

Technical data sheet

Load monitoring · LOCC-Box-FB48

Electronic circuit breaker rated up to DC 48 V to 6 A

Single-channel design, adjustable current range: DC 1 A – 6 A

Adjustable characteristics, fast, medium, slow 1, -2, -3



Identification

Type	LOCC-Box-FB48 7-6406
Part No.	716406

Product version

Hardware revision	2.3
Software version	2.3
Datasheet version	03

Input

Type of function	1-channel 1 pin switching
Rated voltage U_N	DC 48 V
Operation voltage range	DC 39–58 V
Rated current I_N	DC 6 A
Supply current	DC 40 A over Cu-rails 10 × 3 mm
Reverse voltage protection	Internal electronics
Connection type input	Screwless contact slide

Control input (Set / Reset)

Signal level	DC 48 V acc. to EN 61131
OFF	Pulse with falling edge >100 ms, <800 ms
ON	Pulse with falling edge > 1 s

Output

Switching element	MOSFET
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SYSTEMATIC TECHNOLOGY

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Output current	Max. DC 6 A
Voltage drop	Max. 310 mV (6 A)
Status display output	LED green: operating voltage present, no error LED red: error in load circuit
Switch-on capacity	1000 µF
Current range	1 A – 6 A (adjustable via switch in 1 A steps)
Characteristic	Fast (1), medium (2), slow 1 (3), slow 2 (4), slow 3 (5) see 'characteristic curves'
Current limitation	13.75 A

Signal output

Signal level	DC 48 V: operating voltage on standby, no error, DC 0 V: error, output switched off and manual "OFF"
Switching element	Transistor, collector with pull-up resistance

General

Dimensions (w × h × d)	8.1 mm × 107.4 mm × 116.0 mm
Housing material	PA 6.6 (UL 94 V-0, NFF I2, F2)
Color of the housing	Basalt grey
Mounting	DIN rail mountable TS35 (EN 60715)
Installation position	Any
MTBF	690000 h
Degree of protection	IP20 (only as complete system with power terminal and end block)
Connection type	Push-In 0.25 mm ² – 2.5 mm ² AWG 24 – AWG 14
Weight/unit	0.07 kg
PU (units)	1

General ambient conditions

Operation temperature range	-25 °C ... +50 °C
Storage temperature range	-40 °C ... +85 °C
Relative air humidity	10 % – 95 %, without condensation
Vibration resistance	4 g acc. to EN 60068-2-6
Shock resistance	15 g acc. EN 60068-2-27

Certifications/Standards

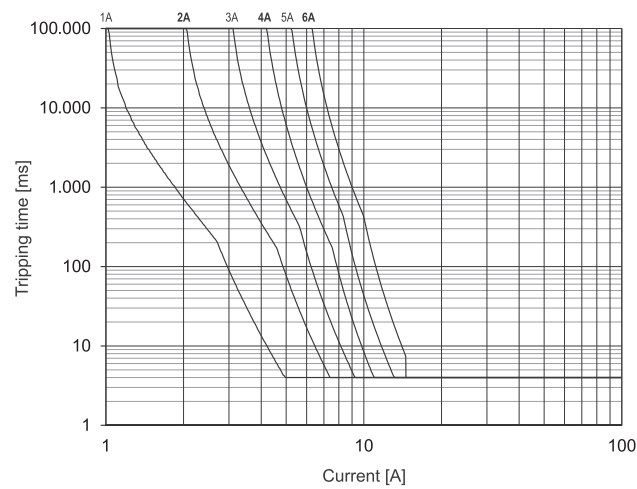
Conformity	CE UKCA
Certifications	cULus (E135145) URus (E490188)
Standards	EN 61000-6-2 EN 61000-6-3 UL 60947-5-1 UL 2367

[illegible]

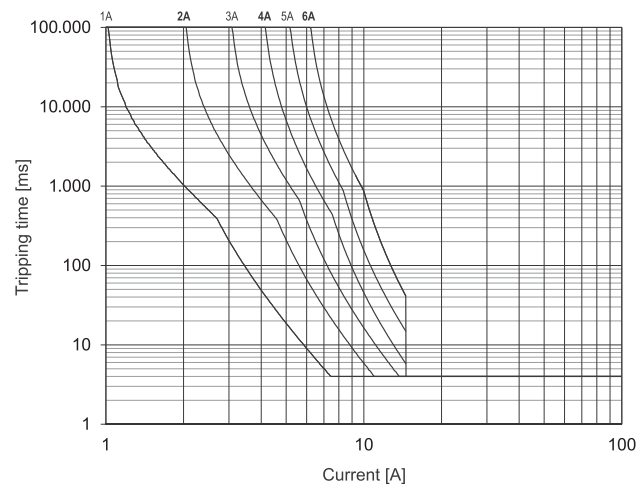
- 1: + Output
- 2: Control input (Set/Reset)
- 3: Status output
- 4: not used
- 5: 0V
- 6: + Supply (alternative)
- 7: + Supply

Figure 1 is a log-log plot showing the tripping time (ms) versus current (A) for a 100 kV circuit breaker. The y-axis represents Tripping time [ms] on a logarithmic scale from 1 to 100,000. The x-axis represents Current [A] on a logarithmic scale from 1 to 100. Six curves are plotted, labeled 1A, 2A, 3A, 4A, 5A, and 6A, representing different current levels. The curves show that the tripping time decreases significantly as the current increases, reaching a minimum value of approximately 4 ms for currents above 10A.

