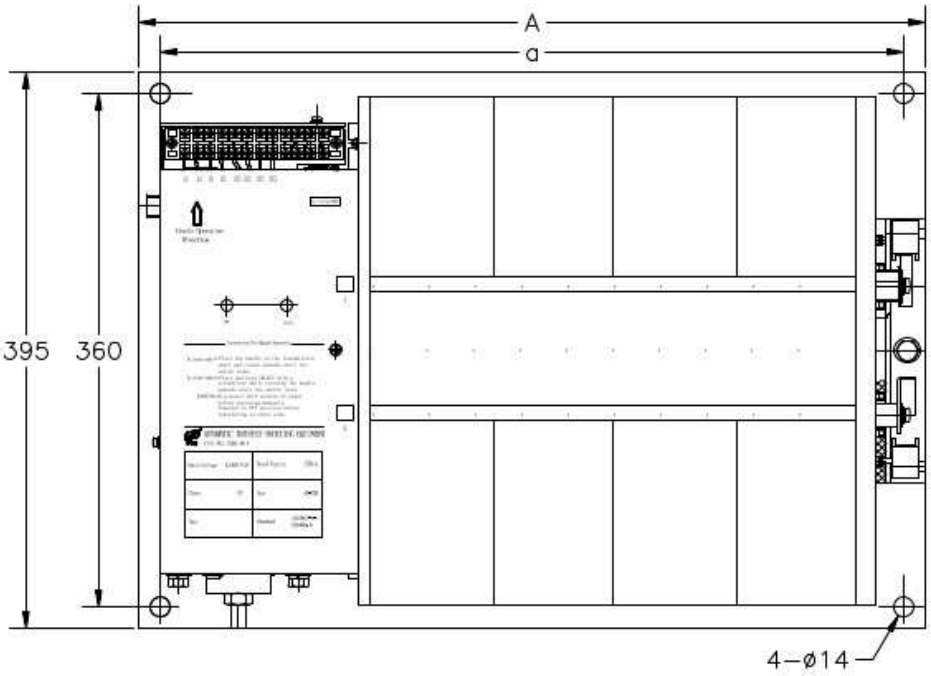
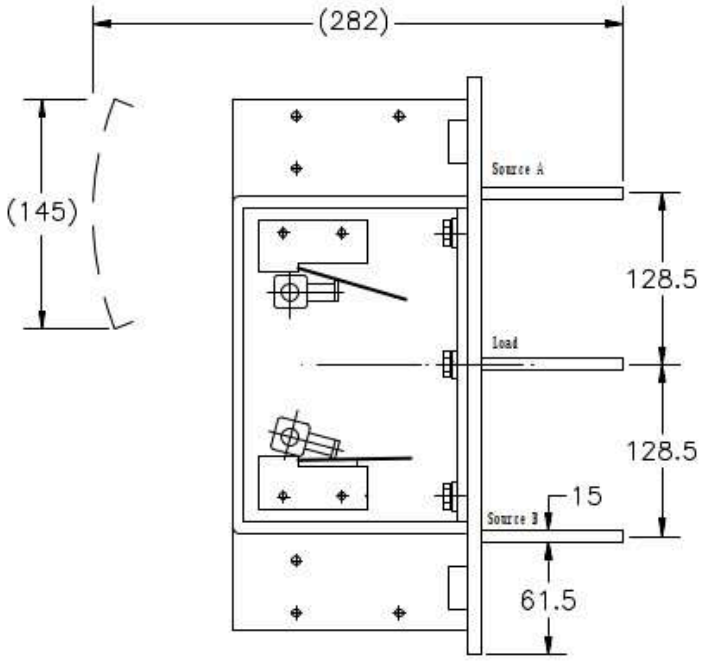
Dimensions

Dimension for PTS-WN3 Opened Transition Non-Bypass (1250A)



FRONT VIEW



SIDE VIEW

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Dimensions

Dimensions for PTS WN3CT Closed Transition Non-Bypass

ATS Type	WN3CT				WN3CT in Enclosure		
Rating	No of Poles	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)
63	2P	296	196	135	500	600	250
	3P	318	196	135			
	4P	340	196	135			
80	2P	312	196	135			
100	3P	342	196	135			
125	4P	372	196	135			
160	2P	322	196	135			
200	3P	357	196	135			
250	4P	392	196	135			
350	2P	342	260	135	600	800	350
400	3P	387	260	135			
	4P	432	260	135			
500	3P/4P	550	320	180	800	1000	400
630							
800	3P/4P	644	394	280	800	1800	680
1000							
1250							
1600	3P/4P	724	394	280	1250	2075	1000
2000	3P/4P	946	502	286			
2600							
3200	3P/4P	1200	565	304	1350	2075	1000
4000							
5000							
6300	3P/4P	1470	802	390	1600	2075	1200

