UG9256 Smart Motorstarter

Overview

The Ministart UG9256 Smart Motorstarter series from DOLD is a powerful and flexible application solution for AC motors up to 5 hp. These units combine multiple AC motor control functions in a space saving compact enclosure 22.5 mm wide.


Start Ramp


Start and Stop Ramp


No Ramp (On/Off)

For motor control, all units include reversing capability through relay switching. Choose options for Start and Stop ramp, Start ramp only, or simple on/off (no ramp) control. The hybrid control relays combine the advantages of rugged relay technology with non-wearing semiconductor technology, which allows a significantly longer device service life and improved reliability.

Canada / USA

For motor protection, choose options for current overload or thermal motor protection. The integrated protection eliminates the need for external devices.

For safety protection, each unit has the option for galvanic separation. This integrates an all pole disconnect to isolate the motor from any voltage source when the run signal is off.

Whatever your application, the smart motorstarter has the options to get the job done.

Features

All Models:

- Space saving 22.5 mm width
- Compatible with 3-phase 200–480 VAC motors up to 5 hp (480 VAC) or 2 hp (230 VAC)
- 2-phase control with internal bypass after startup
- Reversing relay function (load free)
- Integrated Din rail mount
- 4 LEDs for status indication
- Reset with front pushbutton or connection point for external reset
- Relay output contacts to indicate run status

Model Dependent Features

- Motor control: choose Start and Stop Ramp, Start Ramp only, or No Ramp (on/off)
- Motor protection: Choose Motor Thermal or Overcurrent. Motor Thermal option provides class 5/10/10A protection up to 6.9 A, Class 5 up to 9A
- Safety protection: Choose Galvanic separation contactor to motor output (min contact distance 0.5 mm) or None
- Up to 4 potentiometers for setting of starting torque, deceleration torque, and soft start/ soft stop time

Standards & Approvals

- CE
- RoHS
- UL listed (E303031)
- UL 508
- CSA C22.2 No.14-13
- IEC/EN 60947-4-2 compliant

Applications

- Reversing operation for door and gate controls, bridge drives, and lifting applications with monitoring of blockage
- Conveyor systems with monitoring of blockage
- Actuating drives in process controls with blockage monitoring

WARNING: NOT FOR USE WITH SINGLE PHASE MOTORS

Advantages

- Standardized, compact unit that can provide multiple functions:
  - Reversing functionality
  - Ramped motor control or on/off
  - Motor protection by overcurrent or motor thermal
  - Safety protection by Galvanic separation
- Ultra compact design uses 80% less space. Great for retrofits of soft starters or motor contactors
- Simple and time-saving comissioning and user-friendly operation using potentiometers
- Hybrid relay combines benefits of relay technology with non-wearing semiconductor technology
- High availability provided by:
  - Temperature monitoring of semiconductors
  - High withstand voltage up to 1500V

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Selecting the Right Smart Motorstarter

Dold Ministart 9256 series smart motorstarters provide multiple functions in a single space-saving device. All UG9256 models are equipped with reversing relay. Different combinations of functions can be selected by choosing the appropriate part number variant. Refer to the charts below for selecting the best unit for any application. Each variant is determined by the three digits following UG9256-11.

Dold® UG9256 Series Basic Selection

Step	*Option (#)*	*Part Number Variant*
1: Select needed soft starter function	Start Ramp Only (**0**)	UG9256-11-**0**xx-61
	Start and Stop Ramp (**1**)	UG9256-11-**1**xx-61
	No Ramp (**4**)	UG9256-11-**4**xx-61
2: Galvanic main isolating relay required?	Yes (**0**) (In off state or fault condition the motor terminals are isolated from the mains voltage by a 4 pole forcibly guided contact relay, min contact distance 0.5 mm)	UG9256-11-x**0**x-61
	No (**1**)	UG9256-11-x**1**x-61
3: Select desired protection function	Motor thermal protection (**1**) (Class 5/10/10A protection up to 6.9 A, Class 5 up to 9 A)	UG9256-xx-xx**1**-61
	Overcurrent protection (**0**)	UG9256-xx-xx**0**-61

Example: A soft starter with start and stop ramp, no galvanic main relay, and motor thermal protection would be part # UG9256-11-111-61.

