DEEP SEA ELECTRONICS
DSE327 ATS Controller Installation Instructions

OPERATION

The DSE327 only offers protection for phase to neutral voltage failure and has one mode of automatic operation with two user configurable *Breaker Delays* for S1 and S2.

If the S1 supply is out of limits on any of the phases, the *S1 Available* LED flashes twice every second for the *S1 Transient Delay* (5 seconds). Upon the *S1 Transient Delay* ending, if the S1 supply voltage is above the minimum supply voltage (25 V to 50 V), the *S1 Available* LED flashes once every 4 seconds for the duration of the failure. At the same time, the *Run* output closes to start/run the S2 supply. During this time the *Close S1* output remains closed.

However, if the S1 supply voltage is below the minimum supply voltage (25 V to 50 V), the *S1 Close* output opens immediately and all S1 LEDs extinguish. The *Run* output also activates at this time to start/run S2.

Upon sensing S2 within limits, the *S2 Available* LED flashes every second for the duration of the *S2 Breaker Delay*. Upon the *S2 Breaker Delay* ending, the LED remains lit and the *Close S1* output opens. After the *Transfer Delay* (1 second), the *Close S2* output closes.

If the S2 supply goes out of limits on the sensed phase, the *S2 Available* LED flashes twice every second for the *S2 Transient Delay* (5 seconds). Upon the *S2 Transient Delay* ending if the S1 supply voltage is above the minimum supply voltage (30 V to 70 V), the S2 *Available* LED flashes once every 4 seconds for the duration of the failure. At the same time, the *Run* output remains closed to restart/run the S2 supply. During this time the *Close S2* output remains closed.

However, if the S2 supply voltage is below the minimum supply voltage (30 V to 70 V), the *S2 Close* output opens immediately, and all S2 LEDs extinguish. The *Run* output remains active at this time to restart/run S2.

Upon sensing S1 within limits, the *S1 Available* LED flashes every second for the duration of the *S1 Breaker Delay*. Upon the *S1 Breaker Delay* ending, the LED remains lit and the *Close S2* output opens. After the *Transfer Delay*, the *Close S1* output closes and the *S2 Cooling* time (6 seconds) begins. Once the *S2 Cooling* time has completed, the *Run* output opens to stop S2.

DIMENSIONS AND MOUNTING

Description	Specification
Mounting Type	DIN rail or chassis mounting
DIN Rail Width	EN 50022: 35 mm (1.4 “)
Dimensions Mounted on DIN Rail.	72 mm X 94.5 mm X 64.5 mm (2.83 ” X 3.72 ” X 2.54 ”)
Dimensions Using Mounting Holes	72 mm X 112 mm X 64.5 mm (2.83 ” X 4.41 ” X 2.54 ”)
Chassis Mounting Holes	M4 (0.25 “)
Chassis Mounting Hole Centres	100.5 mm (3.96 ”) at the module centre line

TERMINALS

Description	Specification
Tightening Torque:	0.5 Nm (4.5 lb-in)
Conductor Size:	0.5 mm² to 2.5 mm² (AWG 20 to AWG 13)

USER INDICATIONS AND CONTROLS

S1 / S2 Available LED	Description
Blink Twice per second •• •• •• •• •• (2 Hz)	**Supply Failing, *Transient Delay* in progress** **Under Voltage:** ~25% of Nominal < Supply < 80% of Nominal **Over Voltage:** 120% of Nominal < Supply
Blink Once every four seconds • • (0.25 Hz)	**Supply Failed** **Under Voltage:** ~25% of Nominal < Supply < 80% of Nominal **Over Voltage:** 120% of Nominal < Supply
Blink Once every second • • • • • (1 Hz)	**Breaker Delay in progress**
Lit	**Supply Available** 90% of Nominal < Supply < 110% of Nominal
Unlit	**Supply Unavailable** Supply < ~25% of Nominal

S1 / S2 Breaker LED	Description
Lit	Breaker Close Request
Unlit	Breaker Open Request

