

VAT 20 Adjustable Frequency Drive



The VAT 20 is a small, flexible, low cost, well performing AC drive designed for use in small machines such as fans and conveyors. The drive is available in eight models from 0.25 HP (0.2 KW) to 3 HP (2.2 KW), allowing you to select the model that best suits your application.

The VAT 20's standard features include a full set of both motor and drive protective functions, a keypad and display, programmable digital and analog I/O, multi-mode frequency setting, a Jog function, DC braking, and a variety of other features normally found only on more expensive drives. An optional DIN rail mounting kit is also available.

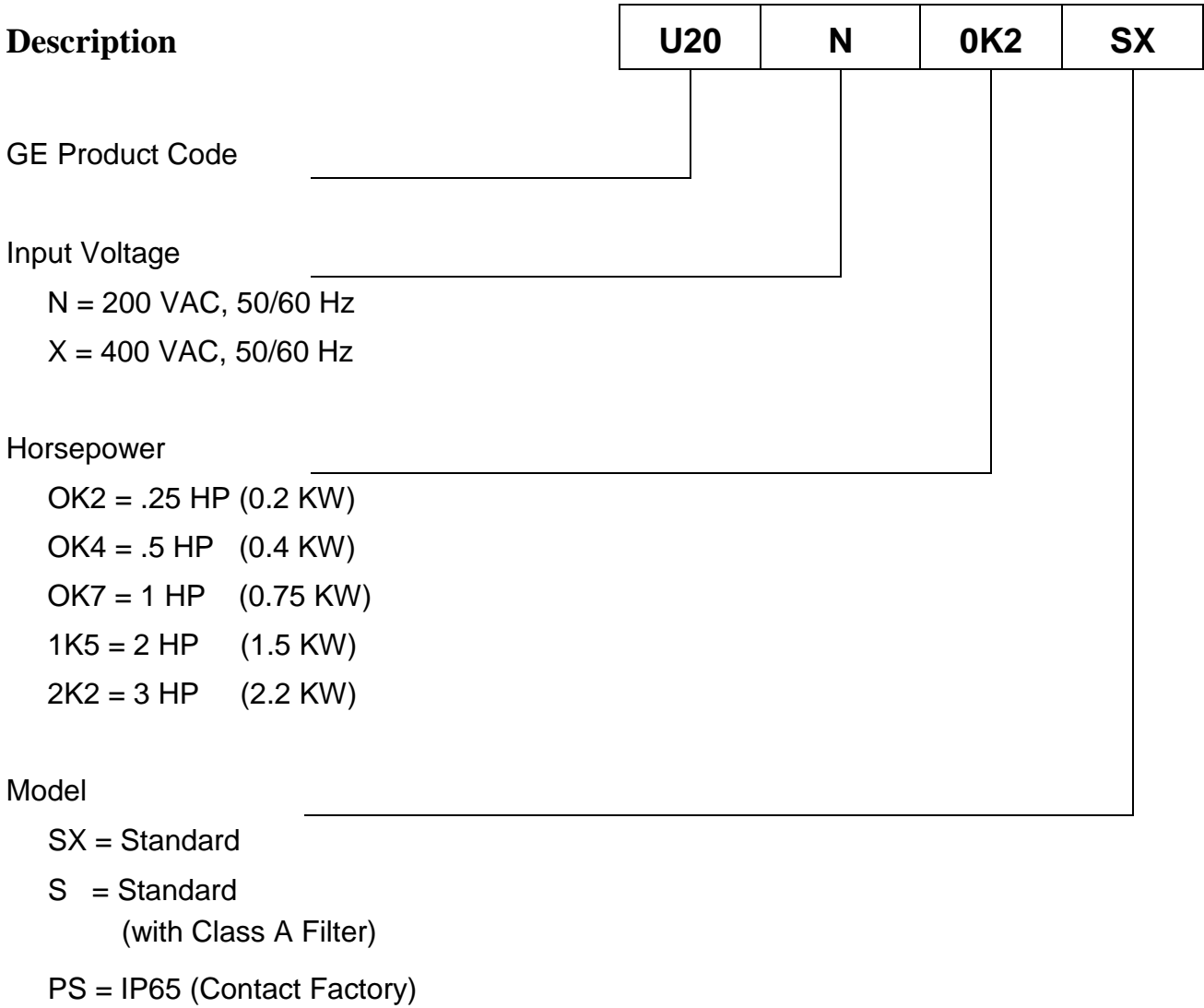
This drive meets your global requirements for UL, CSA, and CE Marked. It is available with or without a standard, built-in Class A industrial filter for CE and has an optional, externally mounted Class B residential filter available.