UG9256 Selection Chart

Dold® UG9256 Series Feature Selection

Part Number	*Price*	*Drawing*	*Soft Starter Function*	*Galvanic Main Isolating Relay*	*Overload Protection Type*	*Number of Setup Dials*	*Setup Dial Options*
UG9256-11-010-61	$255.00	PDF	Start Ramp only	No	Overcurrent	3	M_{on} = Starting torque at soft start 30–80% t_{on} = Start ramp 1–10 s I_{max} = Motor current monitoring 5–50 A_{eff}
UG9256-11-000-61	$255.00	PDF	Start Ramp only	Yes	Overcurrent	3	
UG9256-11-011-61	$231.00	PDF	Start Ramp only	No	Motor Thermal	3	M_{on} = Starting torque at soft start 30–80% t_{on} = Start ramp 1–10 s I_e = Nominal motor current 1.6–9 A_{eff}
UG9256-11-001-61	$231.00	PDF	Start Ramp only	Yes	Motor Thermal	3	
UG9256-11-110-61	$264.00	PDF	Start & Stop Ramp	No	Overcurrent	4	M_{on} = Starting torque at soft start 30–80% M_{off} = Deceleration torque at softstop 80–30% t_{on} / t_{off} = Start and deceleration ramp 1–10 s I_{max} = Motor current monitoring 5–50 A_{eff}
UG9256-11-100-61	$264.00	PDF	Start & Stop Ramp	Yes	Overcurrent	4	
UG9256-11-111-61	$242.00	PDF	Start & Stop Ramp	No	Motor Thermal	4	M_{on} = Starting torque at soft start 30–80% M_{off} = Deceleration torque at softstop 80–30% t_{on} / t_{off} = Start and deceleration ramp 1–10 s I_e = Nominal motor current 1.6–9 A_{eff}
UG9256-11-101-61	$242.00	PDF	Start & Stop Ramp	Yes	Motor Thermal	4	
UG9256-11-410-61	$239.00	PDF	No Ramp	No	Overcurrent	1	I_{max} = Motor current monitoring 5–50 A_{eff}
UG9256-11-411-61	$239.00	PDF	No Ramp	No	Motor Thermal	1	I_e = Nominal motor current 1.5–9 A_{eff}
UG9256-11-400-61	$209.00	PDF	No Ramp	Yes	Overcurrent	1	I_{max} = Motor current monitoring 5–50 A_{eff}
UG9256-11-401-61	$209.00	PDF	No Ramp	Yes	Motor Thermal	1	I_e = Nominal motor current 1.5–9 A_{eff}

All models include reversing as a standard feature.

UG9256 Specifications

Dold® UG9256 Series Smart Motorstarters		
Model		***All models***
Power Supply	***Main Voltage***	200–460 VAC (+10%)
	Control Voltage	24 VDC
	Frequency	50/60 Hz (automatic detection)
Duty Cycle		100% rated current with 100% on time and 100% off time, 30 starts per hour
Impulse Withstand Voltage		4.5 kV
Peak Reverse Voltage		1.5 kV
Insulation Voltage Rating		500V
Short Circuit Current Rating		5 kA protected by class CC, J, or RK5 fuse rated maximum 20A
Digital Control Inputs		R+: Control Input Clockwise (24 VDC) L+: Control Input anti-clockwise (24 VDC) MAN: Input for remote reset (24 VDC)
Digital Outputs		RES: Output for remote reset (24 VDC) 11,12,14: Indicator relay for operation (250 VAC relay) NO Contact: 3A; NC Contact: 1A
Safety Protections		Motor overload* or Overcurrent**, Phase Failure
Control Features	***Starting Voltage***	30-80% of line voltage
	Accel Ramp***	1–10 seconds
	Decel Ramp***	1–10 seconds
	Motor Rating	Up to 5HP @ 480V Up to 2HP @ 230V
	Rated Motor Current	Up to 9.0 A
	Fault Reset	Manual or Remote
Ambient Environmental Tolerances	***Temperature***	0–60 °C (see derating curve) [32–140 °F] At an altitude of > 1000 m the maximum permissible temperature reduces by 0.5 °C per 100m
	Humidity	93% at 40 °C
	Storage	- 25 °C to +75 °C [-13 °F to 167 °F]
	Altitude	≤ 2000m
Low Voltage Conformities		UL508 - Industrial Control Equipment IEC60947-4-2
Weight		220g [0.49 lbs]
Dimensions [HxWxD]		105 x 22.5 x 120.3 mm [4.13 x 0.89 x 4.74 in]

*** Model numbers ending in xx1 have motor overload protection**
**** Model numbers ending in xx0 have motor current protection**
***** Not applicable to 4xx models (no ramp control)**

