AUTOMATIC SOURCE CHANGEOVER DEVICES

The power instability in developing countries along with changing modern lifestyle creates a need for alternative power sources such as gen-sets to back-up the utility supply. Most residential and commercial complexes today go for automatic solutions to meet 24 x 7 power.

Havells offers its wide range of modular and compact Automatic Changeover solutions to meet the ever-changing requirements. These devices overcome the disadvantages of manual changeovers such as increased downtime, disruption in key activities as well as possible damage of expensive equipment, human error, accidents etc. In addition, ACCL devices also offer current limiting function, thereby ensuring proper rationalization of generator power between multiple users.

With these inherent strengths along-with a host of user-friendly features, Havells Automatic Changeover devices have proven to be strong and effective power distribution management tools for all sectors.

Features for ACCL

- Automatic Changeover between Mains and Generator supply
- Current limiting function on Generator side
- Provision of automatic reset*
- Operational Status Indication through LEDs
- Consumes less power
- Easy maintenance
- Microcontroller based design
- Provision of auto/manual mode (TPN ACCL)

*Available in basic version

Range

Mains 40 A/63 A/80 A, Gen 10 A-80 A (TPN)
Mains 30 A/Gen 1.5 A to 20 A (SPN)
Mains 30 A/Gen 30 A (Automatic Changeover)

Execution

Three Pole with Neutral (TPN)
Single Pole with Neutral (SPN)

Specification

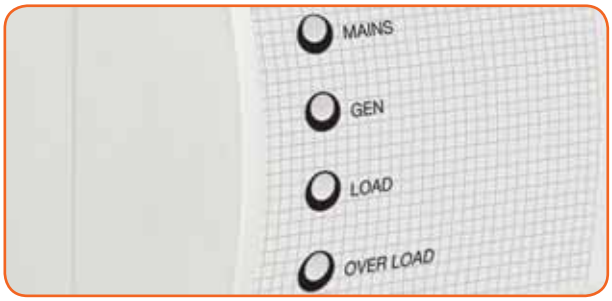
IEC 60947-6-1

Reset Button

Manual reset provision for restoring supply, when in sleep mode

Mountable in Distribution Boards

Modular design - easy to mount in distribution boards



LEDs Indication

Operational Status Indication through LEDs- Maine ON, Genset ON, Genset Overload etc.

Cable Terminals

Staggered terminal design with bottom wiring for better isolation between phase & neutral

SPN ACCL

Havells offers SPN ACCL for single phase systems - fully automatic high precision microcontroller based source changeover devices which also have current limiting function and offer easy and 'controllable' changeover between main power supply and generator supply. They are ideally suited for efficient utilization of standby generator used in multi-storied apartments, commercial complexes etc.

They are available in two versions – Basic and Premium to meet the varying needs of commercial/ residential installations.

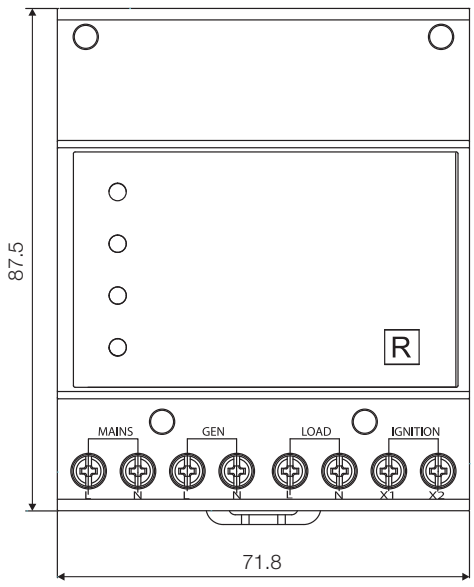
Premium SPN ACCL

SPN ACCL 3 Module (basic)