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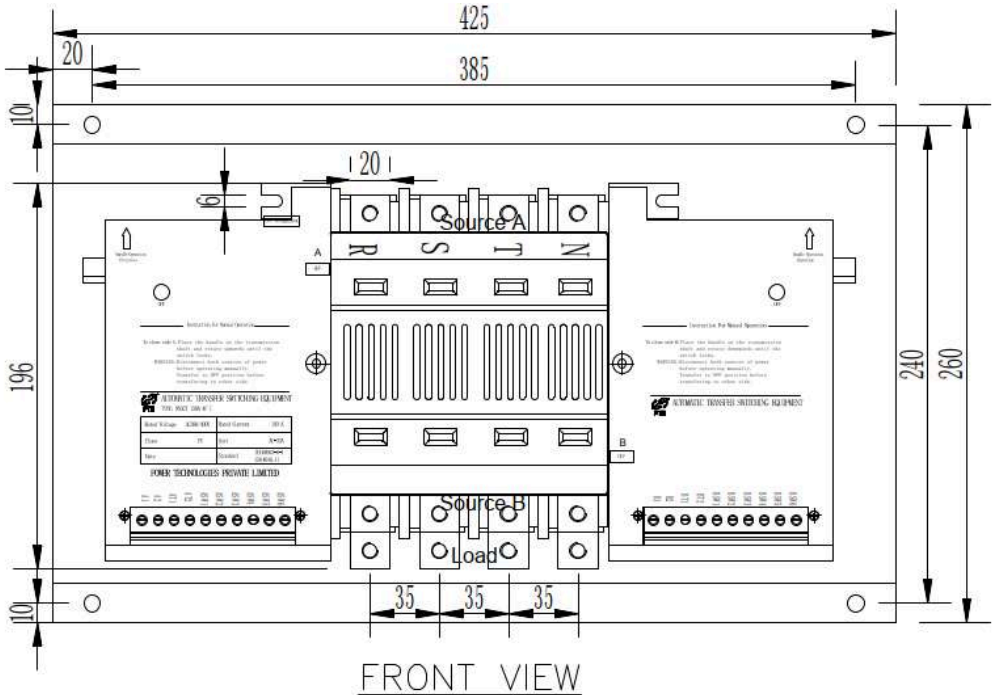
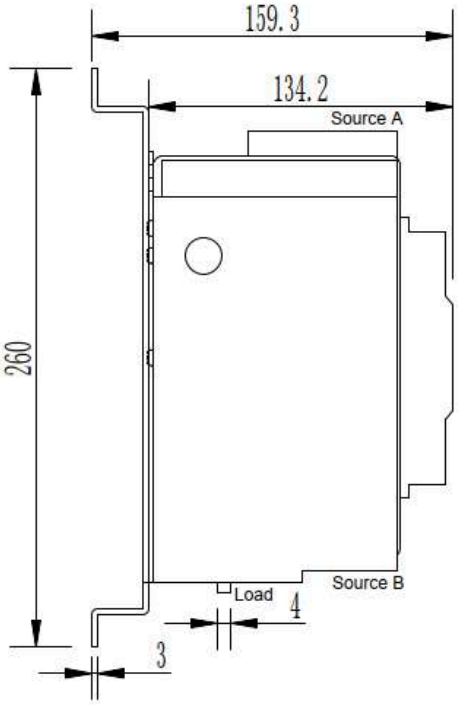
Dimensions

Dimensions for PTS WN3CT Closed Transition Non-Bypass (1250A)



FRONT VIEW



SIDE VIEW

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Dimensions

Dimension for PTS-WN3B Opened Transition with Bypass

ATS Type	WN3B			WN3BCT			WN3B/WN3BCT in Enclosure		
Rating (A)	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)
400	500	1050	745	500	1050	745	1000	1800	1200
500									
800	625	1450	891	625	1450	891			
1000	1050	1618	951	1050	1898	951	1200	2200	1500
1250									
1600									
2000									
2600	1250	1618	951	1250	1898	951	1700	2200	1500
3200									
4000	1500	1618	951	1500	1898	951			
5000									
6300	1780	1621	951	1780	1898	951	2000	2200	1500

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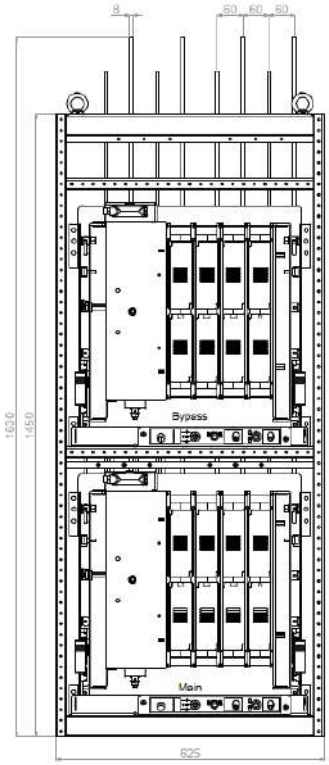
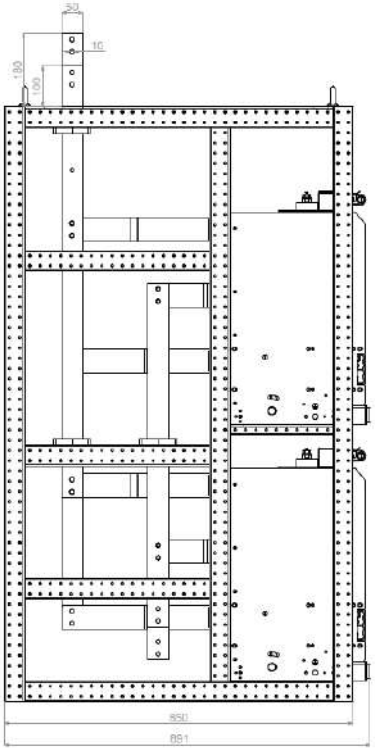


FRONT VIEW



SIDE VIEW

PTS-WS1 Series

PTS-WS1 high speed dual-power series double throw transfer switches are PC-level two stage transfer switches design to meet stringent transfer time requirements. With a transfer time of only 8-30msec, the series are appropriate for use the active and standby power share the similar voltage and phases.

