PTS WN3, WN3D, WN3CT

Low Voltage Automatic / Manual Transfer Switches

Introduction

PTS-WN3 Series transfer switches are constructed by a major manufacturer well established in the critical infrastructure market. Their high quality, performance, and reliability is a result of many years of experience with design and a thorough understanding of customer requirements.

The PTS-WN3 series is the building block of our transfer switch product line. This ruggedly designed power contactor type of switch has been specifically built for high duty dependability, versatility, compact size and user-friendly operation.

PTS-WN3 transfer switches are available in open type construction for switchboard integration, IEC or NEMA enclosures to meet the customer's specifications. The transfer switch, consisting of power switching contacts (made with heavy-duty silver alloy) and a rugged drive mechanism, is mounted on a specially formed panel that is logically designed. It includes an advanced microprocessor controller with easily programmed and configured auxiliary time delays. It is also assembled for ease of maintenance and separation from the power section. Components are connected with a numbered wiring harness equipped with a disconnecting plug to allow isolation of the control panel for maintenance.

PTS-WN3 Series Method of Operation

When Source 1 voltage fails or dips to a predetermined point (usually 80% of nominal), if required, a relay contact circuit is closed to initiate the engine generator to start. When Source 2 reached 90% of the rated voltage and 95% of the rated frequency, the solenoid drive is energized through the Source 2 coil relay, initiating the main contact to disconnect the load from Source 1 and connect it to Source 2. After the solenoid drive has completed its electrical pulse stroke and is closed, the Source 2 coil control signal relay opens to disconnect it. The transfer switch is not mechanically locked in the Source 2 position.

When Source 1 voltage is resumed to a predetermined point (usually 90% of nominal), the control voltage sensing energizes. The Source 1 side contact coil relay closed, and after the solenoid drive has completed its electrical pulse stroke and is closed, the contact coil control relay opened to disconnect it. The transfer switch is not mechanically locked in the Source 1 position.

Drive Mechanism

All PTS WN3 transfer switches employ the simple "center-off" principle to achieve a mechanically locked position in either Source 1 or Source 2 and PTS high speed solenoid drive assures contact transfer in 100ms or less. High contact pressure and positive mechanical interlock allow for high withstand and closing rating, far excessing IEC or UL requirements.

Over-Lapping Neutral with in-phase monitoring

The PTS WN3 transfer switch series is available in four pole design for multi-source power systems that require an over-lapping neutral. The neutral contacts are identical to the main contacts, having the same current carrying and high withstand/closed rating as the phase contact. They are designed to break last and make first to reduce the possibility of transients or high inductive loads (especially large motors). It receives server mechanical stress if power is transferred out of phase with excess load currents that can blow fuses or trip circuit breakers. The in-phase switching will be performed in a condition of electrical phase degree within the acceptable range of $\leq 5^{o}$.

Manual Operation

The manual operation consists of a large, easy-to-operate handle that seats securely for manual operation during maintenance or in an emergency. PTS has an option to provide an operator inhibit switch to disable the automatic operation prior to maintenance. Designed with fully enclosed, wrap-around arc covers to shield the main contacts and mechanical components, preventing operator exposure to live parts during manual operation.

Design and Construction Features

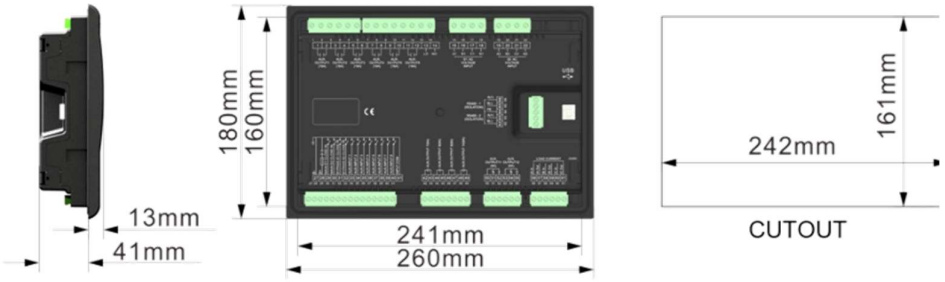
- With Closed Transition, Emergency power system can be electrically tested without disturbing the load;
- Double Throw, Interlocked Operation;
- Mechanically held and electrically operated with interlock, center-off mechanism;

- Silverplated tungsten alloy main contact of the transfer switches on all sizes;
- Space Optimization – best-in-class footprint and you don't need extra space inside panel. Even in the case of specialized customer needs, you can use standard cabinets;
- Open Transition with overlapping neutral contact of less than 100 milliseconds;
- Closed Transition Achieves Two source synchronization and momentarily parallel time of less than 100 milliseconds without breaking the load switch power supply;
- They are not constantly exposed to the destructive effects of potential fault currents;
- Then ATS modules can be mounted in a compact enclosure and completely interconnected requiring only Source 1(Grid), Source 2(Generator) and load cable connection;
- The ATS control/logic panel is mounted on the enclosure door and connected by a wire harness and multi-pin disconnect plugs;