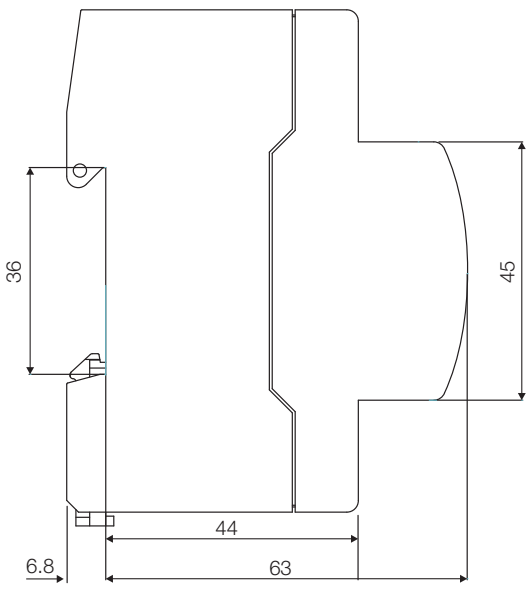
Features	Havells Premium SPN ACCL		Havells 3 Module SPN ACCL		Other Competitor Products	
OFF loadChangeover	✓	First Load is disconnected then changeoever to other supply takes place, ensurng the isolation of two power supplies hence there is no chance of short circuiting between them.	✓	ON Load Changeover	✓	ON Load Changeover
Zero Crossing Detection Technology	✓	Relay changeover takes place during zero crossing mark of the sinosudal AC supply. Which reduces the danger of Transient surges and Increases life of relay.	✗	Can takes place on peak of sinosudal AC supply which may result in harsh effect of Transient surges and decrease in life of relay.	✗	Can takes place on peak of sinosudal AC supply which may result in harsh effect of Transient surges and decrease in life of relay.
Advance Neutral	✓	First Neutral makes and last neutral breaks	✗	Neutral makes and break with phase.	✗	Neutral makes and break with phase.
Terminal for external conductors	✓	Indirect pressure type terminals	✓	Indirect pressure type terminals	✗	Direct Pressure type
Bottom Wiring	✓	Yes	✓	Yes	✗	No
Staggered Wiring	✓	Provides better isolation between phase and neutral	✓	Provides better isolation between phase and neutral	✗	Not Available
Conditional Shortcircuit current	✓	3 kA	✓	3 kA	✗	Not Mentioned
Eco friendly housing	✓	Thermoplastic, PA6 FR grade	✓	Thermoplastic, PA6 FR grade	✓	Thermoplastic
Local reset facility	✓	Reset button Provided, for restoring supply	✗	Not Provided	✗	Not Provided
Overload indication facility	✓	Seprate LED for Overload condition	✓	Generator LED blinks to show overload condition	✗	Not Provided
Standard conformity	✓	IEC 60947—6-1	✓	IEC 60947—6-1	✗	No marking on product
Rated impulse voltage	✓	2.5 kV	✓	2.5 kV	✗	Not mentioned
Operational voltage	✓	80-300 Vac	✓	150-270 Vac	✓	180-240 Vac
Pre trip indication in overload condition	✓	Provided	✗	Not Provided	✗	Not Provided
Compact design	✓	87.5 mm × 71.8 mm × 63 mm	✓	87.5 mm × 53.1 mm × 63 mm	✓	108 mm × 72 mm × 68 mm

Technical Specification	Premium SPN ACCL	SPN ACCL 3 Module
Standard Conformity	IEC 60947-6-1	IEC 60947-6-1
No. of Poles	1P+N	1P+N
Rated current (In)	30 A on mains, 1.5-20 A on generator	30 A on mains, 1.5-20 A on generator
Rated voltage (Ue)	240 V~	240 V~
Rated frequency	50 Hz	50 Hz
Rated insulation voltage	500 V	500 V
Transfer time	8 s-12 s	8 s-12 s
Restoring time	2 s-4 s	0 s-2 s
Utilization category	AC 31 A	AC 31 A
Class of equipment	PC	PC
Environment	B	B
Indication	Mains, Generator, Load, Overload	Mains, Generator, Overload
Ambient temp.	-5°C to +55°C	-5°C to +55°C
Electrical life (No. of operations)	6000	6000
Rated impulse voltage	2.5 kV	2.5 kV
Duty	Uninterrupted	Uninterrupted
Pollution degree	2	2
Conditional short circuit current (Inc)	3 kA	3 kA
Protection class	IP20	IP20
Mounting	standard mounting RAIL (35 mm x 7.5 mm)	standard mounting RAIL (35 mm x 7.5 mm)
Mounting position	Vertical /Horizontal	Vertical /Horizontal
Terminal Capacity	10 mm²	10 mm²
Weight	350 g	350 g

