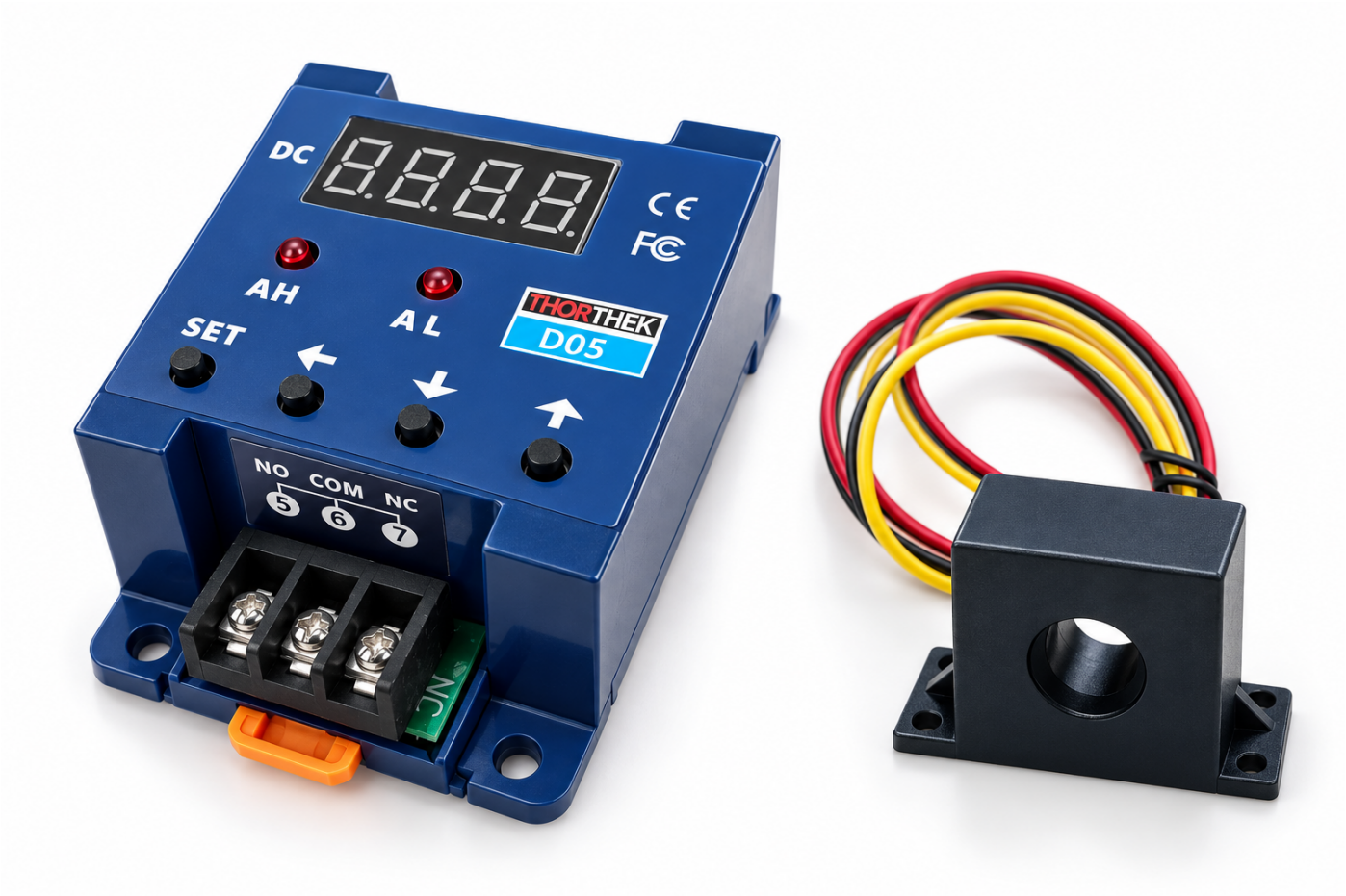
THORTHEK CM (THAILAND) CO., LTD.

CUSTOMIZED SOLUTION

DC Current Monitor & Protection Module

Current monitoring with adjustable alarm thresholds and external protection control.



THORTHEK D05 CONTROLLER

DC AMP SENSOR 50 A

MODEL - SET | Controller + current sensor | **1-year warranty**

Designed to support DC overcurrent monitoring and external trip control, helping reduce the risk of sustained-overload heating when correctly integrated.