The VAT 20 is a compact, maintenance free, reliable AC drive ideal for your 230V or 460V applications anywhere in the world.

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VAT 20 Model Numbering System Diagram



Pricing, Dimensions, and Weights

HP Rating	Amps	Model No.	List Price GO-VAT	H x W x D inches (mm)	Weight lbs (kg)
240 VAC, 1 phase, 50/60 Hz Input					
1/4	1.4	U20N0K2SX	\$230	5.2 x 2.8 x 4.7 (132 x 72 x 118)	1.7 (0.76)
1/2	2.3	U20N0K4SX	\$245.	5.2 x 2.8 x 4.7 (132 x 72 x 118)	1.7 (0.77)
1	4.2	U20N0K7SX	\$265	5.7 x 4.7 x 6.8 (143 x 118 x 172)	1.8 (0.8)
2	7.5	U20N1K5SX	\$365	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.7 (1.66)
3	10.5	U20N2K2SX	\$435	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.9 (1.76)
230 VAC, 3 phase, 50/60 Hz Input					
2	7.5	U20N1K5SX	\$365	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.7 (1.66)
3	10.5	U20N2K2SX	\$435	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.9 (1.76)
460 VAC, 3 phase, 50/60 Hz Input					
1	2.3	U20X0K7SX	\$315	5.7 x 4.7 x 6.8 (143 x 118 x 172)	1.8 (0.8)
2	3.8	U20X1K5SX	\$385	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.7 (1.66)
3	5.2	U20X2K2SX	\$430	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.9 (1.76)

Pricing, Dimensions, and Weights

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HP Rating	Amps	Model No.	List Price GO-VAT	H x W x D inches (mm)	Weight lbs (kg)
240 VAC, 1 phase, 50/60 Hz Input with internal Class A EMI Filter					
1/4	1.4	U20N0K2S	\$230	5.2 x 2.8 x 4.7 (132 x 72 x 118)	1.7 (0.76)
1/2	2.3	U20N0K4S	\$245	5.2 x 2.8 x 4.7 (132 x 72 x 118)	1.7 (0.77)
1	4.2	U20N0K7S	\$265	5.7 x 4.7 x 6.8 (143 x 118 x 172)	1.8 (0.8)
2	7.5	U20N1K5S	\$379	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.7 (1.66)
3	10.5	U20N2K2S	\$448	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.9 (1.76)
230 VAC, 3 phase, 50/60 Hz Input with internal Class A EMI Filter					
2	7.5	U20N1K5S	\$379	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.7 (1.66)
3	10.5	U20N2K2S	\$448.	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.9 (1.76)
460 VAC, 3 phase, 50/60 Hz Input with internal Class A EMI Filter					
1	2.3	U20X0K7S	\$344	5.7 x 4.7 x 6.8 (143 x 118 x 172)	1.8 (0.8)
2	3.8	U20X1K5S	\$440	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.7 (1.66)
3	5.2	U20X2K2S	\$481	5.7 x 4.7 x 6.8 (143 x 118 x 172)	3.9 (1.76)

Options and Accessories

Description	Model No.	List Price GO-VAT
DIN Rail Mounting	U20AR0K7	\$95
Class B, EMI / RFI Filter, 230V <1.5Hp	U20AF0K7	\$60
Class B, EMI / RFI Filter, 230V 2-3Hp	U20AF2K2	\$80
Class B, EMI / RFI Filter, 460V 1-3Hp	U20AF2K2X	\$180

DIN Rail Mounting

Hardware that allows for mounting the VAT 20 drive on a 35mm IEC DIN rail along with other components used in panel integration.

Class B, EMI Filters

Fully tested, externally mounted filters that are incorporated into the system that enable the drive to meet the Class B residential requirements as outlined in EC Directive 89/336/EEC for electromagnetic and radio frequency interference.

