

LOCC BOX DC ELECTRONIC FUSE FOR 24V DC CIRCUITS



716400 LOCC-Box Electronic fuse, 12-24V dc, 1-10A, basic signal

- Reliably trips 24 V DC circuits
- Adjustable between 1-10 A
- Can be supplied via distribution rail
- Selectable characteristic
- Remotely Resettable



PRODUCT DESCRIPTION

TRUE, RELIABLE PROTECTION FOR DC CIRCUITS

Miniature circuit breakers connected to 24 V DC often have difficulty in tripping, especially with long cable runs and small cable areas. Selectivity does not work and all groups drop out before the miniature circuit breaker trips in the thermal range, which can take several minutes. Lutze's LOCC Box range of electronic fuse trips reliably even with long cable runs, which provides good selectivity without power outages for fault-free groups. The fuse's rated current is set using a thumb-wheel under the safety cover. The current can be set between 1-10 A in 1 A steps.

NB: Change to rated current and characteristic can only be made when the fuse is in the disconnected position. LED turns red. If the rated current or characteristic is changed during operation, LED turns green so no change occurs. To change settings. Press the button at the front until the LED turns red (non-flashing). Change the value on the thumb-wheel and then restart using the button on the front.

Three different characteristics can be selected using a thumb-wheel:

- 2 : medium blow,
- 3 : slow blow,
- 4 : slow blow 2,
- 5 : slow blow 3.

Use the slow blow characteristics for connection of loads with high inrush current. Even if the slowest ranges are chosen, the fuse reacts very quickly to short circuits compared to miniature circuit breakers., that are only really designed for AC loads.

The 24 V DC connection can either be made directly to each fuse or using a power terminal block with a copper rail. This alternative is recommended if many fuses are to be installed beside one another. The fuse is connected to the rail using a sliding contact. Upon disconnection of the sliding contact, the fuse is galvanically isolated.

Resetting can either be conducted with a button on the front (the fuse can also be manually disconnected with the button) or via remote control. In the event of a tripped fuse, the LED flashes red. Once a fault is remedied, the fault is acknowledged with the button on the front or via remote control. The LED is then red, non-flashing. If many fuses are installed, it is easy to see which groups have been remedied. With a second reset signal, the fuse is activated and the LED shines green.

There is also a 24 V DC signal output (open collector) that falls when the fuse trips. The output can be connected into a group using strapping. If one of the fuses in the group trips, a signal is received. On model 716401, the signal output even falls with manual on and off. (For more information about the lowest load resistances for the signal output, see the separate tab.)

The cover can be locked with a lead seal and marked with our RC55 marking; see the terminal rail chapter. The fuse has no galvanic isolation between input and output when it is connected to 24 V DC.

The LOCC Box is also available as a network version and can be combined with exisiting systems, operating with RS-232, CANopen, Profibus DP, Profinet IO or Ethercat protocols.

LOCC-Pads is free software that can be used with the LOCC Box-NET for programming your own parameters to match the load you are protecting, as well as a full analysis & diagnostic tool for 12-24V dc circuits.

Please contact for a demonstration.

SIGNAL OUTPUT.

The signal output is of the open-collector type with pull-up resistors. With this design, groups can be combined and alarms triggered if one fuse in the group trips. Depending on the external load resistance, the output voltage for a non-tripped fuse can vary.

Example 1. Only one fuse is used; the alarm output is connected to a PLC input of 10 k Ω . The output signal of the alarm output during operating status is 19.8 V DC. The alarm output's internal resistance is 2.1 k Ω . Re/Rtot * U = 10 k Ω /12.1 k Ω * 24 = 19.8 V)

Example 2 : 10 fuses are connected together into a group with a common alarm output to a PLC input of 10 k Ω . The output signal of the alarm output during operating status is 23.5 V DC. The alarm output's internal resistance is 2.1 k Ω . 2.1 k Ω /10 = 210 Ω . Re/Rtot * U = 10 k Ω /10.21 k Ω * 24 = 23.5 V DC.

