





Catalog #: 150-F43NBD Preferred Availability

Smart Motor Controller, 43 A 7.5-30.0 Hp at 460V AC, 480V AC 50/60 Hz Three-Phase, Open, 100...240V AC, None

Lifecycle status: ACTIVE

Technical Specifications

Electrical

With display	Yes
Voltage type for actuating	AC
Rated operating voltage Ue	200 V
Rated control supply voltage at AC 50 Hz	100 V
Rated control supply voltage at AC 60 Hz	100 V
Overload current for line connected devices	8.6 A
Overload current for delta connected devices	14.8 A
Controller type	Soft starter
Control options	None
Trip classes	10, 15, 20 and 30
Trip classes Trip current rating	10, 15, 20 and 30 117% of motor FLC
Trip current rating	117% of motor FLC
Trip current rating Transformer control module	117% of motor FLC 75VA @ 100240V AC (-15%, +10%)
Trip current rating Transformer control module Heatsink fan rating	117% of motor FLC 75VA @ 100240V AC (-15%, +10%) 20VA @ 110/120V AC or 220/240V AC
Trip current rating Transformer control module Heatsink fan rating DV/DT protection	117% of motor FLC 75VA @ 100240V AC (-15%, +10%) 20VA @ 110/120V AC or 220/240V AC RC snubber network for power circuit
Trip current rating Transformer control module Heatsink fan rating DV/DT protection Repetitive peak inverse voltage rating	117% of motor FLC75VA @ 100240V AC (-15%, +10%)20VA @ 110/120V AC or 220/240V ACRC snubber network for power circuit1400V per UL/CSA/NEMA for power circuit

Rated impulse voltage	6000V per IEC for power circuit
Dielectric withstand	2500V per IEC for power circuit
Line connected motor current	8.643 A @ 500/575V AC, 3-phase
Delta connected motor current	14.974 A @ 500/575V AC, 3-phase
Transient protection	Metal oxide varistors: 220 Joules (optional) for power circuit
Insulation voltage	Rated 500V per IEC for power circuit
Rated operational voltage	200480V AC (-15%, +10%) per UL/CSA/NEMA for power circuit
Input OFF-state current	<10 mA AC, <3 mA DC for control circuit @ input OFF-state voltage
Short-circuit protection device list	Standard fuse, circuit breaker and high capacity time delay class CC/J/L
Number of contacts	1 for auxiliary contacts
High capacity available fault current, max	70 kA @ 600V, maximum current 90 A time delay Class J or Class L fuse for line connected motors
Type of current	AC for auxiliary contacts
Conventional thermal current (Ith)	AC/DC: 5 A for auxiliary contacts
Type of control circuit	Electromagnetic relay for auxiliary contacts
Type of contacts	Programmable NO/NC for auxiliary contacts
Utilization category	MG 1 per UL/CSA/NEMA for power circuit
Standard controller feature	Status indication: stopped, starting, stopping, at speed, alarm and fault
Standard available fault current, max	10 kA @ 200600V, maximum standard fuse 300 A for delta device operational current rating
Optional controller feature	SMB smart motor braking control: provides motor braking without additional equipment for applications that require the motor to stop quickly, braking current is adjustable from 0400% of the motor's full-load current rating
Integrated motor overload protection	Yes
Short circuit protection device performance (SCPD) type	Туре 1
Number of sensors, max	6 for PTC input ratings
Inrush current control module	5 A @ 24V DC (-15%, +10%)
Voltage at PTC terminals (RPTC = open), max	30V for PTC input ratings
Transient watts control module	60 W @ 24V DC (-15%, +10%)
Steady state watts control module	24 W @ 24V DC (-15%, +10%)
Voltage at PTC terminals (RPTC = 4 k Ω), max	<7.5 for PTC input ratings