Retouched product visualisation. Appearance may vary; supplied sensor rating: 50 A.

01 / APPLICATION VALUE

See abnormal current. Take action.

A configurable monitoring layer for DC equipment and machine-control systems.

50 A
SUPPLIED SENSOR RATING

AH / AL
HIGH / LOW CURRENT ALARMS

1 RELAY
CHANGEOVER OUTPUT

01

DC motors & conveyors

Monitor sustained current rise associated with increased load or a jam. Use the alarm to request a machine stop.

02

DC pumps & fans

Detect current above or below the expected operating window. Validate thresholds against the actual load behaviour.

03

DC feeders & machine circuits

Monitor an individual DC branch and provide an overload alarm or an external contactor trip command.

04

PLC & process interlocks

Use the relay contact as a digital status input for process sequencing, alarm indication or supervisory control.

SUPPORTS OVERLOAD RISK REDUCTION

The module senses current and signals an alarm. Actual load disconnection requires a suitably rated external switching device. It does not detect every cause of fire or replace primary circuit protection.

02 / TECHNICAL SPECIFICATIONS

Defined for your DC application.

Controller data below is transcribed from the supplied instruction sheets. Confirm the final supplied set before installation.

Product / model	DC Current Monitor & Protection Module / SET
Brand / controller marking	THORTHEK / D05
Supplied current sensor	External Hall-effect DC AMP sensor, 50 A
Auxiliary power supply	24-35 V DC; power consumption <3 VA
Indication	Digital current display; AH and AL indicators
Sampling rate	2 samples/second
Accuracy designation	Class 0.5 (as stated in the supplied manual)*
Input circuit consumption	<0.5 VA (manual specification)
Alarm functions	Adjustable upper and lower current thresholds
Alarm adjustment	Hysteresis; alarm-on and alarm-reset delay
Delay setting range	t1 and t2: 0-6400 seconds (manual specification)
Alarm output	One shared changeover relay for high/low alarms
Relay contact rating	6 A at 30 V DC / 6 A at 250 V AC, resistive load
Output terminals	5 = NO / 6 = COM / 7 = NC
Operating environment	-10 to +50°C; humidity up to 85% RH; non-corrosive
Controller dimensions	88 × 54 × 40 mm (L × W × H)
Mounting / fixing-hole centres	Rail or screw mounting / 73 × 41 mm
Warranty	1 year