If a relay coil that is often of low resistance is to be connected directly to the alarm output, +24 V DC must be connected directly to the relay; minus must be connected to the alarm output. NB: An inverted function is attained. When the fuse does not indicate a fault, the relay is not activated; relay activation occurs when there is a fault. We recommend our interface relays from Lutze, which have the same form factor as the fuse. Plug-in interface relays for outputs

If the MOSFET transistor that feeds the load fails for some reason during operation, the signal output will drop to zero. LED at the front will flash at very high rate and indicate a MOSFET transistor fault. If a short circuit occurs in conjunction with a MOSFET transistor fault, an internal fuse trips and disconnects the loads. With these integrated safety functions, a very safe system is attained even in the event of electronics failure.

A power terminal block manages 40 A. The 70 A rail. With connection of two power terminal blocks, the entire rail's capacity of 70 A can be utilised.

TECHNICAL DATA

INPUT DATA

| Input current max | 10 A |
|--------------------------|------|
| Operating voltage dc min | 10 V |
| Operating voltage dc max | 30 V |

| OUTPUT DATASelectable current ranges1-04, adjustable in 1A stepsOutput current max10.4Adjustable current min1AAdjustable current max10.4Adjustable current max10.4Adjustable steps1AOutput semiconductorsModeftStatus indicationLED. Steady green - OK, flashing green - load over 90%, flashing rod - fuseVoltage drop over semiconductor170 mVCapacitance max10000 µFReaction time800 msDEMENSIONS116 mmUtatus indication8.1 mmDepth116 mmHeight14.5 mmConnection typeSpring 0.25-2.5mm²Consection max2.5 mm²Cross section max2.5 mm²IP classIP20MourtingIP20PaprovalsE/200ExprovalsCE, cluus, GLEmprovalsCE, cluus, GLEmprovalsYes satus related when voltage is back onTomperature operational max9.0° CVelight120 g | Power through distribution beam max | 40 A | |
|---|-------------------------------------|--|--|
| Dupput current max10 AAdjustable current min1 AAdjustable current max10 AAdjustable steps1 AOutput semiconductorsMosfutStatus indicationLtD. Steady green - 0K. flashing green - load over 90%, flashing red - fuse offVoltage drop over semiconductor170 mVCapacitance max10000 µFReaction time8000 msDIMENSIONS116 mmVidth8.1 mmDepth116 mmHeight0.25 mm²Consection typeSpring 0.25-2.5mm²Consection time0.25 mm²Adjustable max0.25 mm²AgenovalDIN-railHeight0.25 mm²Consection typeSpring 0.25-2.5mm²Consection time0.25 mm²AgenovalDIN-railApprovalsENEl Collus, GLEMEENEl Collus, GLEMEENel Collus, GLEMESubstatus relation dwhen voltage is back onApprovalsYes, status relation dwhen voltage is back onFemory at power failureYes, Status relation dwhen voltage is back onTemperature operational minCol CTemperature operational minYes, Status relation dwhen voltage is back onTemperature operational minYes, Status relation dwhen voltage is back onApprovalsYes, Status relation dwhen voltage is back onEmerature operational minYes, Status relation dwhen voltage is back onApproxalsYes, Status relation dwhen voltage is back on | OUTPUT DATA | | |
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| Adjustable current max10 AAdjustable stops1 AOutput semiconductorsMosfetStatus indicationColseady green - OK, flashing green - load over 90%, flashing red - fuse triggered, steady red - fuse offVoltage drop over semiconductor170 mVCapacitance max10000 μFReaction time800 msDIMENSIONSVidthVidth8.1 mmDepth116 mmHeight114.5 mmConnection typeSpring 0.25-2.5mm²Consection min0.25 mm²Octass cection min0.25 mm²OutputJPOMountingIP 20ApprovalsCE, cULus, GLEMCEnfotom-6-3ApprovalsCE, cULus, GLEMCEnfotom-6-3Approvals power failureYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational max50 °C | Output current max | 10 A | |
| Adjustable steps1 AOutput semiconductorsMosfetStatus indicationLED. Steady green - OK, flashing green - load over 90%, flashing red - fuse offVoltage drop over semiconductor170 mVCapacitance max0000 µFReaction time800 msDIMENSIONSWidth8.1 mmDepth116 mmHeight114.5 mmCONNECTION DATAConnection typeSpring 0.25-2.5mm²Gross section min0.25 mm²Oress section max2.5 mm²IP classIP20MountingDIN-railApprovalsCC.ExpressionC.ApprovalsC.ApprovalsC.ApprovalsC.ApprovalsC.ApprovalsC.ApprovalsC.ApprovalsC.ApprovalsC.ApprovalsC.Comperitor tailureYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational maxSo °C | Adjustable current min | 1 A | |
| Output semiconductors Mosfet Status indication LED. Staady green - OK, flashing green - load over 90%, flashing red - fuse triggered, steady red - fuse off Voltage drop over semiconductor 170 m/V Capacitance max 10000 µF Reaction time 800 ms DIMENSIONS Imm Depth 116 mm Height 14.5 mm CONNECTION DATA Spring 0.25-2.5mm² Connection type Spring 0.25-2.5mm² Consection min 0.25 mm² Cross section max 2.5 mm² IP class IP20 Mounting DIN-rail Approvals Exetion 0-6-3 Approvals Exetion 0-6-3 Approvals Yes, status retained when voltage is back on Temperature operational min -26 °C Temperature operational max 60 °C | Adjustable current max | 10 A | |