Advance Microprocessor Controller Features

PTS-WST-9 is an intelligent micro-processor dual power transfer switch module which integrates programmable function with automatic measurement, LCD display and digital communication. It combines in qualities of digitalization, intelligence, and network. Measurement and control automation are realized for reducing human operation mistakes. Loaded with features that allow ease of operation, advance system troubleshooting, diagnostics and event capturing. PTS-WST-9 is one of the most advanced ATS microprocessor controllers in the industry. It is with compact structure, advanced circuit, simple wiring, and high reliability can be widely used in electrical automation control systems of electric power, intelligent building and etc.

- Ease of operation – Intuitive 4.3 inch's solid color 240x128 pixel LCD display white backlit, push-button operation, Automatic/Manual mode switchover; in manual mode, close or open can be controlled electrically, display position of main switch;
- Advance Troubleshooting – high-speed event log &data logging (200 historical data), logging continuous power supply time at present and last, and S1/S2 total power supply time.;
- Diagnostics – Advance system troubleshooting & event reporting with Black box record function, which can record 5 events circularly, 60 data of 50s before each event record and 10s after each event record;
- Low-Cost installation & Quick Commissioning – Built-in networking dual isolated RS485 communication interface having the functions of "remote control, remote measuring, remote communication, remote regulating" by the Modbus-RTU communication protocol, which can remotely start/stop the genset and control the breaker to close or open for reduced hardwiring;
- Simple, low-Cost Facility Integration & Monitoring – collect & display active power, reactive power, apparent power, power factory and current of load;
- Sensing - Determine Over/Under voltage, Over/under Frequency, over current, loss of phase ,inverse phase sequence functions;
- Secure - all parameters can be set on site. Password validation is applied to prevent wrong operation for non-professionals;
- Real-time Clock (RTC) - Scheduled routing start & scheduled not start function for genset, which can be set start once a day/week/month and running with or without load. The generator can be tested manually on site to achieve start/stop operation.
- Phase sequence monitoring - Can realize synchronous switchover function, and display voltage difference, frequency difference and phase difference of 2 circuits. (Default:- Voltage +-5Vac, frequency +-0.2Hz, electrical phase +-5degree); Determine Open Phase.
- Wide range AC system - Single controller with wide voltage operation 3-phase / 4-Wire, 3-phase / 3-wire, 1-phase 2-wire, 2-phase / 3-wire;



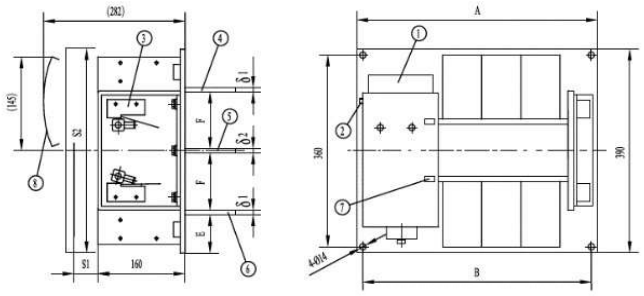
PTS-WST-9 Cut-out Dimension

Key Applications

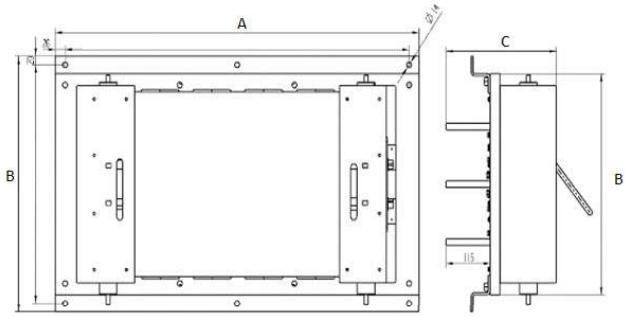
- Healthcare facilities
- Data Centers
- Telecom Central Offices
- Transportation – Airport, railway
- Waste Water Treatment
- Oil & Gas
- Intelligent Building
- Metallurgy
- Fire pump
- Electrical Substation

Performance Operations

Proven switching technology of PTS is designed for some constant power supply places, it developed by a set of intelligent, digital, networking as one of the intelligent dual-power synchronous switching microprocessor controller. They provide the capability to transfer in a closed transition mode when both sources are within pre-set parameters. Utilizing PTS high speed solenoid, closed transition overlapping of the normal and alternate sources is less than 100 milliseconds according to the controller command, realize the momentarily overlapping conversion function. When one source is not within specified limits, such as during a power failure, the PTS-WN3CT Series operates in a delayed transition mode.