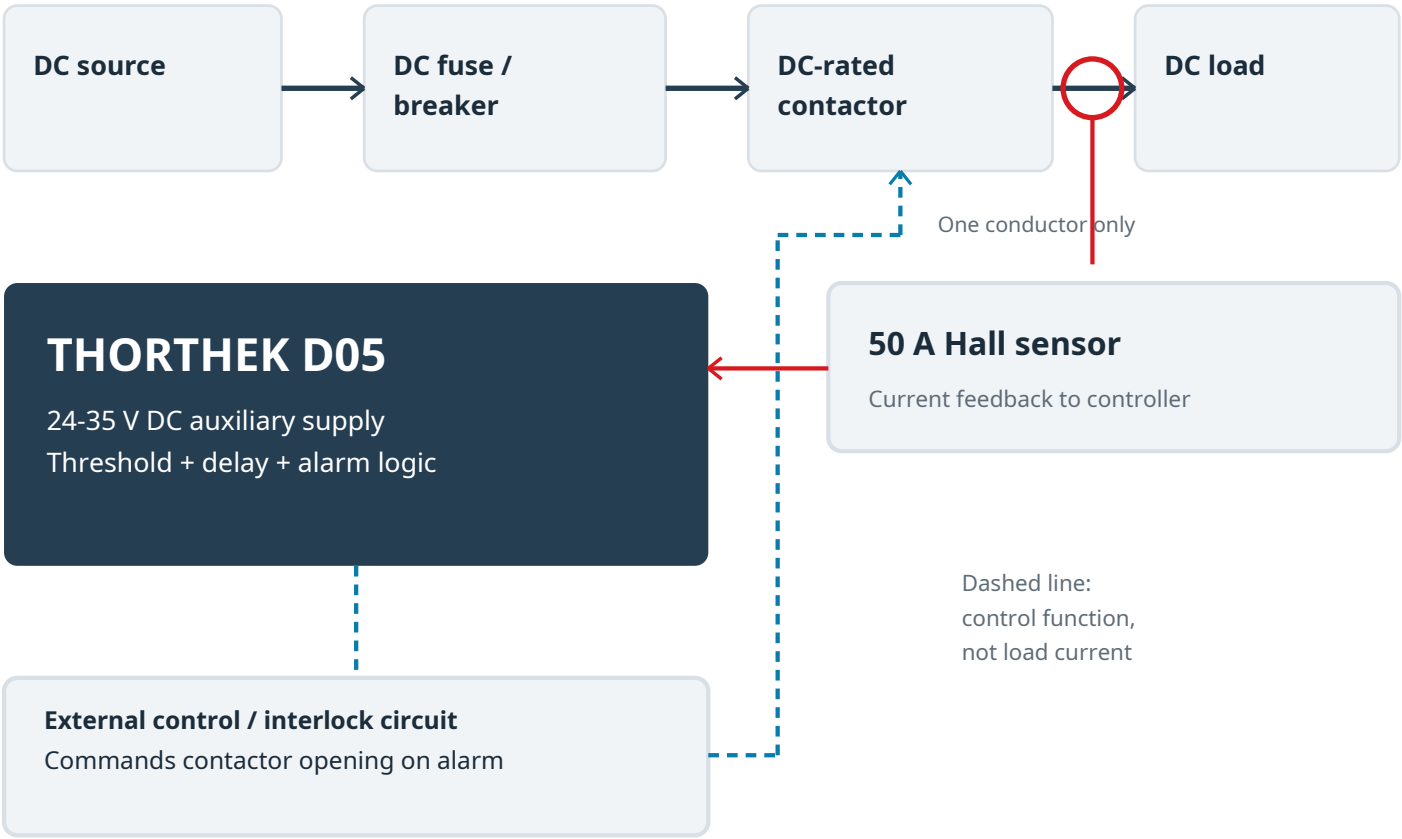
*The manual does not define the accuracy basis or test conditions; Class 0.5 is not presented here as a verified ±0.5% system accuracy. Sensor aperture, isolation rating, bus-voltage suitability and sensor wiring must be confirmed for the delivered 50 A sensor.

03 / PROTECTION ARCHITECTURE

Sense the load. Control the trip.

Functional concept only. Final circuit design must match the DC voltage, load type and available fault current.

POWER PATH



OUTPUT INTERFACE

5 / NO	6 / COM	7 / NC
Normally open	Common	Normally closed

50 A is the sensor rating, not the output-contact rating. Use the relay for a compatible control circuit. Confirm coil inrush, inductive-load derating and suppression; add an interposing relay where required.

Provide independent DC-rated short-circuit protection. At 2 samples/second, this module is not a fast short-circuit interrupter. Confirm alarm, power-loss and sensor-fault behaviour during commissioning.

04 / WIRING DIAGRAM & RATINGS

Terminal positions. Clearly identified.

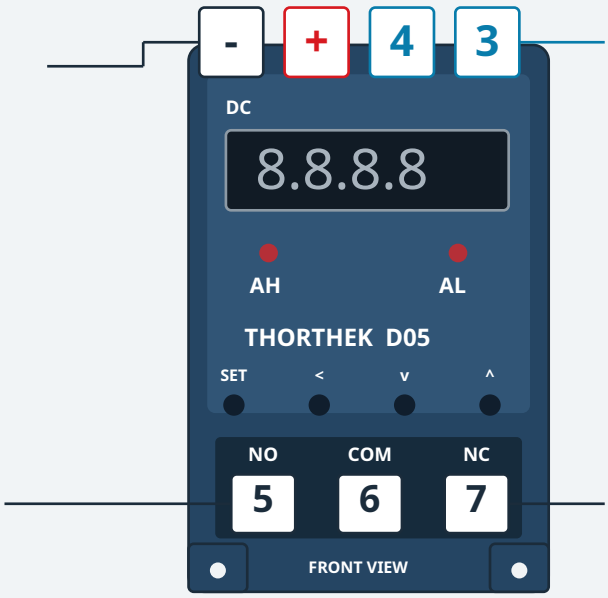
Front-view connection diagram with a product-shaped outline. Display faces you; terminal order follows the supplied wiring photo. Illustrative proportions, not a dimension drawing.