This series is particularly well-suited for applications where the active and standby power sources share similar voltage levels and phases. The advanced two-stage design enhances reliability and ensures seamless power transitions, reducing the risk of system downtime or operational instability.

PTS-WS1 100A Series Power Transfer Switch 100A, 4P

General Features

- Transfer Model : ATSE : Class : PC
- Utilization Category : AC-33A / AC-33B
- Rated up to 400 VAC
- Sizes from 63 through 630 amperes

Certifications

- Certified to IECEE & CCC GB/T 14048.11-2008 & EN/IEC 6094-7-6-1:2005+A1:2014 standards.
- Automatic Transfer Switching Equipment (ATSE) for reliable power management.
- Designed for emergency and standby power applications.
- Available with break-before-make (open transition) transfer configuration.

Flexible Operation and Control

- PTS-WS1 Series with 2-position configuration for conventional and delayed transitions.
- Options for both automatic and non-automatic control modes.
- Mechanical interlocked contact mechanism for secure operation.
- Electrically operated, mechanically held, and double-throw type.

Durable and Reliable Design

- Timer and voltage/frequency settings are adjustable without power disconnection.
- Self-cleaning main contact to ensure consistent performance.
- Non-fire fiberglass-reinforced construction for enhanced safety.
- Processor and digital circuitry are isolated from line voltage

Communication and Monitoring Capabilities

- Opto-isolated input for high immunity to electrical transients and noise.
- Four auxiliary contacts for status monitoring in normal and emergency positions.
- Local and remote serial communication options with PTS-WST products.
- Integrated communications network interface for seamless connectivity.

PTS-WS1 High Speed Dual Power Transfer Switches

Dimensions for PTS-WS1 Opened Transition

ATS Type	WS1				WS1 in Enclosure		
Rating	No of Poles	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)
63	2P	198	307	119	500	600	250
	3P	220	307	119			
	4P	242	307	119			
125	2P	217	307	119			
	3P	247	307	119			
	4P	277	307	119			
160	2P	227	307	119			
250	3P	262	307	119			
300	2P	232	281	132	500	800	300
400	3P	278	281	132			
	4P	323	281	132			
500	2P	276	332	150			
630	3P	336	332	150			
	4P	396	332	150			

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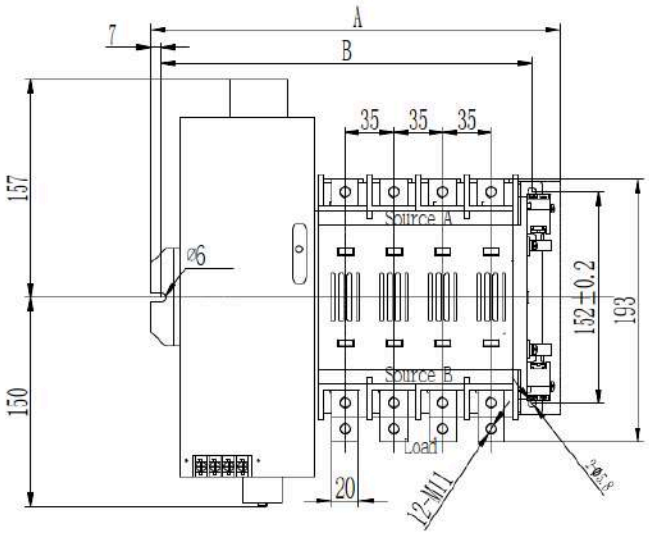
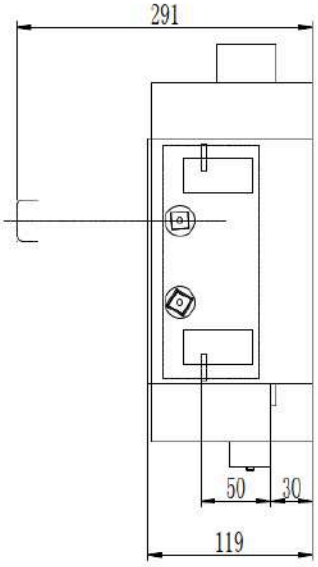


FRONT VIEW



SIDE VIEW

PTS-W3S Series Three-Power Automatic Transfer Switch

The PTS-W3S Series represents the cutting-edge in automatic transfer switch (ATS) technology, designed to meet the demanding requirements of critical infrastructure applications.

Key Features and Benefits

1) Design and Versatility

- Power Solenoid-type construction with heavy-duty silver alloy contacts
- Compact, user-friendly design with advanced circuitry and simplified wiring.
- Available in open-type configurations for switchboard integration or enclosed (IEC/NEMA-rated) per customer specifications.

2) High Performance and Reliability

- Quick Operation: Solenoid drive ensures contact transfer within 200 ms or less.
- Manual Operation: Easy-to-operate manual handle for emergencies or maintenance.
- Secure Operation: Fully enclosed arc covers to shield components and prevent exposure during manual use.

3) Advanced Microprocessor Controller

- Intelligent tri-supply control with precision voltage measurement.
- Automatic fault detection for over/under voltage, frequency, loss of phase, and phase sequence errors.
- LCD display with event logging (up to 100 historical records) and real-time monitoring.
- Built-in RS485 communication interface with Modbus-RTU protocol for remote control and monitoring.

4**) Robust Electrical Ratings**

- Rated currents from 32A to 630A.
- Voltage operation: AC 400V, 50Hz, 60Hz with insulation voltage rated at AC 1000V.
- Rated short-circuit capacity: 200kA.