Dimensions (in mm) - Premium SPN ACCL

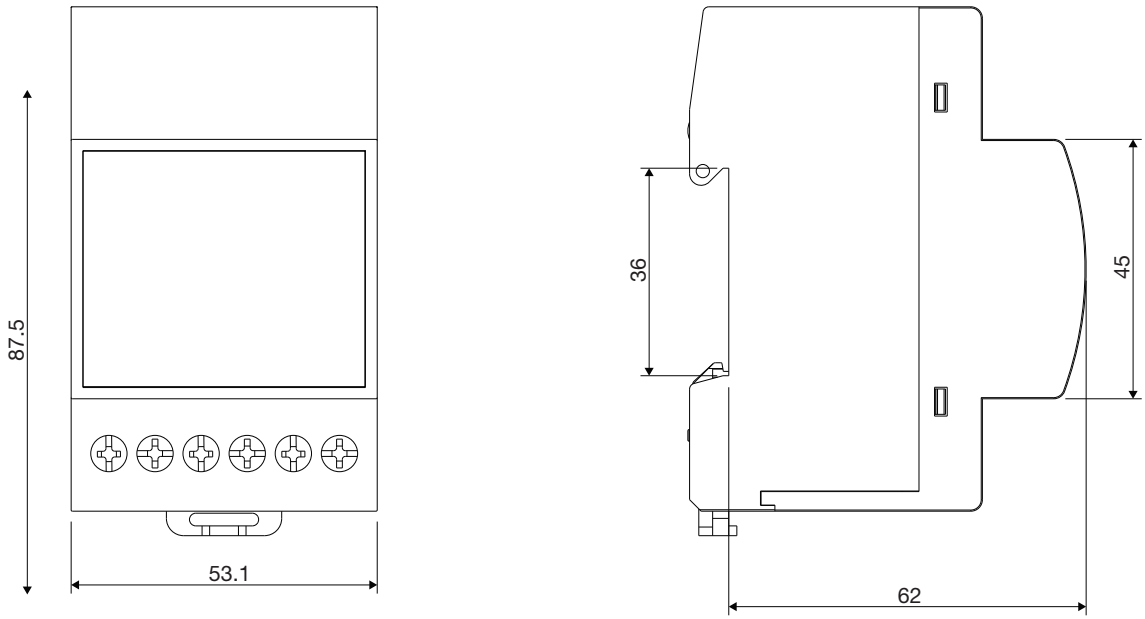


Front view



Side view

Dimensions (in mm) - SPN ACCL 3 Module (basic)



PREMIUM SPN ACCL

PREMIUM SPN ACCL

Gen Rating	Description	Cat. No. w/o GEN Start/Stop	Cat. No. with GEN Start/ Stop
SPN 1.5 (300 W)	30 A/1.5 A ACCL	DHABOSN301X	–
SPN 2.5 (500 W)	30 A/2.5 A ACCL	DHABOSN302X	–
SPN 3 (600 W)	30 A/03 A ACCL	DHABOSN3003	DHABWSN3003
SPN 4 (800 W)	30 A/4 A ACCL	DHABOSN3004	–
SPN 5 (1000 W)	30 A/5 A ACCL	DHABOSN3005	–
SPN 6 (1200 W)	30 A/06 A ACCL	DHABOSN3006	DHABWSN3006
SPN 9 (1800 W)	30 A/09 A ACCL	DHABOSN3009	DHABWSN3009
SPN 12 (2400 W)	30 A/12 A ACCL	DHABOSN3012	DHABWSN3012
SPN 15 (3000 W)	30 A/15 A ACCL	DHABOSN3015	DHABWSN3015
SPN 20 4000 W)	30 A/20 A ACCL	DHABOSN3020	DHABWSN3020

SPN ACCL

SPN ACCL (3 Module)

