MH ATS

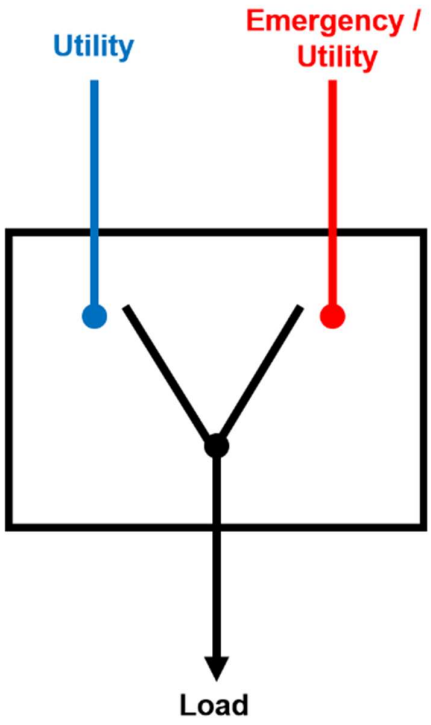
Closed-transition Transfer Switch

for Dual Power Source Networks
with seamless transition

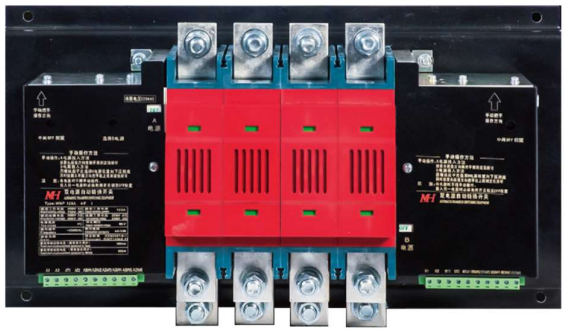
T3 Series - Closed Transition ATS

The T3 Series uses a microprocessor-based controller to seamlessly switch from emergency source to the main source after restoration. This system ensures that the power supply to the load remains uninterrupted by verifying the synchrony of both power sources before transferring.

- Capacity ranges from 125A to 6,000A
- Available in 1P2W, 3P3W, and 3P4W systems.
- Enables make-before-break transition from alternative supply to main supply
- Suitable for use in electrical systems with primary and alternative power supplies from a utility/backup generator or utility/utility.



Single Line Diagram of T3 Series



Model T3

T3 Series Technical Datasheet	
Specifications	
Rated Operational Current, Ie	125A to 6,300A
Rated Operational Voltage, Ue	400VAC*
Rated Insulation Voltage, Ui	800VAC
Rated Impulse Withstand Voltage, Uimp	8kV
Rated Frequency	50/60Hz
Poles	2, 3, 4
Main Contact Positions	3 (Normal-Off-Alternative)
Classification	PC
Utilization Category	AC-33A
Switching Mechanism	
Open Transition	Yes
Closed Transition	Yes
Delayed Transition	Yes
Manual Transition	Yes
Non-Automatic Transition	Yes
Automatic Transition	Yes
Bypass Isolation	N/A
Short Circuit Rating	
Rated Short-Circuit Making Capacity	10 x Ie
Rated Short-Time Withstand Current	10 to 50kA
Rated Conditional Short-Circuit Current	25 to 120kA
Standards Compliance	
UL 1008	

T3 Series Dimension							
Product Name	Rated Operational Current	Ue*	Utilization Category	No. of poles	W (mm)	H (mm)	D (mm)
					Quadrupole product size		
T3	125A	400VAC	AC-33A	2P, 3P, 4P	319	335	144
T3	500A	400VAC	AC-33A	2P, 3P, 4P	347	335	142
T3	800A	400VAC	AC-33A	2P, 3P, 4P	426	512	156
T3	1,000A / 1,250A	400VAC	AC-33A	2P, 3P, 4P	808	802	320
T3	1,600A / 2,000A	400VAC	AC-33A	2P, 3P, 4P	872	802	320
T3	2,600A	400VAC	AC-33A	2P, 3P, 4P	1,092	802	345
T3	3,200A / 4,000A	400VAC	AC-33A	2P, 3P, 4P	1,200	802	350
T3	5,000A	400VAC	AC-33A	2P, 3P, 4P	1,250	802	350
T3	6,300A	400VAC	AC-33A	2P, 3P, 4P	1,470	802	390