A / POWER

24-35 V DC
Auxiliary supply
<3 VA
Left to right: − / +

C / RELAY OUTPUT

5 = NO
6 = COM
7 = NC



B / SENSOR INPUT

50 A Hall sensor
Left to right: 4 / 3
Confirm sensor pinout before connection.

Control contact only
Use an external DC-rated contactor for load interruption.

CONNECTION SPECIFICATION

INTERFACE	RATING / CONNECTION REQUIREMENT
A / top: - then +	24-35 V DC auxiliary supply, <3 VA. Observe polarity. This is the controller supply rating, not a DC load-bus rating.
B / top: 4 then 3	Top row, left to right: 4 then 3. External Hall-sensor interface; the photo does not establish sensor polarity. Do not connect load current here.
Sensor wiring detail	Sensor supply, signal type, polarity and wire colours are not defined in the supplied sheet. Obtain the confirmed sensor-to-controller pinout before energising.
C / bottom: 5-6-7	5 = NO, 6 = COM, 7 = NC. One changeover control contact shared by high- and low-current alarms; not two independent outputs.
Relay contact rating	6 A at 30 V DC or 6 A at 250 V AC, resistive load. These ratings do not establish suitability for a contactor coil or other inductive load.
External trip circuit	Select DC-rated contactor and fuse/breaker for the load voltage, current and fault duty. Check coil voltage/inrush, suppression and any interposing relay.

Installation: pass one load conductor through the sensor aperture; do not thread outgoing and return conductors together. The supplied sheet does not specify wire size, tightening torque or verified alarm/power-loss contact states; confirm these before commissioning.

05 / CONFIGURATION

Match the settings to the load.

Use measured operating current, startup behaviour and circuit ratings to establish appropriate alarm settings.

AH	**Upper alarm** Relay alarm when the displayed current exceeds the setting.
AL	**Lower alarm** Relay alarm when the displayed current falls below the setting.
d	**Hysteresis** Creates a recovery margin to reduce repeated switching near the threshold.
t1 / t2	**Alarm / reset delay** Select delay times appropriate to the application; verify the total shutdown time.
t9	**Alarm latch** Manual-reset mode is described in the manual; confirm the setting on the supplied unit.

HYSTERESIS EXAMPLE / ILLUSTRATIVE ONLY

AH = 10.0 A and d = 1.0 A: high-current alarm above 10.0 A; the recovery boundary is 9.0 A, subject to the selected delay and latch mode.

COMMISSION BEFORE RELEASE

1. Verify supply, polarity, sensor wiring and load/sensor compatibility.

2. Compare indicated current with a suitable reference instrument.

3. Test AH/AL alarms, external trip, reset, power loss and restart prevention.

4. Record settings and measured shutdown time under controlled test conditions.

Keep factory range/correction parameters unchanged unless performing an approved calibration. For protective shutdown, evaluate latched manual reset to avoid unintended automatic restart.