Help & Feedback

Input ON-state voltage, min85V AC, 19.2V DC/20.4V AC for control circuitLower line side cable size0.82.5 mm2 (1814 AWG) for power terminalsLower load side cable size0.82.5 mm2 (1814 AWG) for power terminalsUpper load side cable size2.550 mm2 (141 AWG) for load power terminals	Response time	800 ms for PTC input ratings
Cold resistance of PTC sensor chain, max1500 0hm for PTC input ratingsTachometer input05V DC, 4.5V DC = 100% SpeedAllen bradley power supply control module, min1606-XLP50E @ 24V DC (-15%, +10%)Short circuit trip resistance25 0hm ± 10 0hm for PTC input ratingsResponse resistance3400 0hm ± 150 0hm for PTC input ratingsReset resistance1600 0hm ± 100 0hm for PTC input ratingsInput OFF-state voltage, max50V AC, 10V DC/12V AC for control circuitInput ON-state voltage, min85V AC, 19.2V DC/20.4V AC for control circuitLower line side cable size0.82.5 mm2 (1814 AWG) for power terminalsUpper load side cable size2.550 mm2 (1414 AWG) for load power terminalsUpper line side cable size2.595 mm2 (143/0 AWG) for line power terminalsUpper line side cable size3 A @ 120V AC, 1.5 A @ 240V AC, 7.6 mA @ 24V AC/DC for control circuitauxillary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux	Inrush time control module	250 ms @ 24V DC (-15%, +10%)
Tachometer input05V DC, 4.5V DC = 100% SpeedAllen bradley power supply control module, min1606-XLP50E @ 24V DC (-15%, +10%)Short circuit trip resistance25 0hm ± 10 0hm for PTC input ratingsResponse resistance3400 0hm ± 150 0hm for PTC input ratingsReset resistance1600 0hm ± 100 0hm for PTC input ratingsInput OFF-state voltage, max50V AC, 10V DC/12V AC for control circuitLower line side cable size0.82.5 mm2 (1814 AWG) for power terminalsLower load side cable size0.82.5 mm2 (1814 AWG) for load power terminalsUpper load side cable size2.550 mm2 (141 AWG) for load power terminalsUpper load side cable size2.550 mm2 (1413 / 0 AWG) for line power terminalsUpper load side cable size2.595 mm2 (1413 / 0 AWG) for line power terminalsUpper line side cable size2.0 mA @ 120V AC, 1.5 A @ 240V AC, 7.6 mA @ 24V AC/DC for control circuitContact typeauxiliary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux	Transient time control module	500 ms @ 24V DC (-15%, +10%)
Allen bradley power supply control module, min1606-XLP50E @ 24V DC (-15%, +10%)Short circuit trip resistance25 0hm ± 10 0hm for PTC input ratingsResponse resistance3400 0hm ± 150 0hm for PTC input ratingsReset resistance1600 0hm ± 100 0hm for PTC input ratingsInput OFF-state voltage, max50V AC, 10V DC/12V AC for control circuitInput ON-state voltage, min85V AC, 19.2V DC/20.4V AC for control circuitLower line side cable size0.82.5 mm2 (1814 AWG) for power terminalsUpper load side cable size0.82.5 mm2 (1814 AWG) for power terminalsUpper load side cable size2.595 mm2 (141 AWG) for load power terminalsInput ON-state cable size2.595 mm2 (141 AWG) for load power terminalsUpper load side cable size2.595 mm2 (143/0 AWG) for line power terminalsInput ON-state current3 A @ 120V AC, 1.5 A @ 240V AC for auxiliary contactsInput ON-state current20 mA @ 120V AC/40mA @ 240V AC, 7.6 mA @ 24V AC/DC for control circuit	Cold resistance of PTC sensor chain, max	1500 Ohm for PTC input ratings
Short circuit trip resistance 25 0hm ± 10 0hm for PTC input ratings Response resistance 3400 0hm ± 150 0hm for PTC input ratings Reset resistance 1600 0hm ± 100 0hm for PTC input ratings Input OFF-state voltage, max 50V AC, 10V DC/12V AC for control circuit Input ON-state voltage, min 85V AC, 19.2V DC/20.4V AC for control circuit Lower line side cable size 0.82.5 mm2 (1814 AWG) for power terminals Lower load side cable size 0.82.5 mm2 (1814 AWG) for power terminals Upper load side cable size 2.550 mm2 (141 AWG) for load power terminals Upper line side cable size 2.595 mm2 (1413/0 AWG) for line power terminals Upper line side cable size 2.695 mm2 (143/0 AWG) for line power terminals Upper line side cable size 2.595 mm2 (1413/0 AWG) for line power terminals Upper line side cable size 2.695 mm2 (1413/0 AWG) for line power terminals Upper line side cable size 2.595 mm2 (1413/0 AWG) for line power terminals Rated operational current 3 A @ 120V AC, 1.5 A @ 240V AC for auxiliary contacts Input ON-state current 20 mA @ 120V AC/40mA @ 240V AC, 7.6 mA @ 24V AC/DC for control circuit auxiliary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux 20/31/32 (Aux	Tachometer input	05V DC, 4.5V DC = 100% Speed
Response resistance3400 0hm ± 150 0hm for PTC input ratingsReset resistance1600 0hm ± 100 0hm for PTC input ratingsInput OFF-state voltage, max50V AC, 10V DC/12V AC for control circuitInput ON-state voltage, min85V AC, 19.2V DC/20.4V AC for control circuitLower line side cable size0.82.5 mm2 (1814 AWG) for power terminalsLower load side cable size0.82.5 mm2 (1814 AWG) for power terminalsUpper load side cable size2.550 mm2 (141 AWG) for load power terminalsUpper line side cable size2.595 mm2 (143/0 AWG) for line power terminalsInput ON-state current3 A @ 120V AC, 1.5 A @ 240V AC for auxiliary contactsInput ON-state current20 mA @ 120V AC/40mA @ 240V AC, 7.6 mA @ 24V AC/DC for control circuit	Allen bradley power supply control module, min	1606-XLP50E @ 24V DC (-15%, +10%)