5) **Space Optimization**

- Compact footprint suitable for standard cabinets, minimizing space requirements

Operating Methodology

- **Source 1 Failure:** Upon detecting voltage dip (below 80% of nominal), the system starts the backup generator.
- **Transition to Source 2 or Source 3:** When alternate sources reach 90% rated voltage and 95% frequency, the ATS transitions seamlessly.
- **Resumption to Source 1:** Automatically switches back to Source 1 when voltage stabilizes at 90% nominal.

Technical Specifications

- **Control Circuit:** AC 220V, 50Hz, 60Hz, operating within 85%-110% of nominal voltage**.**
- **Switching Time:** Contact switching <80ms, conversion <200ms.
- **Enclosure Ratings:** IP10, IP54, or IP55 (NEMA 1/3/4).
- **Utilization Categories:** AC-33iA for motor load applications.

Models and Ratings

- **Available Models:** PTS-W3S 125A, 400A, 630A.
- **Rated Operating Current (Ie):** Ranges from 32A to 630A.
- **Poles:** 4P configuration.

PTS-W3S Series Three-Power Automatic Transfer Switch

Dimensions for PTS-W3S Series

ATS Type		W3S			W3S in Enclosure		
Rating	No. of P	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)	WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)
125	2P	227	365	144	500	600	250
	3P	257	365	144			
	4P	287	365	144			
400	2P	257	426	146	600	800	350
	3P	302	426	146			
	4P	347	426	146			
630	2P	303	521	156			
	3P	364	521	156			
	4P	426	521	156			

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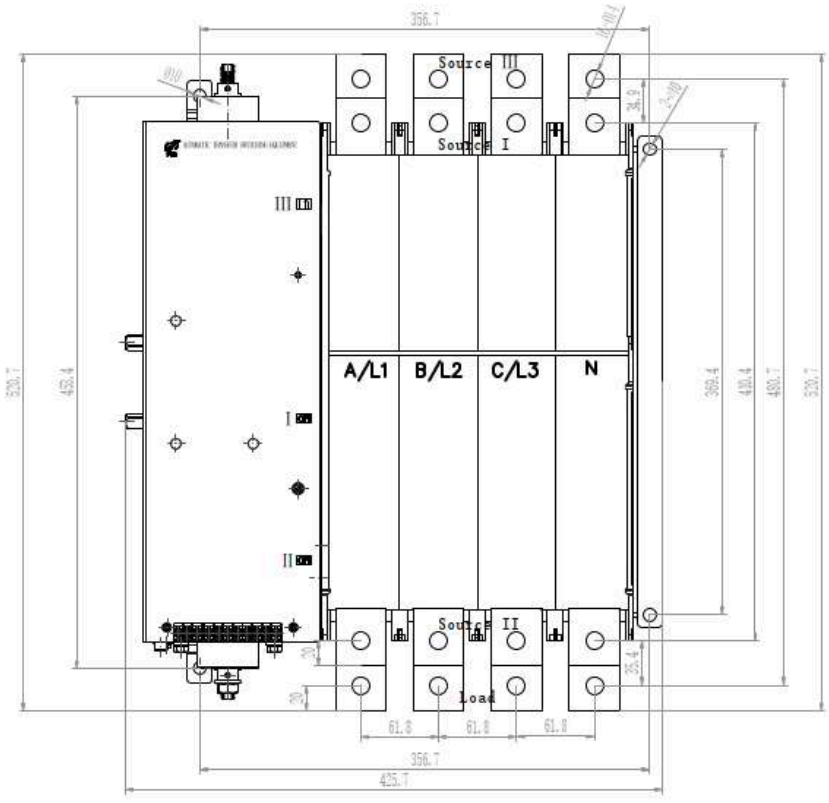
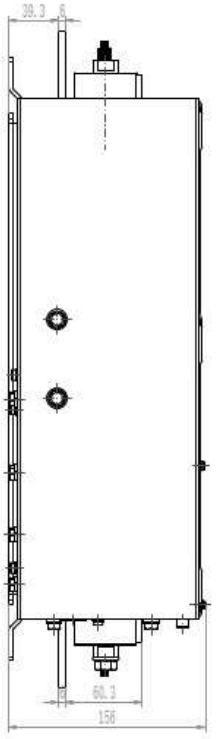


FRONT VIEW



SIDE VIEW

PTS Series Microprocessor Controller

Key Features

Real-Time Data Collection:

- Monitors single or three-phase power information from engine generators, utility sources, paralleling switchgear, and automatic transfer switches (ATS).
- Integrated with Power Technologies CLOUD for remote monitoring and asset control.

Compatibility with Transfer Switches:

- Suitable for Double Throw Transfer Switches ranging from 32 to 6300 amperes.
- Supports configurations such as utility-to-utility, utility-to-generator, and generator-to-generator setups.

Advanced Digital Control Functions:

- Provides essential voltage, frequency, control, timing, and diagnostic functionalities.
- Accurate capture and display of parameters like two-way three-phase voltage, frequency, and load current.
- Protection features include overvoltage, under-voltage, open phase, inverse phase sequence, and under-frequency safeguards.

System Control and Operation

Control Options:

- Auto/Manual Switching: Offers flexibility with an easy-to-use interface, allowing users to switch between manual and automatic modes.
- User Commands: Combined key commands ensure safe operation by authorized personnel only.