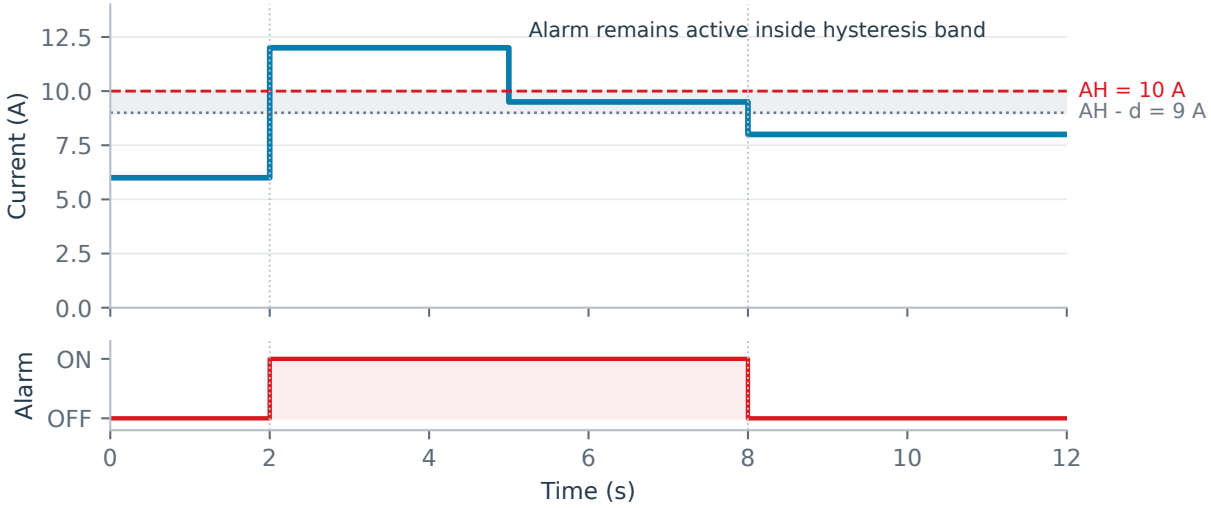
06 / SETPOINT CHARACTERISTICS

Visualise AH, AL and hysteresis.

Illustrative settings, not factory defaults or measured test data. Delays are set to zero here to isolate the hysteresis behaviour.

UPPER CURRENT ALARM

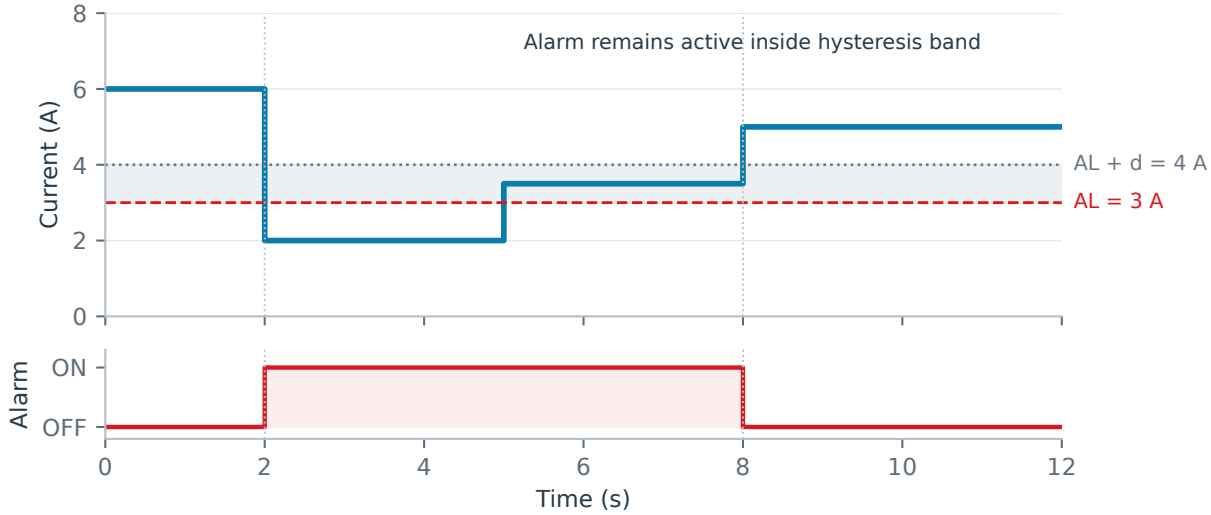
AH = 10 A | d = 1 A | Recovery boundary = 9 A



High alarm: activate above AH; remain active until current clears the lower recovery boundary AH - d.