PTS-WN3 (Opened Transition) Type



PTS-WN3CT (Closed Transition) Type

Dimensions

PTS-WN3, PTS-WN3CT

SWITCH TYPE	AMPERAGE RATING	POLES	Width (A)	Height (B)	Depth(C)	Width (A)	Height (B)	Depth(C)	APROX. WEIGHT (KG)	
			OPEN TYPE WITHOUT CABINET			ENCLOSED IN CABINET NEMA 1 / IP 10			OPEN	CABINET
PTS-WN3	20, 40, 63	3, 4	246	196	112	400	600	250	7.5	41
	100, 125	3,4	278	200	112	400	600	250	8,5	42
	160,200,250	3,4	298	200	112	500	600	250	9.3	43
	300,350,400	3,4	350	255	132	500	800	300	28	63
	500,630	3,4	405	304	150	600	800	350	50	90
	800	3,4	475	395	210	600	1800	600	63	165
	1000,1250	3, 4	530	395	250	680	1800	680	65	170
	1600	3,4	610	395	255	800	1800	700	77	227
	2000	3,4	730	508	258	900	1800	900	124	310
	2600	3,4	890	508	298	1000	1800	900	128	420
	3200, 3600,4000,5000	3,4	1110	565	304	1250	2000	1000	210	580
	6300	3,4	1170	585	385	1250	2000	1100	250	650

SWITCH TYPE	AMPERAGE RATING	POLES	Width (A)	Height (B)	Depth(C)	Width (A)	Height (B)	Depth(C)	APROX. WEIGHT (KG)	
			OPEN TYPE WITHOUT CABINET			ENCLOSED IN CABINET NEMA 1 / IP 10			OPEN	CABINET
PTS-WN3CT	20, 40, 63	3, 4	246	196	112	400	600	250	20	80
	100, 125,160,200,250	3,4	425	260	135	600	600	300	40	90
	300,350,400	3,4	430	260	142	600	1000	300	50	120
	500,630	3,4	550	320	150	800	1000	300	65	160
	800	3,4	585	395	230	800	1800	680	90	280
	1000,1250	3, 4	644	395	275	800	1800	700	110	320
	1600	3,4	724	395	285	900	1800	900	165	480
	2000	3,4	946	502	295	1100	1800	900	170	550
	2600	3,4	1130	485	315	1250	2000	1000	175	680
	3200, 3600,4000,5000	3,4	1200	565	304	1300	2000	1000	220	750
	6300	3,4	1270	585	337	1300	2000	1000	265	800

Electrical Rating

- Rating 20 to 6300 amperes.
- 3 or 4 poles.
- Open type, NEMA 1 / IP 10, NEMA 3 / IP 54, NEMA 4 / IP 55.
- Available in opened/closed transition/bypass.
- 400 VAC ~ 600VAC.
- 50 / 60 Hz.
- Rated limit short current 200kA(Fuse).
- Emergency power can be electrically tested without interrupting the critical load.

Performance Features

- Closed transition operation(no power interruption) during transfer and retransfer when sources are specific parameter.
- Open transition transfer operation is initiated upon a source failure.
- Source parallel time of less than 100 milliseconds.
- AC-33 A / B.
- High close-in and withstand capability.
- Quick Make / Quick Break.
- Overlapping Neutral.

Standards

- IEC 60947-6-1:2007.
- EN 60947-6-1:2007+A2:2014.
- EN 60947-6-1:2005+A1:2014.
- GB14048.11-2008.
- CE 2014/35/EU(Low Voltages).
- 2014/30/EU (Electromagnetic Compatibility)
- UL 1008.

On-Site & Emergency Services

- 24 / 7 Emergency Hotline Spare
- Product Upgrade / Replacement
- Maintenance Service Contracts Remote Monitoring & Diagnostics
- Technical Service Training
- Healthcare facilities
- Training for Operators and Facilities Maintenance Staff
- Product Training
- Virtual-Based Training

Training

PTS offers on-site and classroom training options based on required curriculum. Technical Training can be tailored to individual customer needs. Training enables customer and partners to more effectively manage and support the critical power infrastructure. We have built our training program on practical learning objectives that are relevant to specific technologies or infrastructure design objectives.

Service & Support

PTS files service and support personnel are trusted advisors to our customers – always available to answer questions and help with any project, large or small. Our certifies professional services team consists of experts in every aspect of power conversion with the resources and experience to handle turnkey projects along with custom approaches to complex challenges. Proven systems engineering and installation best practices are designed to safely deliver results that exceed our customers' expectations.

Warranty

PTS committed to providing quality products and solutions. We have developed a comprehensive warranty that protects you and provided a simple way to get your products replaced or repaired as soon as possible.

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