Manual Operation Capabilities:

- In manual mode, users can force the ATS switch:
- A Power ON or B Power ON for a specific power supply.
- OFF position to disconnect.

Programmed Parameters: On-site programmability of all parameters for custom settings.

Communication and Remote Capabilities

RS-485 Isolated Communication Interface:

- Standard protocol for remote control, signaling, and metering.
- Allows for remote control of generator set start/stop and ATS power state (ON/OFF)

Pluggable I/O Terminal Block:

- Facilitates reliable connections, contributing to ease of installation and maintenance.

Safety and Protection

Built-in Protections:

- ATS current overload protection using a current transformer.
- Includes automatic ON & reset, as well as auto ON & no reset features.

Applicable for Various ATS Switch Configurations:

- Supports single, double, and non-breaking position switches.

User Interface

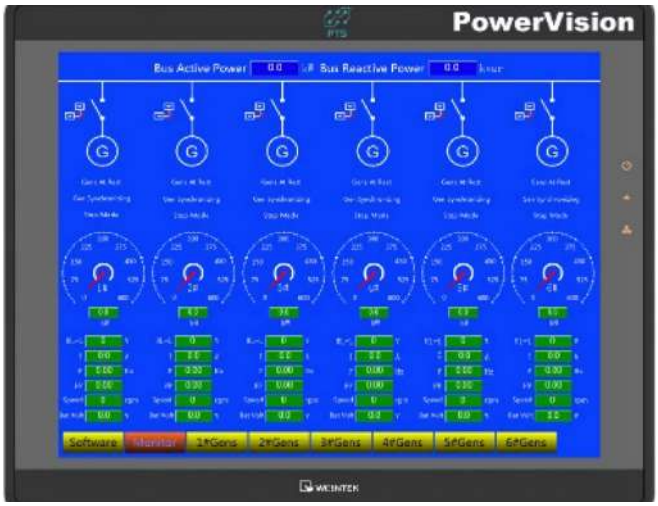
LCD Display:

- Available in English or Chinese, with an intuitive man-machine interface.
- Equipped with buttons for ease of learning and operation.

Modular and Compact Design:

- Constructed with a flame-retardant ABS casing and modular structure.
- Designed for embedded installation, ensuring compactness and ease of maintenance

PTS PowerVision ATS HMI: Advanced Control and Monitoring Solution



The PTS PowerVision ATS HMI is engineered for comprehensive management of single or multiple ATS controllers. This module facilitates real-time monitoring and control, enhancing the functionality and oversight of ATS systems.

Functional Capabilities:

Remote Monitoring Capacity: Supports monitoring from one up to 32 PTS-WST controllers, facilitating centralized oversight.

Interactive Interface: Equipped with a high-resolution LCD and touchscreen interface for straightforward operation and clear data presentation.

Communication Functions: Implements remote control, measurement, and communication, enabling detailed and expansive system management.

Microprocessor Technology: Utilizes a high-end ARM microprocessor for seamless communication with PTS-WST ATS controllers through RS485, ensuring accurate data retrieval and display.

Security and Operation Controls:

Access Control: Configurable operation authorities with password protection to safeguard against unauthorized adjustments, thereby maintaining system integrity and preventing operational disruptions.

System Specifications:

Structural Design: Aluminum casing with a compact, modular design for straightforward installation and durability. The front panel complies with NEMA4/IP65 standards, ensuring protection against environmental factors.

Environmental Adaptability: Operates effectively within a temperature range of -20° to +50°C and relative humidity of 10% to 90% non-condensing, demonstrating reliability under variable climatic conditions.

Technical Parameters:

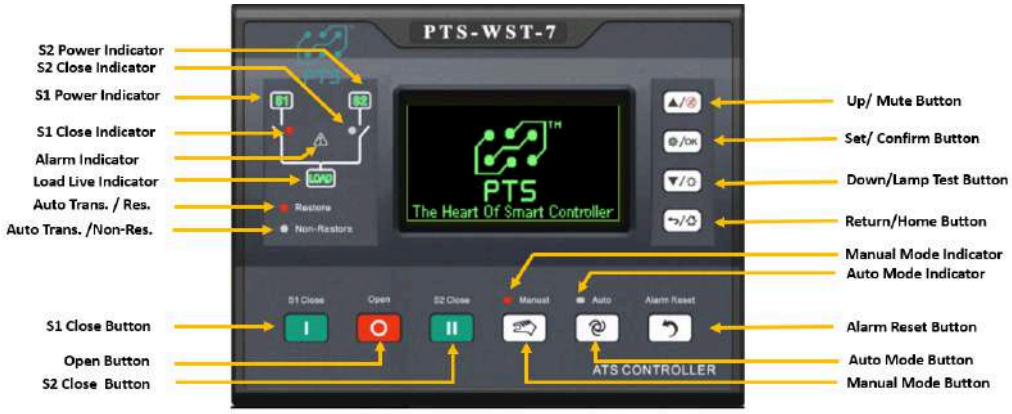
Power Requirements: DC 24VDC ±20% with a power consumption of 1.0A at 24VDC.

Connectivity Options: Includes SD/SDHC card slot, two USB ports, and an RJ45, alongside multiple COM ports (RS-232/RS485 2W/4W; RS 485 2W) for enhanced connectivity.

Memory and Processing: Equipped with 128 MB Flash and 256 MB RAM for efficient data processing and storage.