Standard Specifications

Basic Specification, 200V Series

Model No:	U20N	0K2SX	0K4SX	0K7SX	1K5SX	2K2SX
Motor HP		1/4	1/2	1	2	3
Motor KW		0.2	0.4	0.75	1.5	2.2
Current A		1.4	2.3	4.2	7.5	10.5
Capacity KVA		0.53	0.88	1.6	2.9	4.0
Weight (lbs)		1.7	1.7	1.8	3.7	3.9
Weight (Kg)		0.76	0.77	0.8	1.66	1.76
Input Voltage Max.	200-240V (+10%-15%) , 50/60Hz (+/-5%) Single phase (and Three phase for 1.5 and 2.2kW only)					
Output Voltage Max.	Three phase 200-240V +10%-15%					
Dimensions (in)	5.2 x 2.8 x 4.7			5.7 x 4.7 x 6.8		
Dimensions (mm)	132 x 72 x 118			143 x 118 x 172		

Basic Specification, 400V Series

Model No:	U20X			0K7SX	1K5SX	2K2SX
Motor HP				1	2	3
Motor KW				0.75	1.5	2.2
Current A				2.3	3.8	5.2
Capacity KVA				1.6	2.9	4.0
Weight (lbs)				1.8	3.7	3.9
Weight (Kg)				0.8	1.66	1.76
Input Voltage Max.	Three phase 380-480V (+10%-15%) , 50/60Hz (+/-5%)					
Output Voltage Max.	Three phase 380-480V +10%-15%					
Dimensions (in)				5.7 x 4.7 x 6.8		
Dimensions (mm)				143 x 118 x 172		

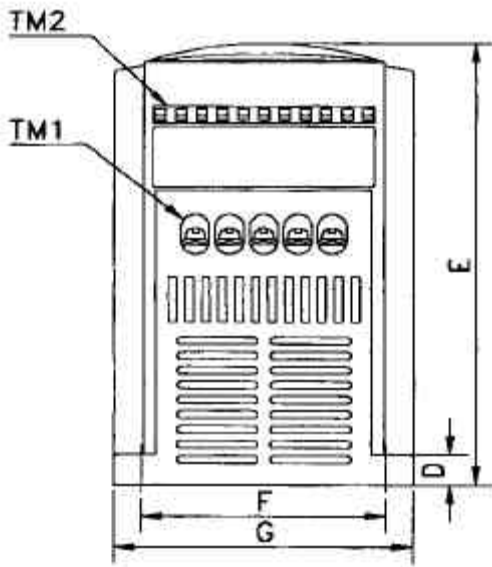
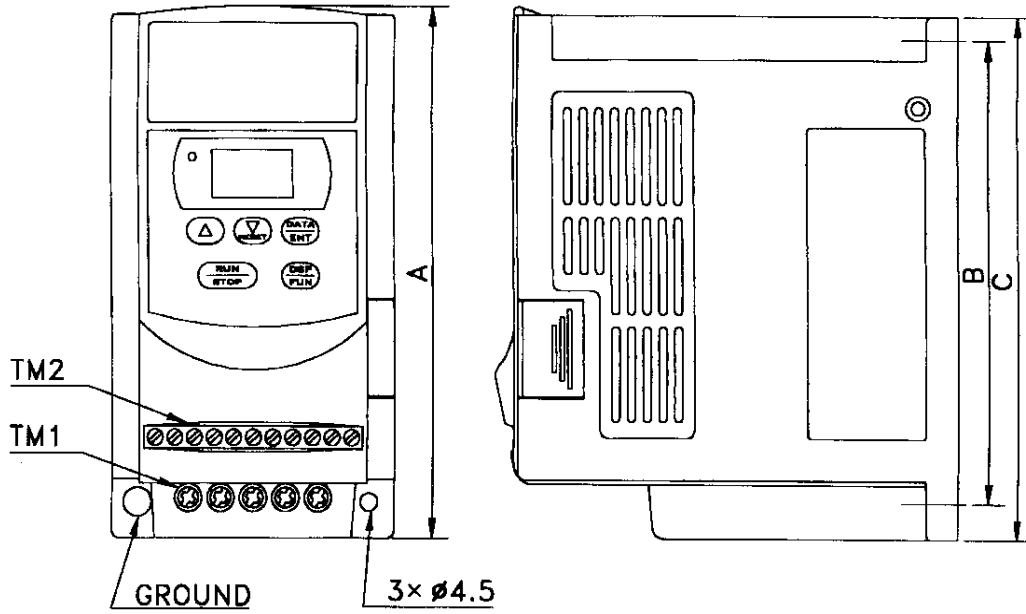
VAT 20 Adjustable Frequency Drive