Mains Rating	Gen Rating	Product Code	Description
SPN 30 (6000 W)	SPN 1.5 (300 W)	DHADOSN301X	30 A/1.5 A ACCL W/O GEN START/STOP
SPN 30 (6000 W)	SPN 2.5 (500 W)	DHADOSN302X	30 A/2.5 A ACCL W/O GEN START/STOP
SPN 30 (6000 W)	SPN 3 (600 W)	DHADOSN3003	30 A/03 A ACCL W/O GEN START/STOP
SPN 30 (6000 W)	SPN 4 (800 W)	DHADOSN3004	30 A/4 A ACCL W/O GEN START/STOP
SPN 30 (6000 W)	SPN 5 (1000 W)	DHADOSN3005	30 A/5 A ACCL W/O GEN START/STOP
SPN 30 (6000 W)	SPN 6 (1200 W)	DHADOSN3006	30 A/06 A ACCL W/O GEN START/STOP
SPN 30 (6000 W)	SPN 9 (1800 W)	DHADOSN3009	30 A/09 A ACCL W/O GEN START/STOP
SPN 30 (6000 W)	SPN 12 (2400 W)	DHADOSN3012	30 A/12 A ACCL W/O GEN START/STOP
SPN 30 (6000 W)	SPN 15 (3000 W)	DHADOSN3015	30 A/15 A ACCL W/O GEN START/STOP
SPN 30 (6000 W)	SPN 20 (4000 W)	DHADOSN3020	30 A/20 A ACCL W/O GEN START/STOP

TPN ACCL

Havells offers TPN ACCL for three phase systems - fully automatic high precision microcontroller based source changeover devices which also have current limiting function and offer easy and 'controllable' changeover between main power supply and generator supply. They are ideally suited for efficient utilization of standby generator used in multi-storied apartments, commercial complexes etc.

They are available in two versions – Basic and Compact to meet the varying needs of users.

TPN ACCL

Compact TPN ACCL

FUNCTIONS

1. When mains supply is available

   The device will run the load on mains supply if the R phase is available irrespective of the availability of all other phases. It is recommended to connect the entire essential load to R phase.

2. When mains supply fails

   If mains supply goes off (detected by R phase), the device will automatically sense and actuate the inbuilt changeover mechanism to the generator supply. This takes 8-12 seconds so as to avoid sudden loading on generator. TPN ACCL also allows user to opt for manual mode for manual transfer of load to gen-set.

   Current Limiting feature on Generator side: If load current exceeds the preset allowable limit, then Overload LED will start glowing, but load will remain connected for 5 seconds to ignore the surge current. But if load still persists beyond the preset limit, it is disconnected for 8 second as a warning and then automatically reconnected. Such cycle of interruptions continue for a number of times during which the user is expected to switch off nonessential loads.

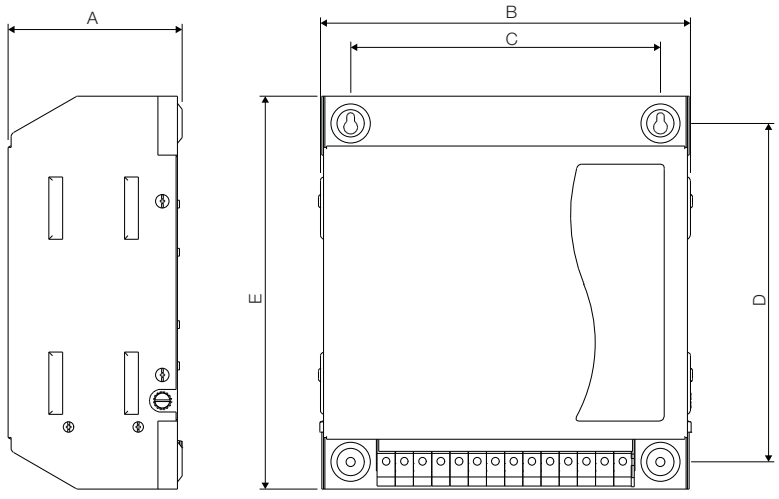
3. When mains supply restores

   On resumption of mains, the load is automatically transferred to main supply after a time delay of 2-4 seconds.