LOWER CURRENT ALARM

AL = 3 A | d = 1 A | Recovery boundary = 4 A



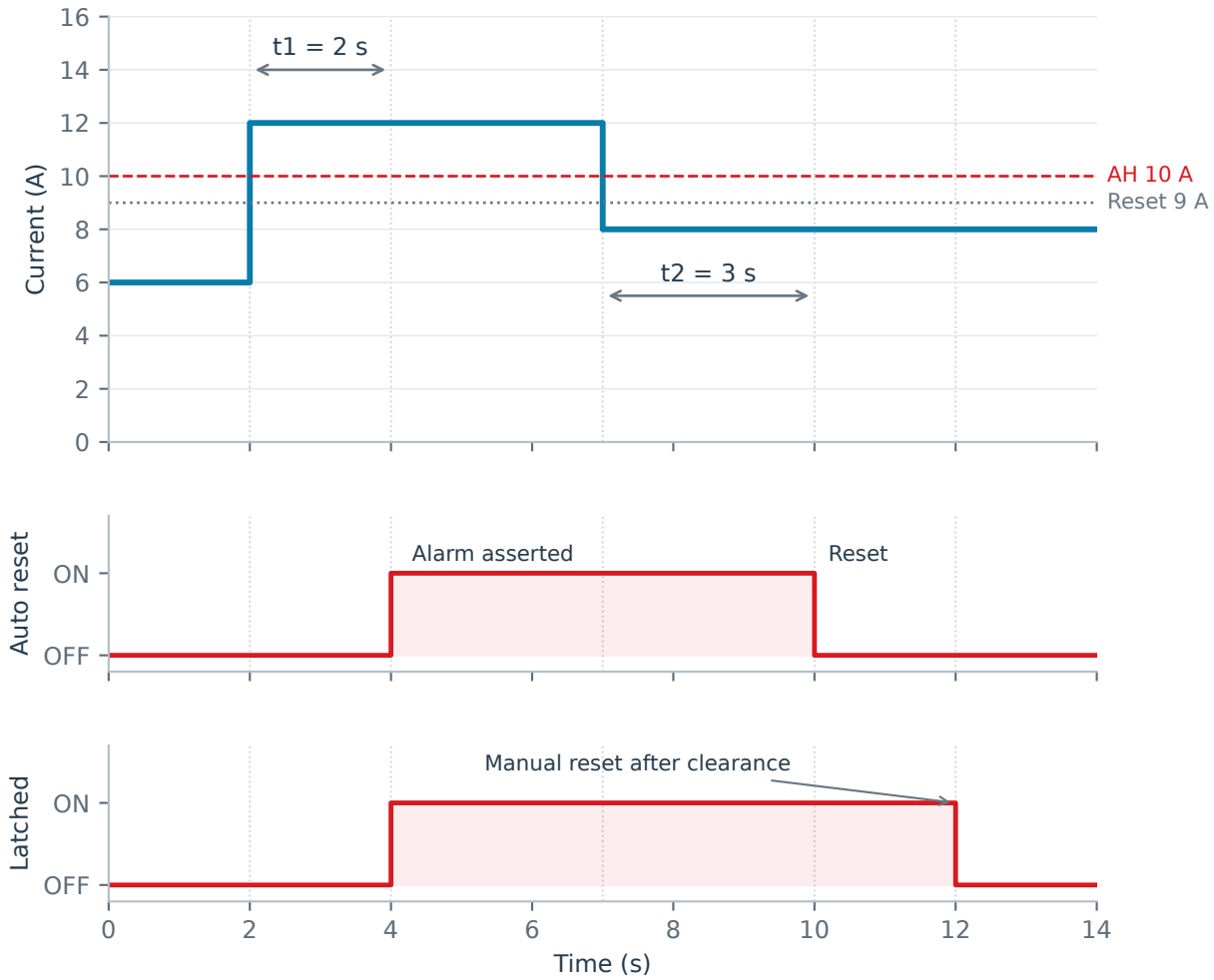
Low alarm: activate below AL; recover above AL + d. High and low alarms share one relay. Boundary comparison and reset behaviour must be verified on the delivered unit.

07 / DELAY AND RESET

Control when an alarm changes state.

Illustrative high-current event: AH = 10 A, d = 1 A, t1 = 2 s and t2 = 3 s. The two alarm traces compare automatic reset with latched operation.

t1 ALARM DELAY / t2 RESET DELAY / t9 LATCH MODE



AUTOMATIC RESET

Alarm starts after the overload persists for t1; resets after clearance persists for t2.

LATCHED OPERATION

Alarm remains active after clearance until a valid manual reset is performed.

The curves illustrate logic only. Sampling is 2 times/s; actual response includes sampling, relay and external-device delays. Verify total trip time, reset conditions and latch settings on the supplied unit.

08 / THE THORTHEK SET

One set. A clear integration scope.

Customized Solution - THORTHEK Brand

MODEL - SET

DC Current Monitor & Protection Module

Include DC AMP Sensor 50 A | Warranty 1 Year

INCLUDED IN THE SET

1 × THORTHEK D05 controller

1 × DC AMP sensor, 50 A

1-year product warranty

External contactor, fuse/breaker, power supply, enclosure and field wiring are specified separately for each application.

Sensor photo for illustration; supplied set: 50 A.

SPECIFY YOUR APPLICATION

Share the DC bus voltage, continuous and startup current, load type, cable size, required trip/reset behaviour and installation environment. These define the appropriate sensor and external protection arrangement.

THORTHEK

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