Functional Specification

Type drive	U20	N0K2SX	N0K4SX	N0K7SX	N1K5SX	N2K2SX
					X0K7SX	
					X1K5SX	
					X2K2SX	
Input Signal Type		PNP type (SOURCE) input				
Control Method		Sinusoidal wave PWM control				
Freq. Control	Freq. Range	0~120 Hz			0~200 Hz	
	Frequency Resolution	Digital : 0.1Hz(0~99.9Hz)1Hz(100~120Hz) Analog: 0.06Hz/60Hz			Digital: 0.1Hz(0~99.9Hz) 1Hz(100~120Hz) Analog:0.06Hz/60Hz	
	Keyboard Setting	Directly setup by ?? buttons.				
	External Signal Setting	0~10V, 4~20mA , 0~20mA				
	Other function	Frequency upper and lower limit				
General Control	Carrier frequency	1-8kHz			1-16kHz	
	Accelerate/Decelerate time	0.1~ 999 Sec				
	V/F Pattern	6 Patterns				
	Torque control	Torque boost level adjustable (manual torque boost)				
	Multi-Function input	2 point, to be used as multi-speed 1(Sp1) / Jog / Ext. emergency stop / Reset				
	Multi-Function output	1a Relay terminal, to be setup as Fault / Running / Frequency.				
	Braking Torque	About 20% . no external resistor available			100% with external resistor	
	Other function	Decelerate or free run stop, Auto reset, DC braking frequency / Voltage / Time can be setup by constants.				
Indication function		7 segments*3 indicate frequency / inverter parameter / fault record / program version.				
Operating temperature		-10 ~ 50°C				
Humidity		0~95% RH non-condensing.				
Vibration		Under 1 G (9.8 m/s ²)				
EMC specification		Class A (Filter build in)				
Protection level		IP20				
UL		UL508C				
Protection function	Overload protection	150% for 1min.				
	Over-voltage	DC voltage > 410V (200V series), DC >800V (400V Series)				
	Under voltage	DC voltage < 200V (200V series), DC <400V (400V Series)				
	Momentary power-loss	0 ~ 2 sec : VAT20 can be restart by speed search				
	Stall Prevention	Accelerate / Decelerate / Constant speed				
Protection function	Output terminal short-circuit	Electronic circuitry protection				
	Grounding fault	Electronic Circuitry protection				
	Other function	Heat sink protection , Current limit				
Installation		Install by mounting screw or DIN rail (Option).				

Dimensional Drawings

Frame 1: U20N0K2SX, U20N0K4SX, U20N0K7SX

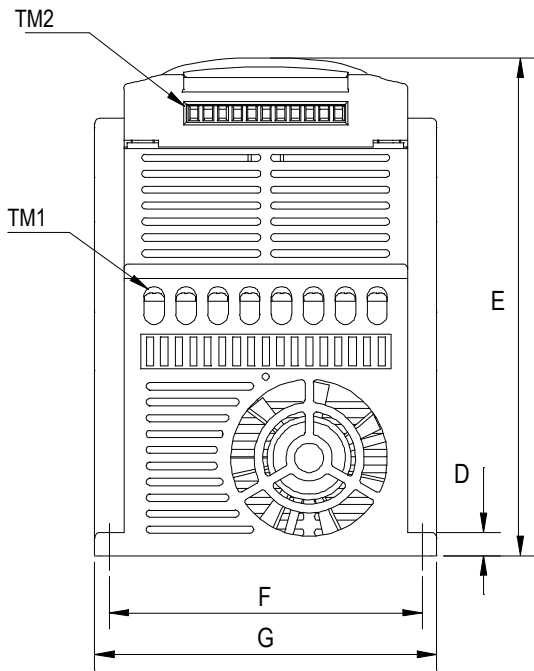
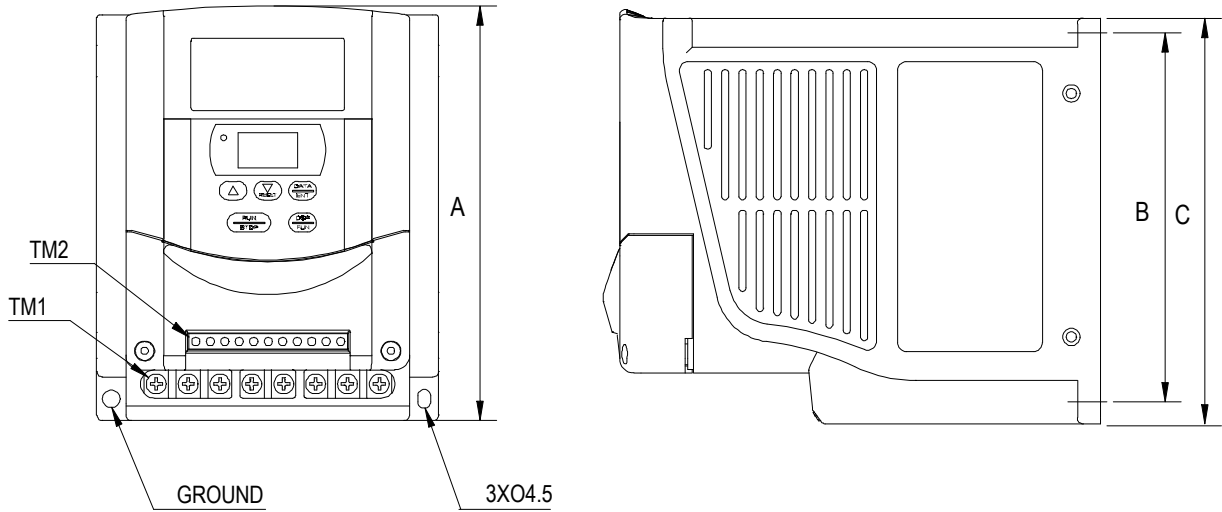