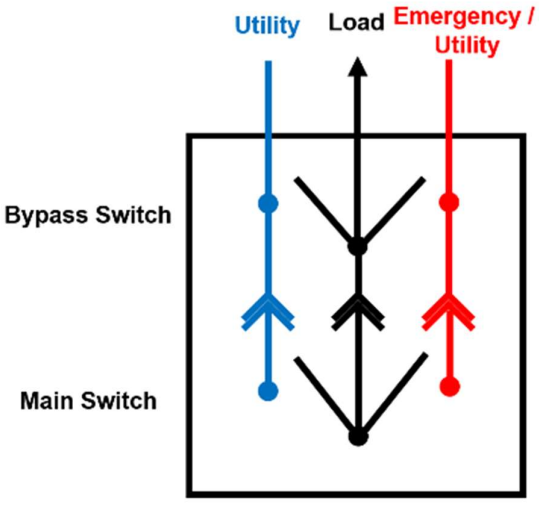
*higher voltage available upon request.

T4 Series - Closed Transition ATS with Bypass

Designed for critical applications such as medical services, data centres, airports and transportation etc.

The T4 series can be withdrawn for maintenance without disrupting the power supply, ensuring uninterrupted operation. This system ensures that power sources are synchronised before switching power from standby source to primary source.

- Capacity ranges from 125A to 5,000A
- Available in 1P2W, 3P3W, and 3P4W systems.
- Enables make-before-break transition from alternative supply to main supply
- Suitable for use in electrical systems with primary and alternative power supplies from a utility/backup generator or utility/utility.
- Features a built-in external bypass system that can be automatically or manually operated.
- The T4 series can be withdrawn for maintenance without interrupting the power supply.



Single Line Diagram of T4 Series

Model T4

T4 Series Technical Datasheet	
Specifications	
Rated Operational Current, Ie	125A to 5,000A
Rated Operational Voltage, Ue	400VAC*
Rated Insulation Voltage, Ui	800VAC
Rated Impulse Withstand Voltage, Uimp	8kV
Rated Frequency	50/60Hz
Poles	2, 3, 4
Main Contact Positions	3 (Normal-Off-Alternative)
Classification	PC
Utilization Category	AC-33A
Switching Mechanism	
Open Transition	Yes
Closed Transition	Yes
Delayed Transition	Yes
Manual Transition	Yes
Non-Automatic Transition	Yes
Automatic Transition	Yes
Bypass Isolation	Yes
Short Circuit Rating	
Rated Short-Circuit Making Capacity	10 x Ie
Rated Short-Time Withstand Current	10 to 50kA
Rated Conditional Short-Circuit Current	25 to 120kA
Standards Compliance	
UL 1008	

T4 Series Dimension							
Product Name	Rated Operational Current	Ue*	Utilization Category	No. of poles	W (mm)	H (mm)	D (mm)
					Quadrupole product size		
T4	125A	400VAC	AC-33A	2P, 3P, 4P	500	1,050	745
T4	500A	400VAC	AC-33A	2P, 3P, 4P	500	1,050	745
T4	800A	400VAC	AC-33A	2P, 3P, 4P	630	1,500	900
T4	1,000A / 1,250A	400VAC	AC-33A	2P, 3P, 4P	1,050	1,898	951
T4	1,600A / 2,000A	400VAC	AC-33A	2P, 3P, 4P	1,050	1,898	951
T4	2,500A	400VAC	AC-33A	2P, 3P, 4P	1,250	1,898	951
T4	3,200A	400VAC	AC-33A	2P, 3P, 4P	1,250	1,898	951
T4	4,000A	400VAC	AC-33A	2P, 3P, 4P	1,500	1,898	951
T4	5,000A	400VAC	AC-33A	2P, 3P, 4P	1,500	1,898	951

*higher voltage available upon request.