Parameters	TPN ACCL (TPN ACCL in Sheet metal)		Compact TPN ACCL (TPN ACCL in Thermoplastic)	
Automatic Changeover	✓		✓	
Overload Protection on Gen side	✓		✓	
Range	Mains	Gen	Mains	Gen
	TPN 63 A	TPN/SPN 2.5 A-50 A	TPN 63 A	TPN 2.5 A-40 A
	TPN 40 A	TPN/SPN 2.5 A-40 A	TPN 40 A	TPN 2.5 A-40 A
Dimensions	(260 mm x 243 mm x 115 mm) for 40 A TPN ACCL (260 mm x 243 mm x 150 mm) for 63 A TPN ACCL		(175 mm x 130 mm x 80.4 mm)	
Mode selection	✓		×	
Local reset facility	Required, as ACCL goes into the sleep mode after 5 cycles of interruption		Not required, as overload tripping continues till current is not within the limit	
Indications	Mains, Gen, Load, Overload on R, Y and B phase, Auto/manual mode through membrane keypad		Mains, Gen, Overload on R,Y and B phase, Pre-trip Indication	
Mounting	Surface mounted		1. Surface mounted, 2. DIN Rail mounted (35 mm and 75 mm DIN Rail)	
Housing	Sheet metal		Thermoplastic	

Technical Specification	TPN ACCL	Compact TPN ACCL
Standard Conformity	IEC 60947-6-1	IEC 60947-6-1
No. of Poles	3P+N	3P+N
Rated current (In)	40 A/63 A/80 A on mains, 10 A-63 A on gen	40 A on mains, 2.5 A-40 A on gen
Rated voltage (Ue)	415 V~/220 V~	415 V~/240 V~
Rated frequency	50 Hz	50 Hz
Transfer time	8 s-12 s	2 s-4 s(main to load), 8 s-12 s(gen to load)
Restoring time	2 s-4 s	2 s-4 s
Utilization category	AC 31 A	AC 31 A
Class of equipment	PC	PC
Environment	B	B
Indication	Mains, Generator, Load, Overload (R,Y,B), mode of operation (auto/manual)	Mains, Generator, Pre-trip, Overload (R, Y, B)
Ambient temp.	-5°C to +55°C	-5°C to +40°C
Electrical life (No. of operations)	6000	6000
Rated impulse voltage	6 kV	4 kV
Duty	Uninterrupted	Uninterrupted
Pollution degree	2	2
Conditional short circuit current (Inc)	5 kA	5 kA
Protection class	IP 20	IP 20
Mounting	surface mounting	din-rail (35 mm & 75 mm), surface mounting
Mounting position	Vertical	Vertical /Horizontal
Terminal Capacity	16 mm²/35 mm²	25 mm²
Weight	4.5 kg/9.4 kg	1.5 kg