| Status indicationLED. Steady green - OK, flashing green - load over 90%, flashing red - fuse triggered. steady red - fuse offVoltage drop over semiconductor170 mVCapacitance max10000 µFReaction time800 msDIMENSIONSNVidth8.1 mmDepth116 mmHeight114.5 mmCONNECTION DATASpring 0.25-2.5mm²Consection max0.25 mm²Cross section max0.25 mm²IP classIP20MountingDIN-railApprovalsCE, cULus, GLEMCEN61000-6-2, EN61000-6-3ADITIONAL DATAYes, status retained when voltage is back onTemperature operational maxYes, °CTemperature operational max50 °C | Adjustable steps | 1 A | |
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| Capacitance max10000 µFReaction time800 msDIMENSIONSWidth8.1 mmDepth116 mmHeight114.5 mmCONNECTION DATASpring 0.25-2.5mm²Connection typeSpring 0.25-2.5mm²Consection min0.25 mm²Cross section max2.5 mm²IP classIP20MountingDIN-railApprovalsCE, cULUs, GLEMCEN61000-6-3ADDITIONAL DATAYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational max50 °C | Status indication | | |
| Reaction time800 msDIMENSIONSWidth8.1 mmDepth116 mmHeight114.5 mmCONNECTION DATAConnection typeSpring 0.25-2.5mm²Connection min0.25 mm²Cross section max2.5 mm²IP classIP20MountingDIN-railAPPROVALSCE, cULus, GLApprovalsCE, cULus, GLEMCEN61000-6-3ADDITIONAL DATAYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational max50 °C | Voltage drop over semiconductor | 170 mV | |
| DIMENSIONS Width 8.1 mm Depth 116 mm Height 114.5 mm CONNECTION DATA Connection type Spring 0.25-2.5mm² Consection max 0.25 mm² Cross section max 2.5 mm² IP class IP20 Mounting DIN-rail ApproVALS CE, cULus, GL EMC EN61000-6-3 ADDITIONAL DATA Yes, status retained when voltage is back on Memory at power failure Yes, status retained when voltage is back on Temperature operational max 50 °C | Capacitance max | 10000 µF | |
| Width8.1 mmDepth116 mmHeight114.5 mmCONNECTION DATASpring 0.25-2.5mm²Connection typeSpring 0.25-2.5mm²Cross section min0.25 mm²Cross section max2.5 mm²IP classIP20MountingDIN-railApprovalsCE, cULus, GLEMCEN61000-6-3ADDITIONAL DATAYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational max50 °C | Reaction time | 800 ms | |
| Depth 116 mm Height 114.5 mm CONNECTION DATA I14.5 mm Connection type Spring 0.25-2.5mm² Consection min 0.25 mm² Cross section max 2.5 mm² IP class IP20 Mounting DIN-rail APPROVALS CE, cULus, GL EMC EN61000-6-3 ADDITIONAL DATA Yes, status retained when voltage is back on Temperature operational min -25 °C Temperature operational max 50 °C | DIMENSIONS | | |
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| Connection typeSpring 0.25-2.5mm²Cross section min0.25 mm²Cross section max2.5 mm²IP classIP20MountingDIN-railAPPROVALSCE, cULus, GLApprovalsCE, cULus, GLEMCEN61000-6-2, EN61000-6-3ADDITIONAL DATAYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational max50 °C | Height | 114.5 mm | |
| Cross section min0.25 mm²Cross section max2.5 mm²IP classIP20MountingDIN-railAPPROVALSCE, cULus, GLApprovalsCE, cULus, GLEMCEN61000-6-2, EN61000-6-3ADDITIONAL DATAYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational max50 °C | CONNECTION DATA | | |
| Cross section max2.5 mm²IP classIP20MountingDIN-railAPPROVALSCE, cULus, GLApprovalsCE, cULus, GLEMCEN61000-6-2, EN61000-6-3ADDITIONAL DATAYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational max50 °C | Connection type | Spring 0.25-2.5mm ² | |
| IP class IP20 Mounting DIN-rail APPROVALS CE, cULus, GL EMC EN61000-6-2, EN61000-6-3 ADDITIONAL DATA Yes, status retained when voltage is back on Temperature operational min -25 °C Temperature operational max 50 °C | Cross section min | 0.25 mm ² | |
| MountingDIN-railAPPROVALSApprovalsCE, cULus, GLEMCEN61000-6-2, EN61000-6-3ADDITIONAL DATAYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational max50 °C | Cross section max | 2.5 mm ² | |
| APPROVALS Approvals CE, cULus, GL EMC EN61000-6-2, EN61000-6-3 ADDITIONAL DATA Yes, status retained when voltage is back on Temperature operational min -25 °C Temperature operational max 50 °C | IP class | IP20 | |
| ApprovalsCE, cULus, GLEMCEN61000-6-2, EN61000-6-3ADDITIONAL DATAYes, status retained when voltage is back onMemory at power failureYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational max50 °C | Mounting | DIN-rail | |
| EMCEN61000-6-2, EN61000-6-3ADDITIONAL DATAYes, status retained when voltage is back onMemory at power failureYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational max50 °C | APPROVALS | | |
| ADDITIONAL DATA Memory at power failure Yes, status retained when voltage is back on Temperature operational min -25 °C Temperature operational max 50 °C | Approvals | CE, cULus, GL | |
| Memory at power failureYes, status retained when voltage is back onTemperature operational min-25 °CTemperature operational max50 °C | EMC | EN61000-6-2, EN61000-6-3 | |
| Temperature operational min-25 °CTemperature operational max50 °C | ADDITIONAL DATA | | |
| Temperature operational max 50 °C | Memory at power failure | Yes, status retained when voltage is back on | |
| | Temperature operational min | -25 °C | |
| Weight 120 g | Temperature operational max | 50 °C | |
| | Weight | 120 g | |