- **Model and Classification**

MH ATS □ - □ - □ - □

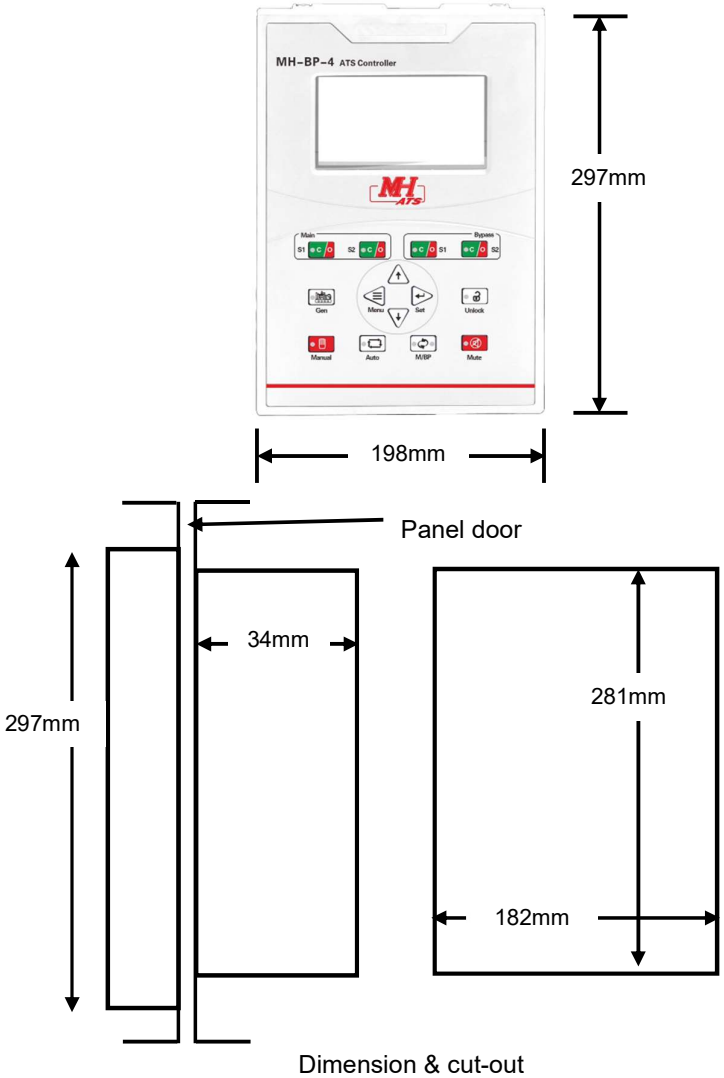
- Only applicable to T4 series
- W: withdrawable main and bypass switches;
  U: withdrawable main switch, fixed bypass switch
- Number of poles: 2P, 3P, 4P
- Rated operational current
- T3: without bypass switch; T4: with bypass switch

MH-BP-4 - Closed-Transition Transfer Switch Controller

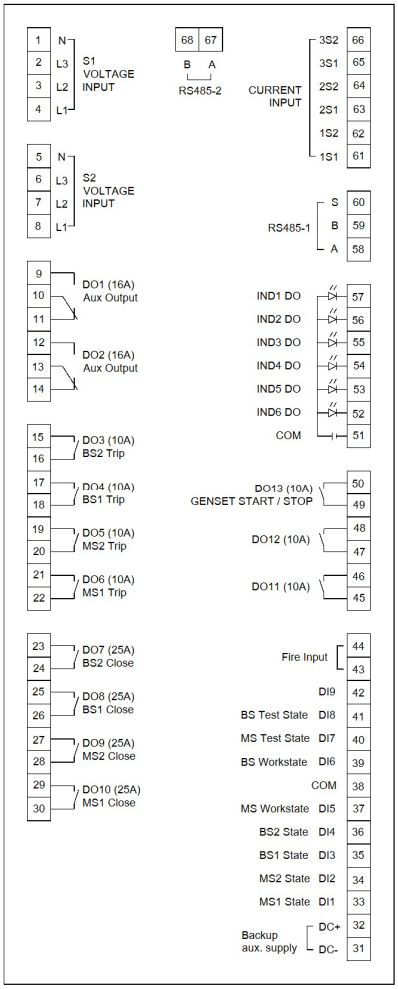
The MH-BP-4 is specifically designed to control the MH-ATS closed-transition transfer switch. The controller monitors the voltage, phase angle, and frequency of dual power sources before relaying to the transfer switch.

Key features of the MH-BP-4 include:

- Powered by ARM Cortex-M processor
- Comprehensive monitoring, protection, control, communication, and display capabilities
- Support for remote control, remote signal, remote monitoring, and remote settings
- Generator start-stop command functionality
- Auto, manual, and bypass operation modes