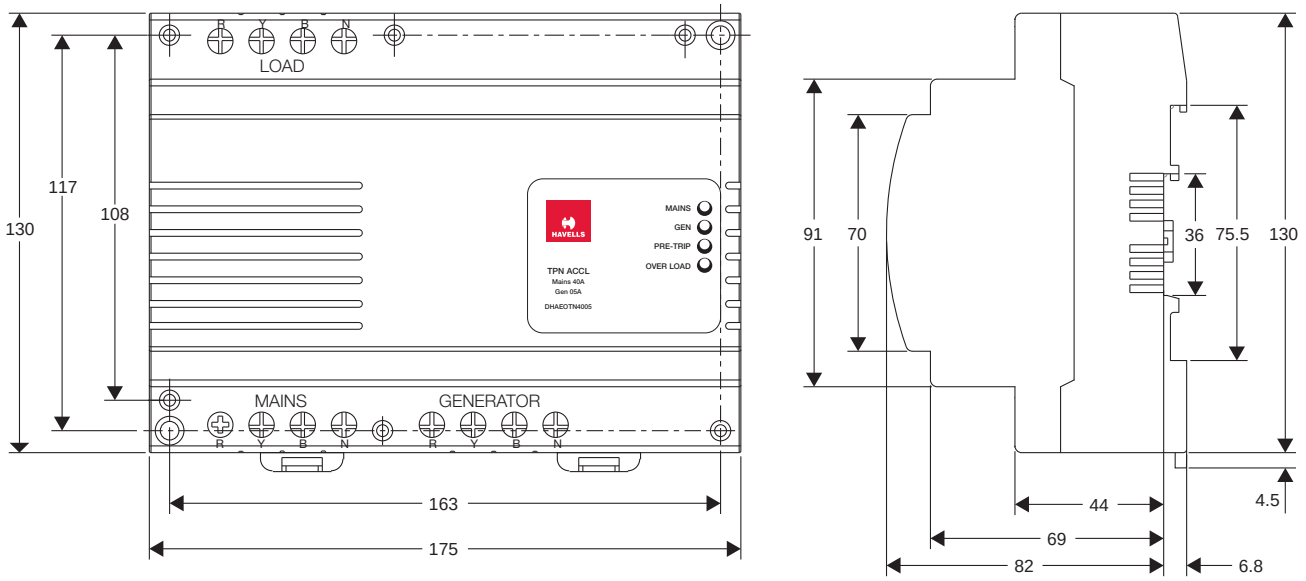
Dimensions (in mm) - TPN ACCL



Side view Front view

Rating	A	B	C	D	E
40 A TPN ACCL	115	243	205	224	260
63 A TPN ACCL	150	243	205	224	260
80 A TPN ACCL	150	333	293	337	383

Dimensions (in mm) - Compact TPN ACCL



TPN ACCL

TPN ACCL (TPN/SPN)
(Automatic Source Changeover with Current Limiter)

Gen Rating	Description	Cat. No.	Cat. No. with GEN Start/Stop
20 A	40 A/20 A TPN/SPN ACCL	DHACOTN4020	DHACWTN4020
25 A	40 A/25 A TPN/SPN ACCL	DHACOTN4025	DHACWTN4025
30 A	40 A/30 A TPN/SPN ACCL	DHACOTN4030	DHACWTN4030
40 A	40 A/40 A TPN/SPN ACCL	DHACOTN4040	DHACWTN4040
20 A	63 A/20 A TPN/SPN ACCL	DHACOTN6320	DHACWTN6320
25 A	63 A/25 A TPN/SPN ACCL	DHACOTN6325	DHACWTN6325
30 A	63 A/30 A TPN/SPN ACCL	DHACOTN6330	DHACWTN6330
40 A	63 A/40 A TPN/SPN ACCL	DHACOTN6340	DHACWTN6340
63 A	80 A/63 A TPN/SPN ACCL	DHACOTN8063	–

TPN ACCL (TPN/TPN)
(Automatic Source Changeover with Current Limiter)

Gen Rating	Description	Cat. No.	Cat. No. with GEN Start/Stop
20 A	40 A/20 A TPN/TPN ACCL	DHACOTT4020	DHACWTT4020
25 A	40 A/25 A TPN/TPN ACCL	DHACOTT4025	DHACWTT4025
30 A	40 A/30 A TPN/TPN ACCL	DHACOTT4030	DHACWTT4030
40 A	40 A/40 A TPN/TPN ACCL	DHACOTT4040	DHACWTT4040
20 A	63 A/20 A TPN/TPN ACCL	DHACOTT6320	DHACWTT6320
25 A	63 A/25 A TPN/TPN ACCL	DHACOTT6325	DHACWTT6325
30 A	63 A/30 A TPN/TPN ACCL	DHACOTT6330	DHACWTT6330
40 A	63 A/40 A TPN/TPN ACCL	DHACOTT6340	DHACWTT6340
63 A	80 A/63 A TPN/TPN ACCL	DHACOTT8063	–

CompactTPN ACCL

COMPACT TPN ACCL
(40 A Compact TPN ACCL)