UG9256 Application Compatibility

Dold® UG9256 Application Compatibility							
Step 1: Select the application from the list and follow that column down.							
Typical Applications**	***Standard Duty***					***Light Duty***
	Default				Molding Machine	Unloaded / Very lightly loaded motor
	Agitator				Plastic and Textile Machines	Commercial applications
	Bow Thruster - Zero Pitch				Pump - Submersible Centrifugal	Centrifugal pump
	Compressor - Rotary Vane				Pump - Submersible Rotodynamic	Screw compressor (no load starting)
	Compressor - Scroll				Saw - Band	Vane Vacuum pump
	Conveyor - Unloaded				Transformers, voltage regulators	Light Duty Lathe
	Fan - Low Inertia < 85 A					Light Duty Mixer (no load starting)
	Feeder - Screw					
	Lathe Machines					
	Mixer - Unloaded					
Step 2: Confirm the rated starting capability of the soft start against the application.							
Trip Class*	***10***					***5***	
Rated Starting Capability	6 x Motor Current - 2s						
Max Starts per Hour	30 starts/hr (Warning: Applying more starts per hour than the specified 30 starts/hr will cause the starter to overheat and fail)						
Step 3: Consider the operating environgment and make the model selection on a higher horsepower rating.							
Altitude (Height Above Sea Level)	Standard operating height is 3280ft (1000m). For >1000m, the max temperature reduces by 0.5 °C						
Operating Temperature	Standard operating temperature is 95 °F [35 °C] (Please refer to derating curve)						
Step 4: Ensure the UG9256 is compatible with your motor application. Voltage and Horsepower (3-phase only).							
Motor Horsepower						***UG9256 Unit Rating (all models)***	
208 VAC		***230 VAC***		***460 VAC***		***10***	***5******
hp	***I, (A)***	***hp***	***I, (A)***	***hp***	***I, (A)***		
0.5	2.4	0.5	2.2	1.5	3		
0.75	3.5	0.75	3.2	2	3.4		
1	4.6	1	4.2	3	4.8		
1.5	6.6	2	6.8	3	4.8		
2	7.5			5	7.6		

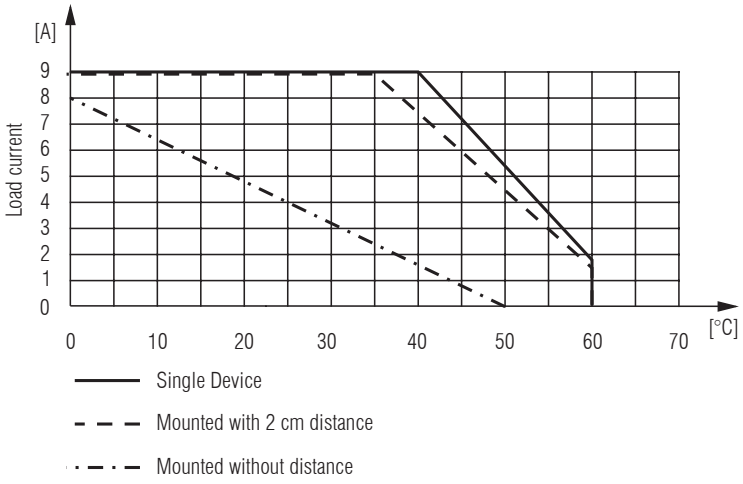
Index Rating Standard:AC53a: 6–2: 100–30

6	Start Current (6*FLC)
2	Start time in seconds
100	Duty cycle with 100% on time and 100% off time
30	Starts/hr

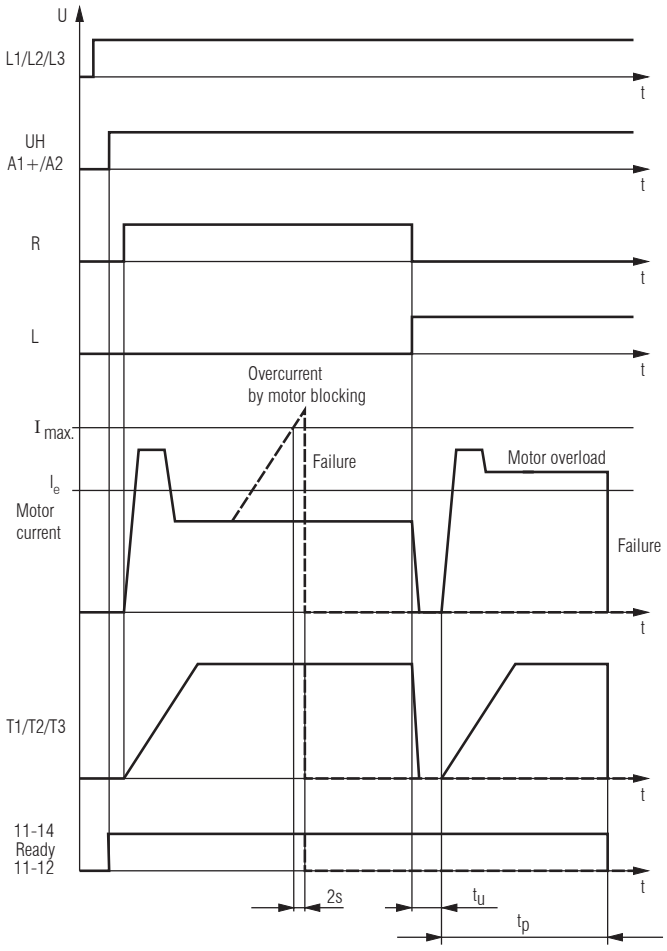
*** Trip class applies to motor thermal variants only. A separate overload protection device with a rating corresponding to the applicable trip class must be used with other variants.**
**** The UG9256 is not suitable for very high inertia loads such as centrifuges or loaded crushers with start times > 10s.**
***** Do NOT use the Class 5 rating when there is a possibility of the motor starting under a heavy load.**