PTS-WST-7 Microprocessor Controller

The WST-7 Dual Power ATS Controller is an advanced microprocessor-based solution designed for seamless power management across dual power supply systems. It is tailored for applications requiring precise voltage monitoring, efficient transfer capabilities, and intelligent control in diverse settings such as data centers, telecommunications, industrial facilities, and intelligent buildings.



Key Features

- **Quick Power Transfer:** Response time as low as 50 ms.
- **Operation Modes:** Manual and automatic transfer capabilities.
- **Advanced Monitoring:** Voltage, frequency, phase sequence, power factors, and harmonic analysis.
- **High Compatibility:** Supports PC, CB, and CC class switches for Mains-Mains, Mains-Gen, and Gen-Gen setups.
- **LCD Interface:** 132x64 pixel backlit LCD with multilingual support.
- **Safety Features:** Over/under voltage, frequency monitoring, and loss/reverse phase detection.
- **Energy Efficiency:** Load voltage monitoring and scheduled generator operations.
- **Event Logging:** Records up to 200 events and includes a black box feature.

Special Features

- **Switch Functions:**
  - Manual and automatic switching with synchronized close operations.
  - Phase difference, frequency, and voltage thresholds for safe operation.
  - Scheduled Operations: Set monthly, weekly, or daily generator runs with custom duration settings.
- **Black Box Functionality:** Records detailed pre- and post-event data for fault analysis.

Technical Specifications

- **Operating Voltage:** DC (12–30V) with reverse protection; AC (90–305V).
- **Power Consumption:** <4W in standby mode.
- **Frequency Range:** 15Hz–75Hz with 0.1Hz accuracy.
- **Communication Ports:** USB, RS485 (Modbus-RTU), and Ethernet (Modbus TCP/IP).
- **Environmental Conditions:** Operating Temp: -25°C to +70°C; Protection: IP65 (front), IP20 (back).
- **Dimensions & Weight:** 198mm x 154mm x 54mm; 0.8kg

PTS-WST-8B Series Dual Power Bypass Microprocessor Controller

The WST-8B Intelligent Dual Power Bypass Switch Module is a compact, network-enabled device with programmable functions, automatic measurement, LCD display, and a passive synchronizer to prevent inrush current, ideal for reliable dual power bypass applications.

Core Components and Capabilities

- **Micro-Processor:** Detects 2-way 3-phase power, identifies abnormalities, and sends control signals
- **System Type Configurations:** Configurable for various types (e.g., S1 Mains S2 Mains, S1 Mains S2 Gen, etc.)
- **LCD Display:** 4.3'' 240x128 display, white backlit, multilingual, push-button

Measurement & Display

- **Voltage, Frequency, and Phase Sequence:** Monitors and displays 2-way, 3-phase information
- **Load Power Parameters:** Displays active, reactive, apparent power, power factor, and current
- **Switch Position:** Shows position of main switch and bypass switch (working, testing, insulated)
- **Energy & Power Supply Tracking:** Tracks energy, switch closes, supply duration, and total runtime.
- **Synchronization & Difference Display:** Voltage, frequency, and phase differences for synchronous switchover function

Control and Protection Functions

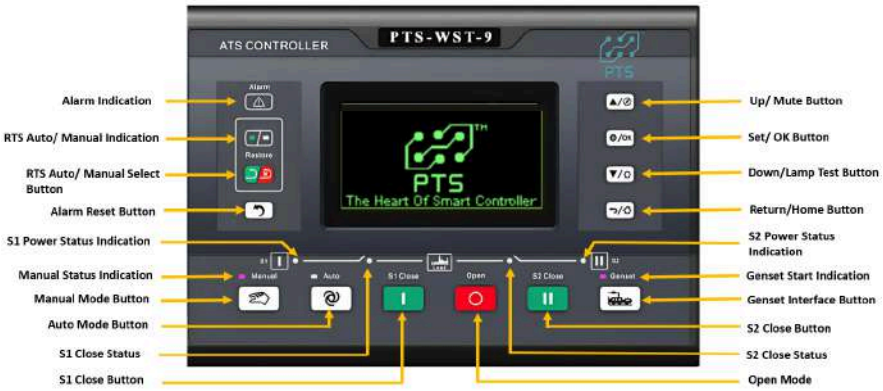
- **Automatic/Manual Mode Switchover:** Enables manual close/open control
- **Protection Features:** Protects against over/under voltage, over/under frequency, overcurrent, loss of phase, inverse phase sequence
- **Dual RS485 Communication Interface:** Remote capabilities (control, measure, communicate, regulate) via ModBus-RTU
- **Real-time Clock & Event Logging:** Records 200 events, black box function with event data before and after
- **Scheduled Start/Stop for Genset:** Configurable daily/weekly/monthly starts, with or without load

Additional Functionalities

- **Genset Testing:** Manual testing available for start/stop operation on site
- **Wide DC Power Supply Range:** Can handle instantaneous 80V DC input
- **Large Terminal Space:** Supports up to 625VAC voltage input
- **Modular Design & Easy Installation:** Flame-retardant ABS plastic, pluggable terminals, compact structure

PTS-WST-9 Microprocessor Controller

The WST-9 ATS controller integrating programmable function, automatic measurement, LCD display, and digital communication. Includes features like digitalization, intelligence, and network capabilities to automate measurement and control, reducing human errors.