Tilslutninger



1: Udgang

2: Ekstern nulstilling/afbrydelse

3: Statusudgang 4: Ikke tilsluttet

5:0V

6: 24 V DC (enkelt forsyning) 7: 24 V DC forsyning via strømskinne







8,10 2 1 000 114,50 В ۵ 00000 0000 PIN Ц PIN 5. 5,1 3 B, 閜 4



ON/OFF Nominal operation: ON/OFF Load monitoring tripped: 1st push: acknowledge 2nd push: ON

Rotary Switch (I) - Switch Position** Rated current, see page 4.

Rotary Switch (C) – Switch Position** Characteristic: 1: fast 2: middle 3: slow-1 4: slow-2 5: slow-3

* If the operating voltage is switched off, the last status is saved (Default).
** Accept the setting - after switching on again via the button, not by Remote Set/Reset
** Master function - switch off via push button, can only be switched on again via push button

Button ***

EN LED Status, Button, Rotary Switch

| LED green | ON | Function is OK* |
|---------------------------|----------------------|---|
| LED green, flashing 1 Hz | Overload | Load above 90 % of I nominal |
| LED green, flashing 5 Hz | Overload | Load above 100 % of I nominal |
| LED red | OFF | Module switched off or acknowledged* |
| LED red, flashing 1 Hz | Overload | Output off due to overload/short circuit |
| LED red, flashing 5 Hz | Error | Wiring error - feedback (internal error) |
| LED red, flashing shortly | OFF | Output off via remote set/reset |
| Button *** | ON/OFF Load monit | Nominal operation: ON/OFF oring tripped: 1st push: acknowledge 2nd push: ON |
| Rotary Switch (I) – Switc | h Position** | Rated current, see page 4. |

Rotary Switch (C) – Switch Position** Characteristic: 1: fast 2: middle 3: slow-1 4: slow-2 5: slow-3

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** Accept the setting - after switching on again via the button, not by Remote Set/Reset
** Master function - switch off via push button, can only be switched on again via push button