UG9256 Derating Curve

Rated continuous current depending on ambient temperature and distance and non-ventilated enclosure.



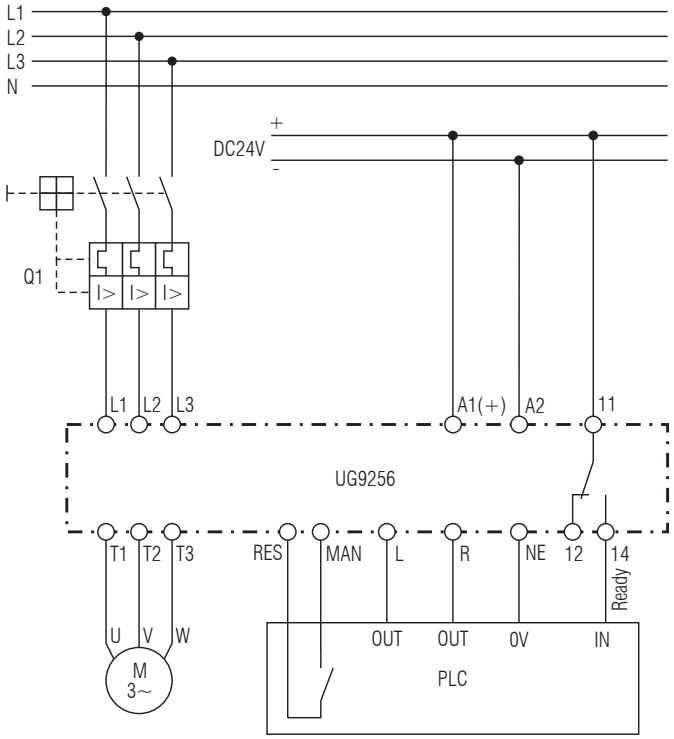
UG9256 Function Diagram



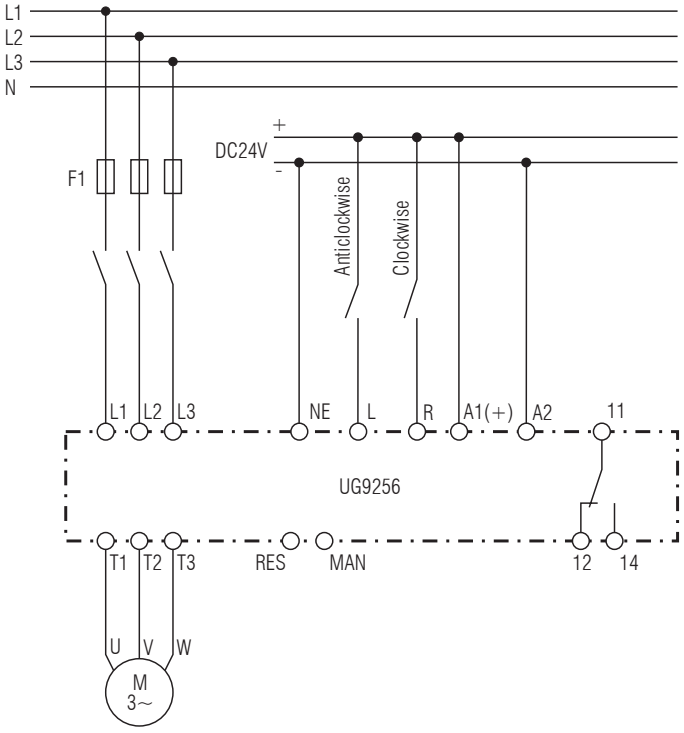
t_u = Switchover delay time

t_p = Overload response time according to characteristic class 10A or 5 (Variants /XX1)

UG9256 Wiring to PLC Diagram



UG9256 Wiring to Switch Diagram



UG9256 Circuit Diagram