Dimension & cut-out



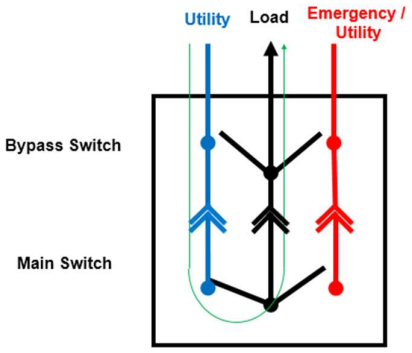
Connection Diagram

Technical Specification	
Operating voltage	80 – 300 VAC (LN)
Power consumption	max. 7 W; < 3 W (stand-by)
Rated frequency	45 - 65 Hz
Backup auxiliary power supply	12 – 36 VDC
General information	
Measurement precision for voltage, current	±1%
Measurement precision for frequency	±0.1Hz
Measurement precision for phase angle	±1°
Ambient condition	
Transport and storage temperature	-30°C to +80°C
Operation temperature	-20°C to +70°C
Measured voltage input	8
Measured range, voltage L-N, AC	55 – 300 Vrms
Measured range, voltage L-L, AC	95 – 520 Vrms
Measured current input	6
Rated current	5 A
Input and output	
Relay output	12 DO 1-2: 250 VAC, 16A (Form C) DO 3-6, 11-12: 250 VAC, 10A (Form A) DO 7 - 10: 250 VAC, 25A (Form A)
Digital output	6 IND1-6: 12VDC ,100 mA (Form A)
Generator start/stop	1 250VAC,10A (Form A)
Digital input	9
Fire alarm input	1
Mechanical properties	
Protection class	IP65 (front); IP20 (rear)
Device dimensions in mm (W x H x D)	198 x 297 x 48.5
Cut-out dimensions in mm (W x H)	182 x 281
Weight	1,300 g
Interface / protocol	
RS485 / Modbus RTU	2
Operation setting	
Phase Selection	Single or Three Phase
Normal and alternative source	Utility and Utility
	Utility and Generator
	Generator and Utility
Overvoltage threshold	0 to 330 V L-N
Overvoltage recovery	0 to 330 V L-N
Undervoltage threshold	0 to 330 V L-N
Undervoltage recovery	0 to 330 V L-N
Frequency	50 or 60 Hz
Over frequency threshold	0 to 75 Hz

Over frequency recovery	0 to 75 Hz
Under frequency threshold	0 to 75 Hz
Under frequency recovery	0 to 75 Hz
Closed transition voltage difference	0 to 50 V
Closed transition frequency difference	0 to 0.5 Hz
Closed transition phase angle difference	0 to 20°
Protection	
Overvoltage delay	0 to 6,553 s
Undervoltage delay	0 to 6,553 s
Off to alternative source delay	0 to 6,553 s
Off to normal source delay	0 to 6,553 s
Generator start delay	0 to 6,553 s
Generator stop delay	0 to 6,553 s
Normal source available	Yes
Alternative source available	Yes
Main switch status (normal, off, alternative)	Yes
Bypass switch status	Yes
Event log	Yes
Operating status (Auto / non-automatic)	Yes

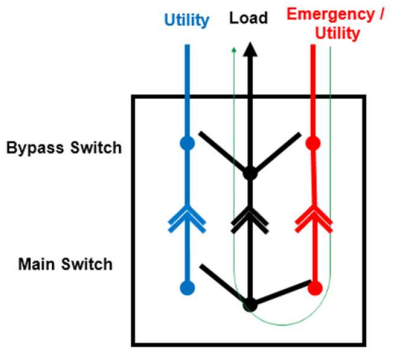
T4 Series Operational Modes

Normal Mode



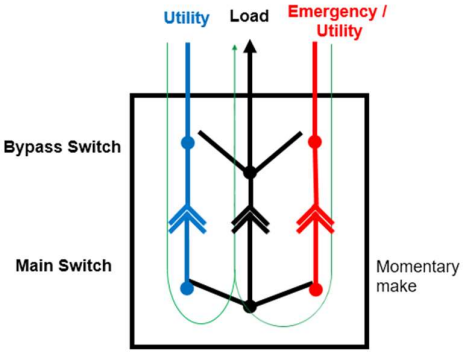
In normal mode, the power supply is supplied from the utility or main source, while the bypass switch remains in the off position.

Emergency Mode



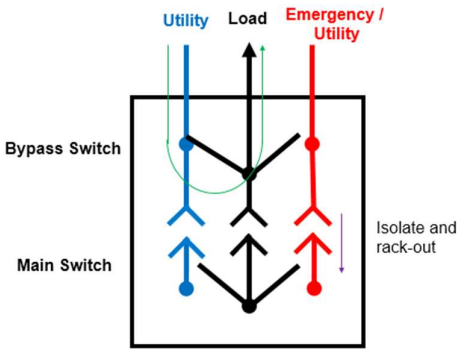
In the event of a main failure, the T4 Series switches over to an emergency or alternative power source, while the bypass switch remains in the off position.

Close Transition Mode



When main source is restored, the T4 Series switches from the emergency or alternative source back to the utility or main source. During this transition, a synchronous check is carried out. If the check is successful, both the main and alternative sources will briefly operate in parallel, and the emergency or alternative source will subsequently be switched off.

Bypass and Isolation Mode



During maintenance procedures, the bypass switch is activated. Once the main switch is turned off, the power supply is redirected from the utility or main source to the load via the bypass switch. This allows for the main switch to be safely isolated and removed for maintenance purposes.

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