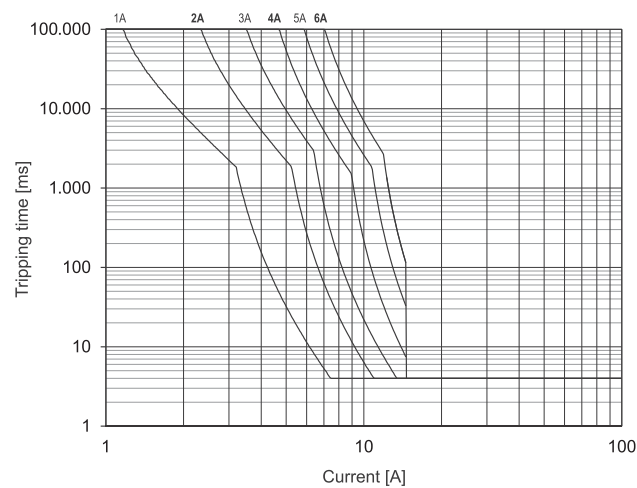
2: Characteristic medium



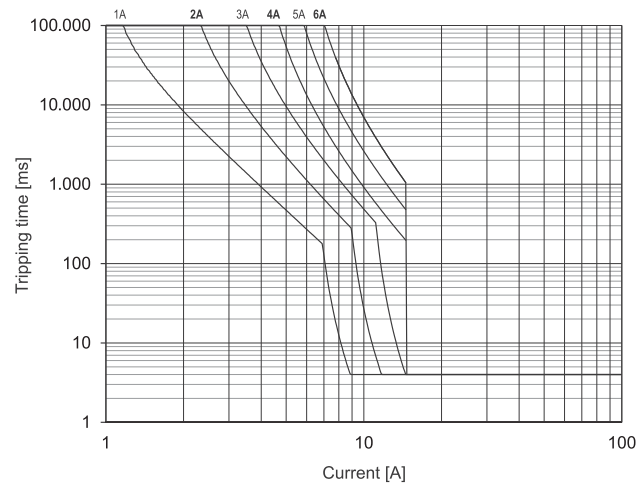
3: Characteristic slow-1



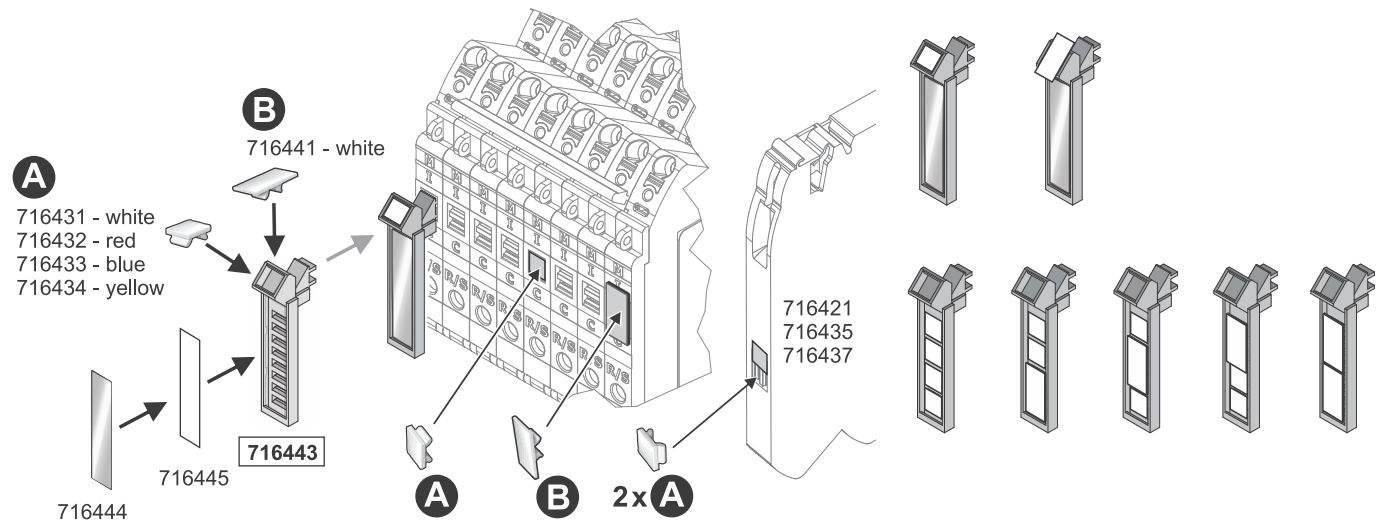
4: Characteristic slow-2



5: Characteristic slow-3



Use



LED status

DE LED Status, Taster, Drehschalter

LED grün	EIN	Funktion in Ordnung*
LED grün, blinkend 1 Hz	Überlast	Belastung über 90 % von I _{nenn}
LED grün, blinkend 5 Hz	Überlast	Belastung über 100 % von I _{nenn}
LED rot	AUS	Modul wurde ausgeschaltet oder quittiert*
LED rot, blinkend 1 Hz	Überlast	Ausgang ist abgeschaltet durch Überlast/Kurzschluss*
LED rot, blinkend 5 Hz	Fehler	Verdrahtungsfehler – Rückspeisung (interner Fehler)
LED rot, aufblitzend	AUS	Ausgang ist abgeschaltet durch Fern Set/Reset
Taster ***	EIN/AUS	Nennbetrieb: EIN/AUS Lastüberwachung hat ausgelöst: 1. tasten: quittieren 2. tasten: EIN
Drehschalter (I) – Schalterstellung**	Nennstrom: Siehe Seite 4	
Drehschalter (C) – Schalterstellung**	Charakteristik: 1: flink 2: mittel 3: träge-1 4: träge-2 5: träge-3	

* Bei einer Unterbrechung der Betriebsspannung, wird der letzte Zustand gespeichert (Default)

** Übernahme der Einstellung nach erneutem Einschalten über den Taster, nicht durch

Fern Set/Reset

*** Masterfunktion – Ausschalten über Taster, nur über Taster wieder einschaltbar

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	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

