

## DATA SHEET

Article number : 09980426

installation contactors
HS 2-230AC/24-13

with coil voltage 230 V AC



#### **Function**

Installation contactors are electromagnetically operated switches. When a control current flows through the magnetic coil, the magnetic pull closes a main circuit. The switch-on position is maintained as long as the control current is flowing. If the control current is interrupted, a spring forces the contacts to return to their initial position. This construction makes it possible for contactors to ensure galvanic isolation between the control circuit and the switched circuit whilst simultaneously allowing high currents to be switched. Installation contactors are only partly intended for disconnection from the mains, they must be protected against overload and short circuits by upstream protective devices. The HS low-noise version for installation in distributor boards are characterised by low-noise switching operations, by versatility due to their utilization categories and by their long mechanical and electrical service life. The magnetic coil of this series is suitable for continuous operation (100% duty cycle). This low-noise version is suitable for use in industry and workshops. This low-noise design is suitable for use in workshop and industrial applications.

#### **Features**

wide range of different contacts, high electrical and mechanical endurance, suitable auxiliary switch and seal cap available

#### Mounting

quick fastening to mounting rail, installation position: see drawing

### **Applications**

Installation contactors can be used in a variety of ways. The low-noise version is suitable for industry and workshops, whilst the nonoise version is suitable for hotels, offices and residential areas. They take on the switching of incandescent lamps, fluorescent lamps, transformers for halogen low-voltage lamps, mercury vapour high-pressure lamps (HQL, HPL), metal halide lamps (HQI, HPI), sodium vapour, low and high-pressure lamps, storage heaters and drives (motors).

### Notes

The names of devices in this family contain both the rated current (first pair of digits) and the contact variant (last pair of digits): For example, a HS 25-31 has a rated current of 25 A, three NOCs and one NCC, At ambient temperatures of 40°C and higher, using the DHDS spacer is recommended, The HS 1 contact is 1 module width wide, and thus the HS 2 and HS 3 are 2 and 3 module widths wide.

### Accessories

spacers DHDS, auxiliary switches HSH, seal caps HSP

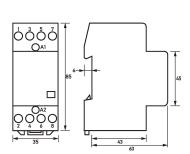
### Technical data

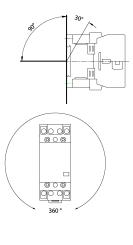
Series	HS 2
	control input
Rated voltage (AC)	230 V
Rated frequency	50 Hz/60 Hz
Rated power (switch on)	20 VA 25 VA
Rated power (retaining)	4 VA 6 VA
	load circuit
Specification	switching contact
min. Contact opening	3 mm
Contact assignment	3 NC/1 NO
Rated voltage (AC)	400 V
Rated current (AC)	24 A
Rated insulation voltage	440 V
Switching frequency	max. 300 / h
Allowed utilization category	AC-1, AC-2, AC-3
Power dissipation per pole AC-1	2 W
Overvoltage class	I, II, III
Rated short-circuit current "r"	3 kA

	1 A
Rated short-circuit current "Iq"	3 kA
Rated voltage AC-1 (fix)	230 V
max. Rated power AC-1 230 V	5.5 kW
max. Rated power AC-1 400 V	14 kW
Rated voltage AC-3 one-phase (fixed)	230 V
Rated voltage AC-3 3-phase (fix)	230 V, 400 V
max. Rated power AC-3 400 V	3 kW
max. Rated power glow lamps	3000 VA
max. Rated power fluorescent lamp	1360 VA
compensated	
max. Rated power fluorescent lamp not	1190 VA
compensated	
max. Rated power fluorescent lamps duo-	2552 VA
switching	33
max. Inrush current LED	195 A
Contact endurance AC-1	100000 switching cycles
Contact endurance AC-3	150000 switching cycles
Duration of light arcs	10 ms 15 ms
Switching delay, open	6 ms 12 ms
Switching delay, open Switching delay, close	7 ms 16 ms
quiet design	false
quiet design	screw-type terminal M3.5 top and bottom (load circuit)
Allancada and a state of the sta	
Allowed types of wires	aluminium conductor, copper conductor, solid conductor, flexible conductor
Connection C1 Maximum number of	1
conductors per terminal	
Cross section solid	1-wire: 1.5 mm <sup>2</sup> 10 mm <sup>2</sup>
Connecting capacity flexible	1-wire: 1.5 mm <sup>2</sup> 6 mm <sup>2</sup>
Cross section flexible with ferrule	1.5 mm² 6 mm²
Cross section stranded	1-wire: 1.5 mm <sup>2</sup> 10 mm <sup>2</sup>
Tightening torque	o.8 Nm 1.4 Nm
gco.mig corque	
	screw-type terminal M <sub>3</sub> top and bottom (control input)
Allowed types of wires	
Allowed types of wires Connection C2 Maximum number of	screw-type terminal M <sub>3</sub> top and bottom (control input)
Allowed types of wires Connection C2 Maximum number of conductors per terminal	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor
Allowed types of wires Connection C2 Maximum number of conductors per terminal Cross section solid	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1 -wire: 0.75 mm² 2.5 mm²
Allowed types of wires Connection C2 Maximum number of conductors per terminal	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor
Allowed types of wires Connection C2 Maximum number of conductors per terminal Cross section solid	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1 -wire: 0.75 mm² 2.5 mm²
Allowed types of wires Connection C2 Maximum number of conductors per terminal Cross section solid Connecting capacity flexible	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1 -wire: 0.75 mm² 2.5 mm² 1-wire: 0.5 mm² 2.5 mm²
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1 -wire: 0.75 mm² 2.5 mm² 1-wire: 0.5 mm² 2.5 mm² 0.5 mm² 1.5 mm²
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 1.5 mm²  1-wire: 0.75 mm² 2.5 mm²
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded  Tightening torque	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 1.5 mm²  1-wire: 0.75 mm² 2.5 mm²  General data
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded  Tightening torque  Duty cycle	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 1.5 mm²  1-wire: 0.75 mm² 2.5 mm²  6.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %)
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded  Tightening torque	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm² 1-wire: 0.5 mm² 2.5 mm² 0.5 mm² 1.5 mm² 1-wire: 0.75 mm² 2.5 mm² 0.6 Nm 1.2 Nm General data continuous operation (Duty cycle ≤ 100 %) optional
Allowed types of wires Connection C2 Maximum number of conductors per terminal Cross section solid Connecting capacity flexible Cross section flexible with ferrule Cross section stranded Tightening torque  Duty cycle Operating position	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm² 1-wire: 0.5 mm² 2.5 mm² 0.5 mm² 1.5 mm² 1-wire: 0.75 mm² 2.5 mm² 0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %) optional min. 10 · 106 switching cycles
Allowed types of wires Connection C2 Maximum number of conductors per terminal Cross section solid Connecting capacity flexible Cross section flexible with ferrule Cross section stranded Tightening torque  Duty cycle Operating position Mechanical endurance Electrical endurance	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm² 1-wire: 0.5 mm² 2.5 mm² 0.5 mm² 1.5 mm² 1-wire: 0.75 mm² 2.5 mm² 0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %) optional min. 10 · 106 switching cycles min. 1000000 switching cycles
Allowed types of wires Connection C2 Maximum number of conductors per terminal Cross section solid Connecting capacity flexible Cross section flexible with ferrule Cross section stranded Tightening torque  Duty cycle Operating position Mechanical endurance Electrical endurance Storage temperature	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm² 1-wire: 0.5 mm² 2.5 mm² 0.5 mm² 1.5 mm² 1-wire: 0.75 mm² 2.5 mm² 0.6 Nm 1.2 Nm General data continuous operation (Duty cycle ≤ 100 %) optional min. 10 · 106 switching cycles min. 1000000 switching cycles -40 °C 70 °C
Allowed types of wires Connection C2 Maximum number of conductors per terminal Cross section solid Connecting capacity flexible Cross section flexible with ferrule Cross section stranded Tightening torque  Duty cycle Operating position Mechanical endurance Electrical endurance Storage temperature Ambient temperature	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm² 1-wire: 0.5 mm² 2.5 mm² 0.5 mm² 1.5 mm² 1-wire: 0.75 mm² 2.5 mm² 0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %) optional min. 10 · 106 switching cycles min. 1000000 switching cycles -40 °C 70 °C -40 °C 40 °C
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Allowed types of wires Connection C2 Maximum number of conductors per terminal Cross section solid Connecting capacity flexible Cross section flexible with ferrule Cross section stranded Tightening torque  Duty cycle Operating position Mechanical endurance Electrical endurance Storage temperature Ambient temperature Housing type	screw-type terminal M3 top and bottom (control input)  aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 1.5 mm²  1-wire: 0.75 mm² 2.5 mm²  0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %)  optional  min. 10 · 106 switching cycles  min. 1000000 switching cycles  -40 °C 70 °C  -40 °C 40 °C  Max. 60°C with spacer  distribution board housing
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded  Tightening torque  Duty cycle  Operating position  Mechanical endurance  Electrical endurance  Storage temperature  Ambient temperature  Housing type  Installation type	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 1.5 mm²  1-wire: 0.75 mm² 2.5 mm²  0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %)  optional  min. 10 · 10 <sup>6</sup> switching cycles  min. 1000000 switching cycles  -40 °C 70 °C  -40 °C 40 °C  Max. 60°C with spacer  distribution board housing  Mounting rail (35 mm)
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded  Tightening torque  Duty cycle  Operating position  Mechanical endurance  Electrical endurance  Storage temperature  Ambient temperature  Housing type  Installation type  Housing material	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 1.5 mm²  1-wire: 0.75 mm² 2.5 mm²  0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %)  optional  min. 10 · 106 switching cycles  min. 1000000 switching cycles  -40 °C 70 °C  -40 °C 40 °C  Max. 60°C with spacer  distribution board housing  Mounting rail (35 mm)  thermoplastic
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded  Tightening torque  Duty cycle  Operating position  Mechanical endurance  Electrical endurance  Storage temperature  Ambient temperature  Housing type  Installation type  Housing material  Protection class	screw-type terminal M3 top and bottom (control input)  aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 1.5 mm²  1-wire: 0.75 mm² 2.5 mm²  0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %)  optional  min. 10 · 106 switching cycles  min. 1000000 switching cycles  min. 1000000 switching cycles  -40 °C 70 °C  -40 °C 40 °C  Max. 60°C with spacer  distribution board housing  Mounting rail (35 mm)  thermoplastic  IP20
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded  Tightening torque  Duty cycle  Operating position  Mechanical endurance  Electrical endurance  Storage temperature  Ambient temperature  Housing type  Installation type  Housing material  Protection class  Width	screw-type terminal M3 top and bottom (control input) aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 1.5 mm²  1-wire: 0.75 mm² 2.5 mm²  0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %)  optional  min. 10 · 106 switching cycles  min. 1000000 switching cycles  -40 °C 70 °C  -40 °C 40 °C  Max. 60°C with spacer  distribution board housing  Mounting rail (35 mm)  thermoplastic  IP20  35 mm
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded  Tightening torque  Duty cycle  Operating position  Mechanical endurance  Electrical endurance  Storage temperature  Ambient temperature  Ambient temperature  Housing type  Installation type  Housing material  Protection class  Width  Height	screw-type terminal M3 top and bottom (control input)  aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 1.5 mm²  1-wire: 0.75 mm² 2.5 mm²  0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %)  optional  min. 10 · 106 switching cycles  min. 1000000 switching cycles  -40 °C 70 °C  -40 °C 40 °C  Max. 60°C with spacer  distribution board housing  Mounting rail (35 mm)  thermoplastic  IP20  35 mm  85 mm
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded  Tightening torque  Duty cycle  Operating position  Mechanical endurance  Electrical endurance  Storage temperature  Ambient temperature  Housing type  Installation type  Housing material  Protection class  Width  Height  Depth	screw-type terminal M3 top and bottom (control input)  aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 1.5 mm²  1-wire: 0.75 mm² 2.5 mm²  0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %)  optional  min. 10 · 106 switching cycles  min. 1000000 switching cycles  -40 °C 70 °C  -40 °C 40 °C  Max. 60°C with spacer  distribution board housing  Mounting rail (35 mm)  thermoplastic  IP20  35 mm  85 mm  85 mm
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded  Tightening torque  Duty cycle  Operating position  Mechanical endurance  Electrical endurance  Storage temperature  Ambient temperature  Ambient temperature  Housing type  Installation type  Housing material  Protection class  Width  Height  Depth  Installation depth	screw-type terminal M3 top and bottom (control input)  aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 2.5 mm²  1-wire: 0.75 mm² 2.5 mm²  0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %)  optional  min. 10 · 106 switching cycles  min. 1000000 switching cycles  -40 °C 70 °C  -40 °C 40 °C  Max. 60°C with spacer  distribution board housing  Mounting rail (35 mm)  thermoplastic  IP20  35 mm  85 mm  65 mm  60 mm
Allowed types of wires  Connection C2 Maximum number of conductors per terminal  Cross section solid  Connecting capacity flexible  Cross section flexible with ferrule  Cross section stranded  Tightening torque  Duty cycle  Operating position  Mechanical endurance  Electrical endurance  Storage temperature  Ambient temperature  Ambient temperature  Housing type  Installation type  Housing material  Protection class  Width  Height  Depth  Installation depth  Module widths	screw-type terminal M3 top and bottom (control input)  aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 1.5 mm²  1-wire: 0.75 mm² 2.5 mm²  0.5 mm² 2.5 mm²  1-wire: 0.75 mm² 2.5 mm²  0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %)  optional  min. 10 · 106 switching cycles  min. 1000000 switching cycles  -40 °C 70 °C  -40 °C 40 °C  Max. 60°C with spacer  distribution board housing  Mounting rail (35 mm)  thermoplastic  IP20  35 mm  85 mm  65 mm  60 mm
Allowed types of wires Connection C2 Maximum number of conductors per terminal Cross section solid Connecting capacity flexible Cross section flexible with ferrule Cross section stranded Tightening torque  Duty cycle Operating position Mechanical endurance Electrical endurance Storage temperature Ambient temperature Ambient temperature Housing type Installation type Housing material Protection class Width Height Depth Installation depth	screw-type terminal M3 top and bottom (control input)  aluminium conductor, copper conductor, solid conductor, flexible conductor  1  1-wire: 0.75 mm² 2.5 mm²  1-wire: 0.5 mm² 2.5 mm²  0.5 mm² 2.5 mm²  1-wire: 0.75 mm² 2.5 mm²  0.6 Nm 1.2 Nm  General data  continuous operation (Duty cycle ≤ 100 %)  optional  min. 10 · 106 switching cycles  min. 1000000 switching cycles  -40 °C 70 °C  -40 °C 40 °C  Max. 60°C with spacer  distribution board housing  Mounting rail (35 mm)  thermoplastic  IP20  35 mm  85 mm  65 mm  60 mm

Degree of pollution

## **Dimensions**





Dimensioned drawing installation contactors HS 2-230AC/24-13

# Wiring example



Wiring example installation contactors HS 2-230AC/24-13