Gen Rating	Cat. No.	Description
40 A	DHAEOTT402X	40 A/2.5 A Compact TPN/TPN ACCL
40 A	DHAEOTT4003	40 A/03 A Compact TPN/TPN ACCL
40 A	DHAEOTT4004	40 A/04 A Compact TPN/TPN ACCL
40 A	DHAEOTT404X	40 A/4.5 A Compact TPN/TPN ACCL
40 A	DHAEOTT4005	40 A/05 A Compact TPN/TPN ACCL
40 A	DHAEOTT4006	40 A/06 A Compact TPN/TPN ACCL
40 A	DHAEOTT4008	40 A/08 A Compact TPN/TPN ACCL
40 A	DHAEOTT4010	40 A/10 A Compact TPN/TPN ACCL
40 A	DHAEOTT4015	40 A/15 A Compact TPN/TPN ACCL
40 A	DHAEOTT4020	40 A/20 A Compact TPN/TPN ACCL
40 A	DHAEOTT4025	40 A/25 A Compact TPN/TPN ACCL
40 A	DHAEOTT4030	40 A/30 A Compact TPN/TPN ACCL
40 A	DHAEOTT4040	40 A/40 A Compact TPN/TPN ACCL

Automatic Changeover

Havells Automatic Changeover is a fully automatic high precision microcontroller based device and is ideally suited for unmanned power transfer operations between two sources in bungalows, multi storied apartments, commercial complexes, etc.

30 A Automatic Changeover

63 A Automatic Changeover

Functions

1. When the Mains Supply is available:
   - Load is connected to mains supply after time delay of 1 to 2 seconds (63 A) / 2 to 4 seconds (30 A) allows to draw full load current.
2. When the Mains supply fails:

(a) With AGS (automatic generator stop features)

- When the mains supply goes off i.e. fails, automatic changeover will sense Gen supply and actuate the inbuilt changeover mechanism.
- A consumer is automatically connected to the Generator supply after a time delay of 6 to 12 seconds (63 A) / 12 to 15 seconds (30 A) in order to limit the sudden load on the Generator.

When the Mains supply is restored:

- On resumption of the mains supply, the load is automatically transferred to the main supply after a time delay of 1 to 2 seconds (63 A) / 2 to 4 seconds (30 A) and stop signal is sent to Gen.

(b) Without AGS (automatic generator stop features)

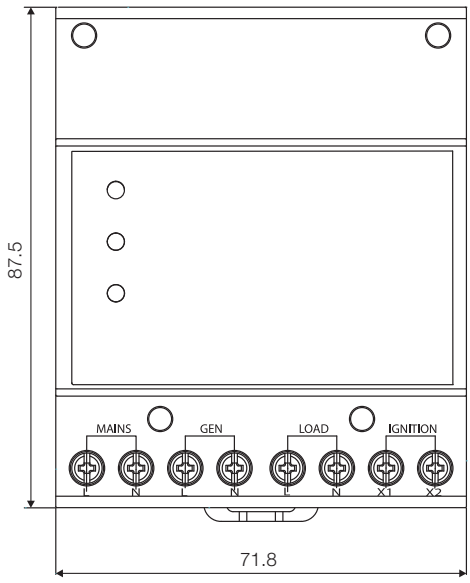
- When the mains supply goes off i.e. fails, automatic changeover will sense Gen supply and actuate the inbuilt changeover mechanism.
- A consumer is automatically connected to the Generator supply after a time delay of 6 to 12 seconds (63 A) / 12 to 15 seconds (30 A) in order to limit the sudden load on the Generator.

When the Mains supply is restored:

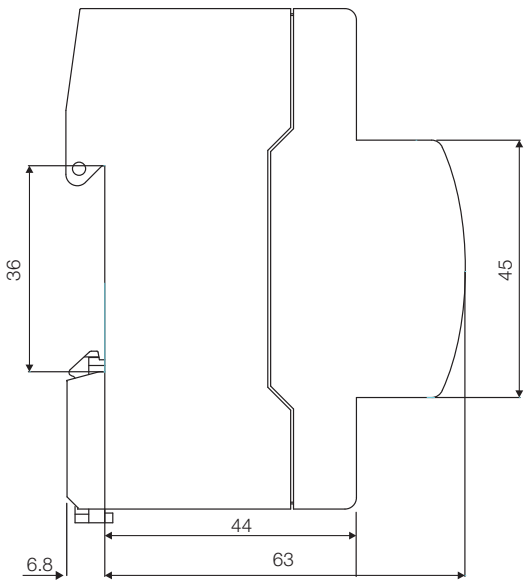
- On resumption of the mains supply, the load is automatically transferred to the main supply after a time delay of 1 to 2 seconds (63 A) / 2 to 4 seconds (30 A).