Reset resistance1600 0hm ± 100 0hm for PTC input ratingsInput OFF-state voltage, max50V AC, 10V DC/12V AC for control circuitInput ON-state voltage, min85V AC, 19.2V DC/20.4V AC for control circuitLower line side cable size0.82.5 mm2 (1814 AWG) for power terminalsLower load side cable size0.82.5 mm2 (1814 AWG) for power terminalsUpper load side cable size0.82.5 mm2 (1414 AWG) for power terminalsUpper load side cable size2.550 mm2 (141 AWG) for load power terminalsUpper line side cable size2.595 mm2 (143/0 AWG) for line power terminalsInput ON-state current3 A @ 120V AC, 1.5 A @ 240V AC, 7.6 mA @ 24V AC/DC for control circuitauxiliary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux	Short circuit trip resistance	25 Ohm ± 10 Ohm for PTC input ratings
Input OFF-state voltage, max50V AC, 10V DC/12V AC for control circuitInput ON-state voltage, min85V AC, 19.2V DC/20.4V AC for control circuitLower line side cable size0.82.5 mm2 (1814 AWG) for power terminalsLower load side cable size0.82.5 mm2 (1814 AWG) for power terminalsUpper load side cable size0.82.5 mm2 (1414 AWG) for power terminalsUpper load side cable size2.550 mm2 (141 AWG) for load power terminalsUpper line side cable size2.595 mm2 (143/0 AWG) for line power terminalsInput ON-state current3 A @ 120V AC, 1.5 A @ 240V AC for auxiliary contactsInput ON-state current20 mA @ 120V AC/40mA @ 240V AC, 7.6 mA @ 24V AC/DC for control circuitauxiliary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux	Response resistance	3400 Ohm ± 150 Ohm for PTC input ratings
Input ON-state voltage, min85V AC, 19.2V DC/20.4V AC for control circuitLower line side cable size0.82.5 mm2 (1814 AWG) for power terminalsLower load side cable size0.82.5 mm2 (1814 AWG) for power terminalsUpper load side cable size2.550 mm2 (141 AWG) for load power terminalsUpper line side cable size2.595 mm2 (143/0 AWG) for line power terminalsInput ON-state current3 A @ 120V AC, 1.5 A @ 240V AC for auxiliary contactsInput ON-state current20 mA @ 120V AC/40mA @ 240V AC, 7.6 mA @ 24V AC/DC for control circuitauxiliary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux	Reset resistance	1600 Ohm ± 100 Ohm for PTC input ratings
Lower line side cable size 0.82.5 mm2 (1814 AWG) for power terminals Lower load side cable size 0.82.5 mm2 (1814 AWG) for power terminals Upper load side cable size 2.550 mm2 (141 AWG) for load power terminals Upper line side cable size 2.595 mm2 (141 AWG) for load power terminals Rated operational current 3 A @ 120V AC, 1.5 A @ 240V AC for auxiliary contacts Input ON-state current 20 mA @ 120V AC/40mA @ 240V AC, 7.6 mA @ 24V AC/DC for control circuit auxiliary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux	Input OFF-state voltage, max	50V AC, 10V DC/12V AC for control circuit
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Upper load side cable size 2.550 mm2 (141 AWG) for load power terminals Upper line side cable size 2.595 mm2 (143/0 AWG) for line power terminals Rated operational current 3 A @ 120V AC, 1.5 A @ 240V AC for auxiliary contacts Input ON-state current 20 mA @ 120V AC/40mA @ 240V AC, 7.6 mA @ 24V AC/DC for control circuit Contact type auxiliary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux	Lower line side cable size	0.82.5 mm2 (1814 AWG) for power terminals
Upper line side cable size 2.595 mm2 (143/0 AWG) for line power terminals Rated operational current 3 A @ 120V AC, 1.5 A @ 240V AC for auxiliary contacts Input ON-state current 20 mA @ 120V AC/40mA @ 240V AC, 7.6 mA @ 24V AC/DC for control circuit Contact type auxiliary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux	Lower load side cable size	0.82.5 mm2 (1814 AWG) for power terminals
Rated operational current 3 A @ 120V AC, 1.5 A @ 240V AC for auxiliary contacts Input ON-state current 20 mA @ 120V AC/40mA @ 240V AC, 7.6 mA @ 24V AC/DC for control circuit Contact type auxiliary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux	Upper load side cable size	2.550 mm2 (141 AWG) for load power terminals
Input ON-state current 20 mA @ 120V AC/40mA @ 240V AC, 7.6 mA @ 24V AC/DC for control circuit Contact type auxiliary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux	Upper line side cable size	2.595 mm2(143/0 AWG) for line power terminals
Input ON-state current for control circuit Contact type auxiliary contacts 19/20 (Aux #1), 29/30 (Aux #2), 31/32 (Aux	Rated operational current	3 A @ 120V AC, 1.5 A @ 240V AC for auxiliary contacts
Contact type	Input ON-state current	
	Contact type	