BREAKER TRIPPING VALUES

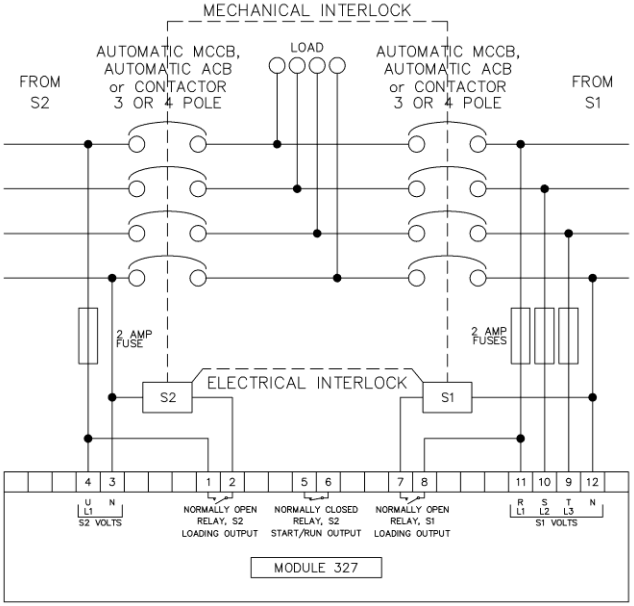
Fault	110 V Variant	230 V Variant
S1 / S2 Breaker Under Voltage Trip	80% of Nominal Voltage	80% of Nominal Voltage
S1 / S2 Breaker Under Voltage Return	90% of Nominal Voltage	90% of Nominal Voltage
S1 / S2 Breaker Over Voltage Return	110% of Nominal Voltage	110% of Nominal Voltage
S1 / S2 Breaker Over Voltage Trip	120% of Nominal Voltage	120% of Nominal Voltage

OUTPUT SPECIFICATION

Description	Specification
Close S1 / Close S2 Output Type	Normally Open Volt-Free Relay.
Run Output Type	Normally Closed Volt-Free Relay.
Rating	8 A at 250 Vac 5 A at 30 Vdc

TYPICAL WIRING DIAGRAM

NOTE: For single phase typical wiring diagram, refer to DSE Publication: *057-286 DSE327 Operator Manual*, available from www.deepseaelectronics.com.



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CONFIGURATION MODE

NOTE: The *Configuration Mode* feature is only available in modules of hardware version 0327-002-xx and above. For hardware version 0327-001-xx the nominal voltage is fixed to 110 V or 230 V depending upon the module variant.

The *S1 Breaker Delay Timer* is used as a configuration selector when the *Configuration Mode* is entered. In this mode it is possible to adjust the nominal voltage of the module between a number of preconfigured options to allow support for different operating voltages.
Entering configuration mode

NOTE: Remember to record the position of the *S1 Breaker Delay Timer* before making adjustments as the position needs to be reset once a new configuration has been selected.

NOTE: When the *Configuration Mode* is active, the *Close S1* & *Close S2* outputs remain open until normal control is resumed. The module reboots when *Configuration Mode* is exited.

Configuration Mode is only accessible when both S1 and S2 supplies are available.
To activate *Configuration Mode* the *S1 Breaker Delay Timer* must be turned to the fully anti-clockwise position, then to the fully clockwise position & finally back to the fully anti-clockwise position within a period of 5 seconds.
Only the *S1 Available LED* illuminates when the *Configuration Mode* is accessed.

SELECTING THE CONFIGURATION

In *Configuration Mode* the module facia LEDs indicate the selected configuration.
Upon entering *Configuration Mode*, the default configuration is always selected due to the *S1 Breaker Delay Timer* being turned fully anti-clockwise. As the *S1 Breaker Delay Timer* is rotated clockwise, additional LEDs illuminate to indicate which configuration is selected.
The following tables display the status of the LEDs when each configuration is selected.

230 V Variant	S1 Available LED	S1 Breaker LED	S2 Available LED	S2 Breaker LED
230 V	Lit	Unlit	Unlit	Unlit
220 V	Lit	Lit	Unlit	Unlit

110 V Variant	S1 Available LED	S1 Breaker LED	S2 Available LED	S2 Breaker LED
110 V	Lit	Unlit	Unlit	Unlit
120 V	Lit	Lit	Unlit	Unlit
127 V	Lit	Lit	Lit	Unlit

SAVING THE CONFIGURATION

The selected configuration is saved to the module when the *S1 Breaker Delay Time* remains unmoved for a period of 10 seconds.

Upon saving, two of the module LEDs illuminate for two seconds to indicate either a successful or failed save. The table below indicates the LEDs that illuminate in either scenario.

Save Status	S1 Available LED	S1 Breaker LED	S2 Available LED	S2 Breaker LED
Success	Lit for 2 seconds	Unlit	Lit for 2 seconds	Unlit
Failure	Unlit	Lit for 2 seconds	Unlit	Lit for 2 seconds

The module reboots upon the *Configuration Mode* being exited.