Unit inches (mm)

MODEL: U20N__	A	B	C	D	E	F	G
0K2S/0K4S/0K7S	5.2	4.6	5.2	0.33	4.6	2.4	2.8
	(132)	(116)	(130)	(8.2)	(118)	(61)	(72)

VAT 20 Adjustable Frequency Drive

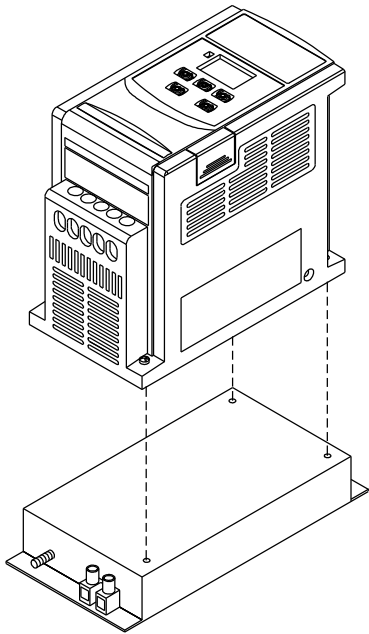
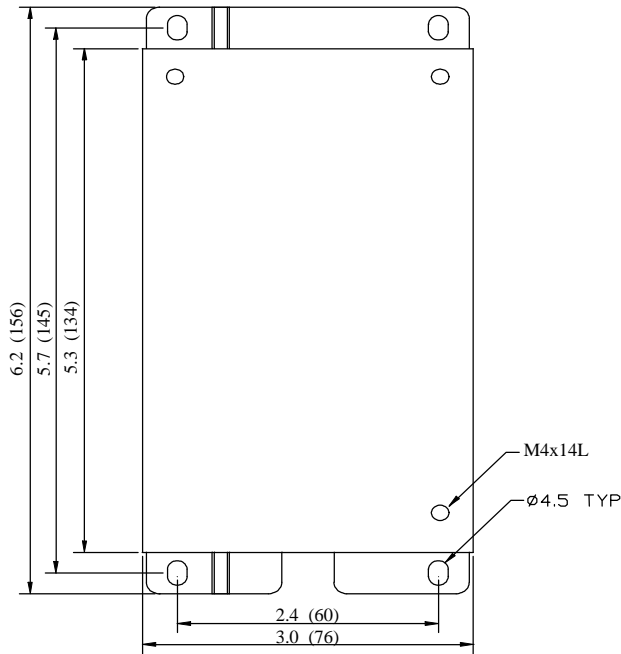
Frame 2: U20N1K5SX, U20N2K2SX, U20X0K7SX, U20X1K5SX, U20X2K2SX