Environmental

Steady state heat dissipation with control and fan power	81 W
Storage and transportation temperature	-20 °C
Humidity	595% (noncondensing)
Operating temperature	Open: -5 to 50 °C (23 to 122 °F)
Protection against electrical shock	IP20 per IEC for power circuit
EMC emission levels	Radiated emission: Class A
EMC immunity levels	Surge transient: per EN/IEC 60947-4-2
Altitude	2000 m
Pollution degree	2

Weight

Shock	Operational: 15 G
Width	150 mm (5.90 inch)
Depth	203 mm (8 inch)
Height	321 mm (12.60 inch)
Power pole construction	Heatsink thyristor modular design
Vibration	Operational: 1.0 G peak, 0.15 mm (0.006 inch) displacement
Make	3600VA for auxiliary contacts
Break	360VA for auxiliary contacts
Tightening torque	14.7 Nm (130 lb.inch) for power terminals
Internal bypass	Yes
Function	Single direction
Power terminal markings	NEMA, CENELEC EN50 012
Control terminals	Clamping yoke connection, M3 screw clamp
Wire strip length	1820 mm (0.220.34 inch) for power terminals

Construction

Number of poles	3
Enclosure	Open type
Control modules construction	Thermoset and thermoplastic moldings
Metal parts construction	Plated brass, copper or painted steel

Help & Feedback

Certifications @ []] [🙆

- China CCC
- Eurasion Economic Community
- Australian RCM

This product was certified with the above certifications as of 2023-11-17. Products sold before or after this date might carry different certifications. Please review the product label to check for the certifications your specific product carries.



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