Features

- **Display:** 240x128 LCD with backlight, multilingual support (e.g., English, Chinese), touch-button interface.
- **Design:** Compact, modular, IP65-rated with flame-retardant plastic casing and pluggable terminals. Built for easy installation.
- **Operation Modes:** Supports Automatic and Manual modes; Manual mode allows force-close or open of the switch.
- **User Interaction:** Interactive setup and configuration through soft keys and display; guides user through settings, alarms, metering, and logging.
- **Alarm & Event Logging:** Includes alarm acknowledgment, trip alarms, and event logging with a capacity of up to 200 entries.

Metering & Monitoring

- **Real-time Metering:** Measures voltage (phase-to-phase, phase-to-neutral) and frequency as standard; optional current, power, and historical trending metering.
- **Advanced Protection:** Features in-phase monitoring to prevent inrush current; offers over/under voltage, phase loss, reverse phase, frequency, and phase sequence protection.
- **Performance Monitoring:** Displays continuous and cumulative power supply times for S1/S2 sources; includes real-time clock (RTC) with event logging.

Generator Management

- **Modes:** Includes Cycle Run mode, Master Run mode, and Balance Run mode for managing two generators efficiently.

Connectivity & Remote Access

- **Communication Ports:** Two RS485 isolated communication ports with ModBus-RTU protocol, enabling remote control, measuring, and communication.
- **Remote Operation:** Supports remote start/stop of genset and remote control of ATS open/close functions.

Technical Specifications

- **Power Supply Range:** Wide DC range (8–35V), capable of withstanding 80V instantaneous current.
- **Terminal Capacity:** Large terminal space allowing up to 625V input voltage.

Additional Features

- **Reclosing & Signal Output:** Automatic reclosing function with customizable signal output intervals or continuous output.
- **Password Authentication:** Password protection ensures only authorized personnel can perform specific operations.

System Compatibility

- **Supported Configurations:** Compatible configurations include: - S1 (Mains) & S2 (Mains) - S1 (Mains) & S2 (Generator) - S1 (Generator) & S2 (Mains) - S1 (Generator) & S2 (Generator)
- **AC System Types:** Supports various AC systems: - 3-phase 4-wires - 3-phase 3-wires - Single-phase 2-wire - 2-phase 3-wire

Optional Features

Permanent Predictive 7 x 24 x 365 Self-Powered Thermal Monitoring Systems

The PT Energy Harvesting Self-Powered Sensor system offers continuous 24/7 predictive thermal monitoring, pinpointing potential issues before failure occurs by utilizing EH sensors installed in critical areas. This versatile and innovative solution can also be integrated with ATS systems, ensuring comprehensive thermal management.

- Permanent 7 x 24 Thermal Monitoring System utilizing IP68
- Energy harvesting (EH)
- No battery
- Self-powered
- Flame retardant plastic,with 20-years in-service life with maintenance-free.
- Maintenance and calibration free for lifetime.

Advantages

Real-Time Monitoring

- Provides continuous, real-time temperature monitoring for critical electrical components/joints/connection
- Enables proactive detection of temperature anomalies to prevent failures.

Wireless Connectivity

- Eliminates the need for complex wiring, reducing installation time and cost.
- Ensures easy integration into existing systems with minimal disruption.

Industry Compliance

- Meets international standards, ensuring high reliability and durability.
- Designed for long-term operation in demanding environments.

Easy Scalability

- Can be easily scaled to monitor multiple points in a system.
- Ideal for expanding monitoring networks in large industrial setups.

Improved ROI

- Delivers optimized performance and reduced operating costs.
- Increases return on investment by improving uptime and minimizing risks.

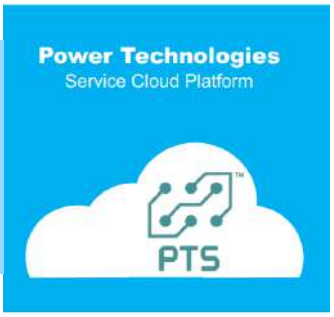
Versatile Applications

- Suitable for MV/HV switchgear, transformers, ups renewable energy systems, and more.

Enterprise Cloud Service Monitoring Platform

Power Technologies™ Real-Time Measurement, Monitoring, & Control

Power Technologies™ cutting-edge solution for real-time ATS and Genset measurement, monitoring, and control enables seamless remote asset management. View ATS status, Genset status, event logs, and more—all from one centralized platform.



Performance & Features

Remote Management:

Access and manage assets via apps and webpages.

Real-Time Status Updates:

View real-time ATS and Genset status, parameters, and history.

Detailed Event Logs:

Get quick insights into past events and system logs for accurate troubleshooting.

Location Tracking:

Instantly see the real location of ATS and Genset.

Convenient Control:

Remotely manage assets to optimize operations and reduce on-site visits.

Production Uptime and Risk Mitigation:

Reduces downtime by enabling faster issue resolution.
Mitigates risks such as overheating, power surges, and component failures.

Applications:

Industrial Plants: Monitor heavy machinery, transformers, and switchgear.
Commercial Facilities: Manage energy consumption in malls, office buildings, and hospitals.
Utilities and Smart Grids: Ensure reliability and efficiency in power distribution networks.
Renewable Energy Systems: Optimize solar farms, wind turbines, and battery storage.
Critical Infrastructure: Enhance monitoring in data centers, airports, and defense facilities.