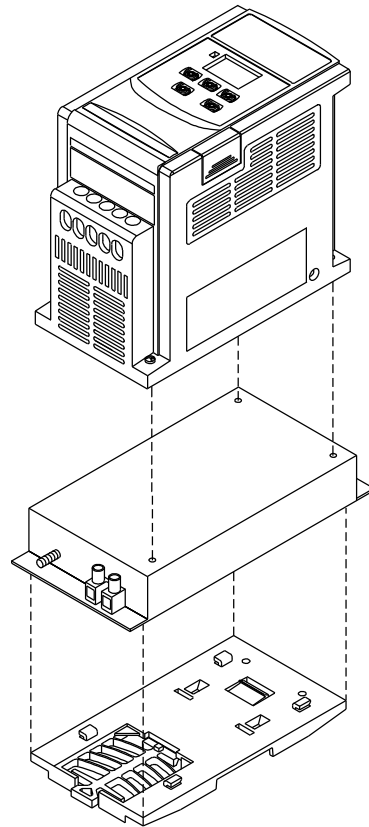
Unit inches (mm)

MODEL: U20N__	A	B	C	D	E	F	G
0K2S / 0K4S / 0K7S	5.6	5.0	5.5	0.32	6.8	4.3	4.7
	(143.1)	(127.5)	(140)	(8.0)	(171.7)	(108)	(118)

Dimensions & Installation of Class B Filter (U20AF0K7)

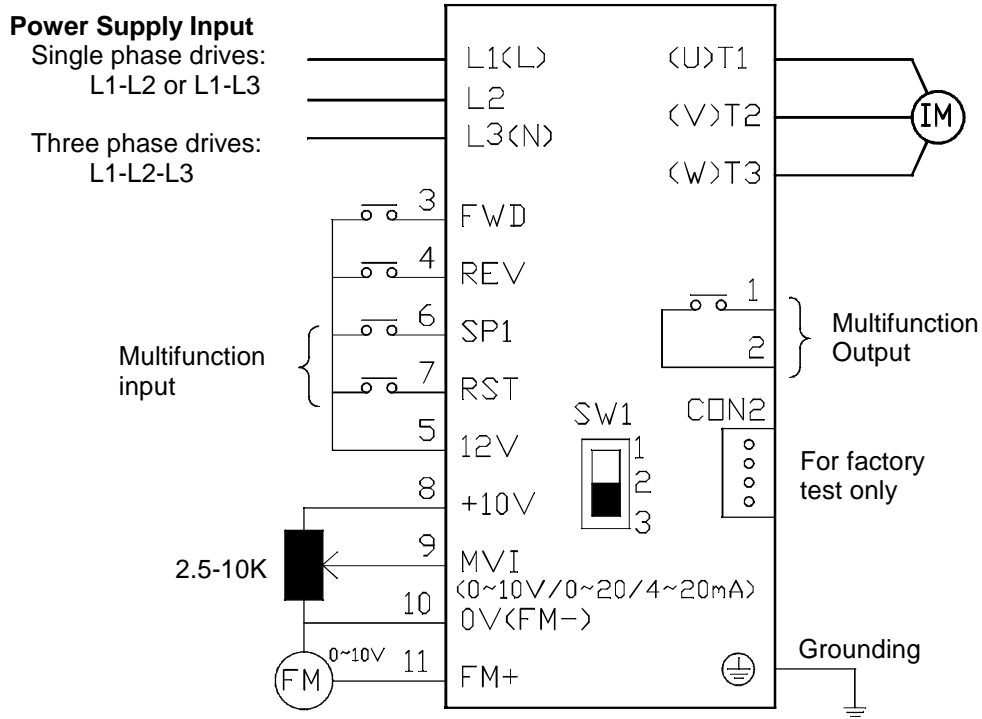


Inverter with class B filter (U20AF0K7) mounted.

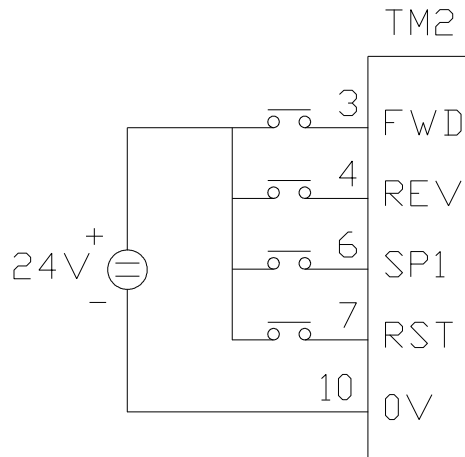


Inverter with class B filter (U20AF0K7) & