

PRODUCT-DETAILS

HF2.4-DOLE-24VDC HF2.4-DOLE-24VDC Electronic Compact Starter 24 VDC



General Information	
Extended Product Type	HF2.4-DOLE-24VDC
Product ID	1SAT123000R1011
EAN	4013614515613
Catalog Description	HF2.4-DOLE-24VDC Electronic Compact Starter 24 VDC
Long Description	The HF-DOLE-range is our safety range with emergency stop function. It's used for the direct-on-line start of motors and the switching of non-resistive loads. With contactor and overload relay functionalities integrated into one device, the results are faster wiring times and fewer faults. The range covers 0.6 A, 2.4 A and up to 9 A - for motors up to 3 kW – 500 V AC. The integrated electronic overload protection has a wide setting range that enables just three models to cover all requirements. Setting range of HF2.4-DOLE-24VDC is 0.18 A to 2.4 A. The control supply voltage is 24 V DC. For the control and main connection points ABB offers screw connections. Safety Integrity Level 3 in accordance with functional safety standard IEC 61508-1 and Performance Level 'e' in accordance with ISO 13849-1 are certified. Also ATEX has been certified.

Ordering	
Minimum Order Quantity	1 piece
Customs Tariff Number	85371098

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Product Main Type	HF
Product Name	Electronic Starter

Popular Downloads	
Data Sheet, Technical Information	2CDC130009M0401
Instructions and Manuals	2CDC130009M0401
Dimension Diagram	1SAT100401F0001

Dimensions	
Product Net Width	22.5 mm
Product Net Height	99 mm
Product Net Depth / Length	114.5 mm
Product Net Weight	0.204 kg

IEC/EN 60947-4. Function Direct-on-line-starter with overload protection and emergency stop function Rated Operational Main Circuit 500 VA Voltage Main Circuit 500 VA Operational Voltage Maximum 550 VA Main Circuit 50 V Main Circuit 50 V Main Circuit 50 VA Main Circuit 50 V Main Circuit 50 VA Main Circuit 50 V Main Circuit 50 VA Main Circuit 50 V Maximum 55 VA Main Circuit 50 V Maxed Control Supply 24 V D Voltage (U _{IN}) Switching Threshold at Signal <>-396 Switching Threshold at Signal <>-396 Switching Threshold at Signal <>-396 (U) Switching Threshold at Signa	Technical	
Ltilization Motor Protection Motor Protection Rated Operational Voltage Main Circuit 500 V Af Voltage Operational Voltage Main Circuit 50 H Main Circuit 6 J Switching Threshold at Signal <> -3 9.0 Y Switching Threshold at Signal <> -3 9.6 Y Switching Frequency << 2.4 Y Switching Frequency << 3 Switching Frequency << 3 Switching Frequency << 3 Switching Frequency 3.</th <th>Standards</th> <th>IEC/EN 60947-1 IEC/EN 60947-4-2 IEC/EN 61508 ISO 13849 UL 60947-1 UL 60947-4-2</th>	Standards	IEC/EN 60947-1 IEC/EN 60947-4-2 IEC/EN 61508 ISO 13849 UL 60947-1 UL 60947-4-2
Rated Operational Voltage Operational Voltage Main Circuit 500 V Al Minimum 450 V Al Minimum 42 V Al Rated Frequency (f) Rated Insultion Supply Voltage (Us) Rated Input Voltage (UIN) Switching Threshold at Signal <0> - 3 9.6 Switching Frequency Switching Frequenc	Function	Direct-on-line-starter with overload protection and emergency stop functior
Voltage Maximum 550 V A Operational Voltage Maximum 550 V A Rated Prequency (f) Main Circuit 50 H Rated Control Supply 24 V D Voltage (U ₅) Switching Threshold at Signal <0> - 3 9.61 Rated Input Voltage (U _{IN}) Switching Threshold at Signal <0> - 3 9.61 Switching Threshold at Signal <0> - 3 9.61 Switching Threshold at Signal <0> - 3 9.61 Switching Threshold at Signal <0> - 3 9.61 Switching Threshold at Signal <0> - 3 9.61 Rated Input Voltage (U _{IN}) Switching Threshold at Signal <1> 19.2 301 Rated Inpulse Main Circuit 6 k Withstand Voltage (U _{Imp}) Main Circuit 6 k Rated Insulation Voltage (U _{Imp}) Switching Threshold at Signal <1> 19.2 301 Rated Control Supply Control Supply (U ₁) Current (I ₁) Rated Control Supply Control Supply Current (I ₁) Current (I ₁) Input Current 0.003 / Switching Frequency \$2 H	Utilization	Motor Protection
Minimum 42 V Ad Rated Frequency (f) Main Circuit 50 H Rated Control Supply 24 V Dd Voltage (Us) Switching Threshold at Signal <0> -3 9.6 i Rated Input Voltage (UIN) Switching Threshold at Signal <1> 19.2 30 i Rated Inpulse Main Circuit 6 kd Withstand Voltage (Uimp) Main Circuit 6 kd) Switching Threshold at Signal <1> 19.2 30 i Rated Insulation Voltage Main Circuit 6 kd (Ui) Curcuit (Inp)) Switching Threshold at Signal <1> 19.2 30 i Rated Insulation Voltage (Uimp) Main Circuit 6 kd (Ui) Curcuit (Inp) Rated Insulation Voltage (Uimp) Curcuit (Inp) (Ui) Current (Is) Rated Control Supply 0.04 / Current (Iu) Current (Iu) Input Current 0.003 / Switching Frequency \$2 H 120 starts/min 7200 starts/min 7200 starts/min 7200 starts/min 7200 starts/min 7200 starts/min 7200 starts/min 7200 starts/min 7200 starts/Mac-Stare 0.75 kd	Rated Operational Voltage	Main Circuit 500 V AC
Main Circuit 60 H Rated Control Supply Voltage (Us) Rated Input Voltage (UIN) Switching Threshold at Signal <0> - 3 9.6 i Switching Threshold at Signal <1> 19.2 30 i Rated Impulse Main Circuit 6 k? Withstand Voltage (Uimp) Main Circuit 6 k? Rated Insulation Voltage 500 i (Ui) 24.4 Rated Insulation Voltage 500 i (Ui) 24.4 Rated Control Supply 0.04 / Current (Is) 24.4 Input Current 0.003 / Switching Frequency 6 2 H Switching Frequency 6 2 H Switching Frequency 6 2 H 120 starts/min 7200 starts/ Rated Operational Power 0.75 kV	Operational Voltage	Maximum 550 V AC Minimum 42 V AC
Voltage (Us) Switching Threshold at Signal <0> -3 9.6 N Rated Input Voltage (UIN Switching Threshold at Signal <1> 19.2 30 N Rated Impulse Main Circuit 6 kN Withstand Voltage (Uimp Main Circuit 6 kN Rated Insulation Voltage 500 N (Ui) Switching Threshold at Signal <1> 19.2 30 N Rated Insulation Voltage (Uimp Main Circuit 6 kN (Ui) Switching Threshold at Signal <1> 19.2 30 N Rated Insulation Voltage (Uimp Solon N (Ui) Switching Threshold at Signal <1> 19.2 30 N Rated Insulation Voltage (Uimp Solon N (Ui) Switching Threshold at Signal <1> 19.2 30 N Rated Control Supply 2.4 N Current (Is) O.04 N Current (Is) Switching Threshold at Signal <2.4 N	Rated Frequency (f)	Main Circuit 50 Hz Main Circuit 60 Hz
Switching Threshold at Signal <1> 19.2 30 V Rated Impulse Main Circuit 6 k Withstand Voltage (Uimp) 500 V Rated Insulation Voltage 500 V (Ui) 2.4 / Rated Control Supply 0.04 / Current (Is) 2.4 / Rated Uninterrupted 2.4 / Current (Is) 0.003 / Switching Frequency ≤ 2 H 120 starts/min 7200	Rated Control Supply Voltage (U _s)	24 V DC
Withstand Voltage (Uimp) Rated Insulation Voltage (U ₁) Curvent Supply Current (I _s) Rated Uninterrupted Current (I _u) Input Current Switching Frequency Rated Operational Power AC-53a (P _e)	Rated Input Voltage (U _{IN})	Switching Threshold at Signal <0> -3 9.6 V Switching Threshold at Signal <1> 19.2 30 V
(U ₁) 2.4 J 2.4 J 2.5 J	Rated Impulse Withstand Voltage (U _{imp})	Main Circuit 6 kV
2.4 J Rated Control Supply Current (l _s) Rated Uninterrupted Current (l _u) Input Current Switching Frequency ≤ 2 H 120 starts/min 7200 starts/min 720 starts/min 720 starts/min <td>Rated Insulation Voltage (U_i)</td> <td>500 V</td>	Rated Insulation Voltage (U _i)	500 V
Rated Control Supply 0.04 / Current (I _s) 2.4 / Rated Uninterrupted 2.4 / Current (Iu) 0.003 / Input Current 0.003 / Switching Frequency ≤ 2 H 120 starts/min 7200 starts// Rated Operational Power 0.75 kV AC-53a (Pe) 0.75 kV		2.4 A
Current (I _s) Rated Uninterrupted Current (I _u) Input Current Switching Frequency Switching Frequency Switching Prequency Current Cu		2.4 A
Current (I _u) 0.003 / Input Current $0.003 /$ Switching Frequency ≤ 2 H 120 starts/min 120 starts/min 7200 starts/l 7200 starts/l Rated Operational Power 0.75 kV AC-53a (P _e) 0.75 kV	Rated Control Supply Current (I _s)	0.04 A
Switching Frequency Switching Frequency 120 starts/min 7200 starts/l 7200 starts/l 7200 starts/l 7200 starts/l 7200 starts/l 7200 starts/l 7200 starts/l	Rated Uninterrupted Current (I _u)	2.4 A
120 starts/mi 7200 starts/l Rated Operational Power 0.75 kV AC-53a (P _e)	Input Current	A 800.0
AC-53a (P _e)	Switching Frequency	≤ 2 Hz 120 starts/min 7200 starts/h
Dvervoltage Category	Rated Operational Power AC-53a (P _e)	0.75 kw
	Overvoltage Category	III

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Overload Protection	Electronic overload protection
Setting Range	0.18 2.4 A
Trip Class	class 10A
Number of Poles	3P
Power Loss	Maximum 3.3 W Minimum 1.1 W
Number of Protected Poles	3
Mechanical Durability	10000 cycle
Electrical Durability	3000000 cycle
Delay Time (T)	Off, Maximum, Switched Off via Control Input Voltage 40 ms Off, Maximum, Switched Off via Supply Voltage 500 ms Off, Typical, Switched Off via Control Input Voltage 30 ms Off, Typical, Switched Off via Supply Voltage 25 ms Off, Maximum, Switched Off with Pushbutton 3 second [unit of time] Off, Minimum, Switched Off with Pushbutton 0.5 second [unit of time]
Mounting on DIN Rail	TH35-15 (35 x 15 mm Mounting Rail) acc. to IEC 60715 TH35-7.5 (35 x 7.5 mm Mounting Rail) acc. to IEC 60715
Mounting Position	1
Connecting Capacity Control Circuit	Flexible with Ferrule 1/2x 1 2.5 mm ² Flexible 1/2x 1 2.5 mm ² Rigid 1x 0.5 4 mm ²
Connecting Capacity Main Circuit	Flexible with Ferrule 1x 2 2.5 mm ² Flexible 1x 2 2.5 mm ² Rigid 1x 2 2.5 mm ²
Recommended Screw Driver	Control Circuit M3 Main Circuit M3
Terminal Type	Screw Terminals
Tightening Torque	Control Circuit 0.5 0.6 N·m Main Circuit 0.5 0.6 N·m
Wire Stripping Length	Control Circuit 8 mm Main Circuit 8 mm
Response Time	Phase Asymmetry 33% 120 second [unit of time] Phase Asymmetry 67% 1.8 second [unit of time] Phase Failure 1.8 second [unit of time]
Pollution Degree	2
Phase Loss Sensitive	Yes
Degree of Protection	Housing IP20 Main Circuit Terminals IP20
Short-Circuit Current Rating (SCCR)	(500 V AC, 30 A Class J or CC) 100 kA

Technical UL/CSA	
Maximum Operating Voltage UL/CSA	Main Circuit 500 V AC
Horsepower Rating UL/CSA	Nominal Switching Performance Full Load (power factor = 0.4) 1.2 Hp Nominal Switching Performance Full Load (power factor = 0.8) 2.2 Hp
Full Load Amps Motor Use	2.4 A
Connecting Capacity Main Circuit UL/CSA	Flexible with Ferrule 1x 24 14 AWG Flexible 1x 24 14 AWG Solid 1x 24 14 AWG
Connecting Capacity Control Circuit UL/CSA	Flexible with Ferrule 1x 24 14 AWG Flexible 16-8 AWG Solid 1x 24 14 AWG
Tightening Torque UL/CSA	Control Circuit 5 7 in·lb Main Circuit 5 7 in·lb

Safety Information	
Safety Integrity Level (SIL)	3
Safety Category	3
Performance Level (PL)	Up to e
Mean Time to Dangerous Failure (MTTF _d)	Motor Protection 447 year Safe Shutdown 518 year
Mean Time to Failure (MTTF)	43 year
Diagnostic Coverage	98.91 %
Diagnostic Coverage Safe (DCS)	38.91 %
Environmental	
Ambient Air	Operation -25 +70 °C
Temperature	Operation Compensated -40 + 80 °C
Ambient Air Temperature Maximum Operating Altitude Permissible	Operation -25 +70 °C Operation Compensated -40 + 80 °C Without Derating 2000 m
Temperature Maximum Operating Altitude Permissible	Operation Compensated -40 + 80 °C
Temperature Maximum Operating	Operation Compensated -40 + 80 °C
Temperature Maximum Operating Altitude Permissible Material Compliance Conflict Minerals Reporting Template (CMRT)	Operation Compensated -40 + 80 °C Without Derating 2000 m
Temperature Maximum Operating Altitude Permissible Material Compliance Conflict Minerals Reporting Template (CMRT) REACH Declaration	Operation Compensated -40 + 80 °C Without Derating 2000 m 9AKK108467A5658 1SAA983001-4501
Temperature Maximum Operating Altitude Permissible Material Compliance Conflict Minerals Reporting Template	Operation Compensated -40 + 80 °C Without Derating 2000 m 9AKK108467A5658 1SAA983001-4501 1SVD981001-4401
Temperature Maximum Operating Altitude Permissible Material Compliance Conflict Minerals Reporting Template (CMRT) REACH Declaration RoHS Information RoHS Status Toxic Substances	Operation Compensated -40 + 80 °C Without Derating 2000 m 9AKK108467A5658 1SAA983001-4501 1SVD981001-4401 Following EU Directive 2011/65/EU
Temperature Maximum Operating Altitude Permissible Material Compliance Conflict Minerals Reporting Template (CMRT) REACH Declaration RoHS Information	Operation Compensated -40 + 80 °C Without Derating 2000 m 9AKK108467A5658

Certificates and Declarations	
ATEX Certificate	1SAA918002-3901
cUL Certificate	cUL E191658
Declaration of Conformity - CCC	2020970304003456
Declaration of Conformity - CE	1SAD938504-0194
Declaration of Conformity - UKCA	1SAD938501-1194

Container Information	
Package Level 1 Units	box 1 piece
Package Level 1 Width	150 mm
Package Level 1 Depth / Length	115 mm
Package Level 1 Height	34 mm
Package Level 1 Gross Weight	0.304 kg
Package Level 1 EAN	4013614515613

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Classifications	
Object Classification	В
Code	
ETIM 6	EC001037 - Motor starter/Motor starter combination
ETIM 7	EC001037 - Motor starter/Motor starter combination
ETIM 8	EC001037 - Motor starter/Motor starter combination
eClass	V11.0 : 27370905
UNSPSC	39121521
IDEA Granular Category	4727 >> Motor starter controls
Code (IGCC)	
E-Number (Finland)	3707544
E-Number (Norway)	4102020
E-Number (Sweden)	3210492

Categories

 $\mathsf{Low}\ \mathsf{Voltage}\ \mathsf{Products}\ \mathsf{and}\ \mathsf{Systems}\ \to\ \mathsf{Control}\ \mathsf{Products}\ \to\ \mathsf{Motor}\ \mathsf{Controllers}\ \to\ \mathsf{Electronic}\ \mathsf{Starters}\ \mathsf{Sta$









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