FR LED état, Bouton, Commutateur rotatif

LED verte	Marche	Fonctionnement OK*
LED verte, clignote 1 Hz	Sur charge	Le courant demandé est supérieur à 90% du réglage
LED verte, clignote 5 Hz	Sur charge	Le courant demandé est supérieur à 100% du réglage
LED rouge	Arrêt	Le module désactivé ou acquitté*
LED rouge, clignote 1 Hz	Sur charge	La sortie est coupée par sur charge/courts-circuits*
LED rouge, clignote 5 Hz	Erreur	Erreur câblage (alimentation de retour), erreur interne
LED rouge, clignote courts	Arrêt	Sortie désactivée par remote set/reset
Bouton ***	Marche/Arrêt	Opération normale: marche/arrêt La surveillance de la charge a déclenché: 1ère pression: validation du défaut 2ème pression: remise en marche
Commutateur rotatif (I) – Position**	Courant nominal, page 4	
Commutateur rotatif (C) – Position**	Courbe: 1: rapide 2: moyenne 3: lente-1 4: lente-2 5: lente-3	

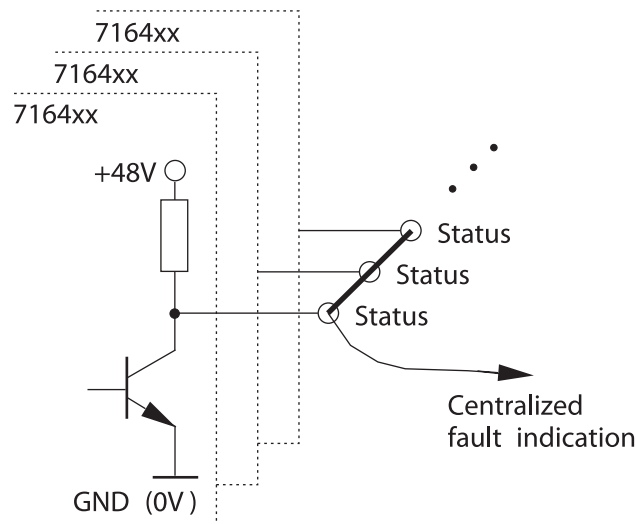
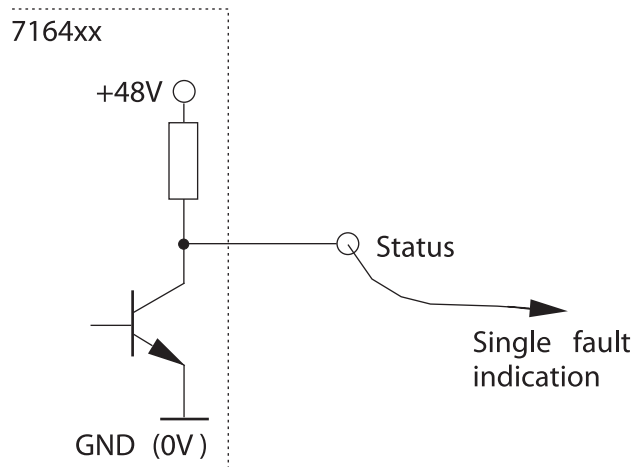
* Interruption de la tension de fonctionnement, le dernier état est enregistré (par défaut)

** La modification du courant ou des courbes sont actives après validation par le bouton

poussoir (off/on). Cette fonction n'est pas faisable par l'entrée déportée

*** La fonction I/O déportée est active que si le bouton poussoir est en position ON.

Signal output



Mounting diagram