Conditions for Normal Installation and Operation

1. Ambient Temperature

- Operating Range: -5°C to +40°C
- 24-Hour Average: Max. +35°C
- Storage: −30 °C to +80 °C (−22 °F to +176 °F)

2. Elevation

- Installation Altitude: ≤ 2000m

3. Atmospheric Conditions

- Relative Humidity: ≤ 50% at 40°C; may vary at lower temperatures
- Minimum Monthly Temperature: ≥ -25°C
- Maximum Monthly Relative Humidity: ≤ 90%

Note: Protect equipment from dew condensation due to temperature changes

4. Pollution Level

- Conforms to: Level 3 (GB/T14048.1 , IEC 60947-1)
- **Dust:** For dusty settings, it's recommended to install the transfer switch in clean, dry rooms with air filtration or pressurized systems. Additional filters or gaskets are available for ventilated enclosures.
- **Moisture:** In moist environments, consider a thermostat-controlled heater to prevent condensation, with stainless steel enclosures available for extra protection.
- **High Altitude:** Above 2000 meters, adjust voltage and current ratings according to ANSI C37.20.1 derating factors to maintain reliable operation.

5. Installation Energy Compliance

- Switch Equipment: Category III (IEC 60947-1)
- Transfer Controller: Category II (IEC 60947-1)

6. Installation Options

- Mounting: Horizontal or vertical placement in control or distribution cabinets

7. Use Category

Main Circuit	AC-33A (FREQUENT OPERATION)	AC-33B (INFREQUENT OPERATION)	Motor Load/Resistive Load ≤30%
Auxiliary circuit and transfer controller	AC -15		Load of controlling alternating electromagnet
	DC-13		Load of controlling electromagnet

8. Control Circuit

- Voltage: 220V/230V/50Hz/60Hz
- Control Power: Rated at 85% to 110% Us
- Special Voltage Ranges: -180V (under-voltage) and +250V (over-voltage)

9. Auxiliary Circuit

- Electrical Structure: 4 normally open and 4 normally closed contacts
- Refer to the table for voltage ratings

Conditions for Normal Installation and Operation

When installing the switch avoid high temperatures, steam or harmful gas (exhaust gas) and dust.

>0.5s

To ensure reliable operation, maintain control commands for longer than 0.5 seconds

The switch will stay in the input state when an input command and a tripping command are sent to the same power side simultaneously. Please avoid doing this; otherwise the coils will remain excited.

Apply electric operation and try to avoid manual operation.

Under DC conditions, if the power has a step-down loop (DROPPER), connect the power to the input side of the step-down loop rather than the output side.

Make sure the operating power cables are long enough and pay special attention to the storage battery capacity.

Excitation in the PTS-W series is instantaneous and the operating power is cut off after the input operation ends instead of being cut by the external operating power via auxiliary switch (AUX.SW.).

Please contact the company if you have a need for products with special features and specifications.

Installation

The switches must be installed in the correct orientation because of their structure and mode of operation. Incorrect orientation will result in changes to the switch characteristics. Please ensure the switches are installed correctly. Contact the company if this cannot be done as stipulated for wiring or mechanical reasons. The switches should be installed vertically, parallel with the vertical plane of the switchboard, and with the name plate visible from the front.

Maintenance, Examination and Storage

Note: Examination and maintenance should be carried out by professionals with all the external power cut off.

To maintain performance and a good operating state of the switches, perform the first maintenance within one year of installation. After this, periodical maintenance should be carried out annually. The basic items to be inspected are listed as below.

1. **Keep the switches clean to prevent failure due to dust, dirt, or rust**
2. **Perform a visual inspection of the contact parts for deformation, damage or change in color. Clear off metal deposits and burns on the contact surface and around the contact.**
3. **Poor contact can be the result of rust, oxidation or dust on the contact surface. During maintenance, check connection/disconnection operation (measure the contact resistance if necessary), and fasten any loosen connecting parts.**
4. **Under DC conditions, pay attention to the storage battery capacity and the charging.**
5. **New switches or those unused for a long period should be stored in an environment similar to the operating environment. Measures should be taken to avoid dust, dampness, shock or accident.**
6. **Before using switches that have become damp, or have not been used for some time, remove the dust, dirt and dry them well. Then measure the isolation resistance of every two poles, inlet lines and outlet lines, the main/auxiliary circuit and the installation metal board (box) using a tester.**

Technology

Power Technologies Private Limited (PT) specializes in end-to-end LV and MV switching control gears, providing predictive, non-contact thermal monitoring solutions that bring Industrial IoT, Big Data, and AI capabilities to organizations in need of real-time business insights. In today's digital landscape, power is more than a convenience—it's an essential component for securing business continuity.

Our approach across industries is simple: measure, learn, and act. By collecting data, deriving insights, and supporting action based on those insights, we empower our customers to make informed decisions grounded in high-value business intelligence.

Service

With over 20 years of experience in the power protection industry, PT is well-positioned with state-of-the-art solutions to address today's most critical and demanding power protection requirements and challenges.

We offer a broad portfolio of services, from innovative products to turnkey design and engineering solutions, tailored to meet the specific needs of mission-critical industries. Our commitment to personal service, forward-thinking, and rapid response means that we are ready to meet your needs immediately. Whether complementing existing systems or delivering a comprehensive solution, we aim to meet and exceed customer expectations.

To provide a complete competitive advantage, PT offers end-to-end solutions, ensuring the reliability of power protection systems through the entire lifecycle. Our team handles installation, commissioning, and proactive maintenance to keep systems at peak performance.

Our support services include:

- **Critical systems start-up**
- **Corrective and preventive maintenance**
- **Operator training support**
- **Monitoring solutions**
- **Original factory spare parts and upgrades**

Whenever and wherever you need assistance, we are there!

POWER TECHNOLOGIES™ Private Limited

PTS™

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