Technical Specification	30 A Automatic Changeover	63 A Automatic Changeover
Standard Conformity	IEC 60947-6-1	IEC 60947-6-1
No. of Poles	1P+N	1P+N
Rated current (In)	30 A	63 A
Rated voltage (Ue)	240 V~	240 V~
Rated frequency	50 Hz	50 Hz
Mains to Gen transfer time	12 s-15 s	6 s-12 s
Restoring time	2 s-4 s	1 s-2 s
Utilization category	AC 31 A	AC 31 A
Indication	Mains, Generator, Load	Mains, Generator, Load
Ambient temp.	-5°C to +55°C	-5°C to +55°C
Electrical life (No. of operations)	6000	6000
Rated impulse voltage	2.5 kV	2.5 kV
Rated insulation voltage	500 V	500 V
Conditional short circuit current (Inc)	3 kA	3 kA
Protection class	IP 20	IP 20
Mounting	din-rail (35 mm x 7.5 mm)	wall mounting
Mounting position	Vertical/Horizontal	Vertical/Horizontal
Terminal Capacity	10 mm²	16 mm²

Dimensions (in mm) - 30 A Automatic Changeover

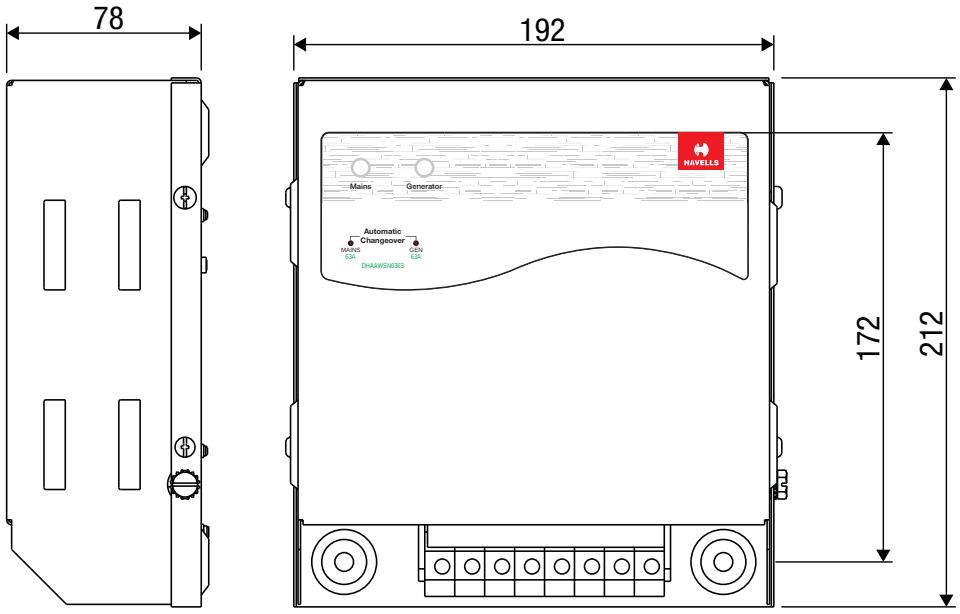


Front view



Side view

Dimensions (in mm) - 63 A Automatic Changeover



Automatic Changeover

30 A Automatic Changeover

Gen Rating	Description	Cat. No. w/o GEN Start/Stop	Cat. No. with GEN Start/Stop
SPN 30 (6000 W)	SPN 30 (6000 W)	DHAAOSN3030	DHAAWSN3030

63 A Automatic Changeover

Gen Rating	Description	Cat. No. w/o GEN Start/Stop	Cat. No. with GEN Start/Stop
SPN 63 (6000 W)	SPN 63 (6000 W)	DHAAOSN6363	DHAAWSN6363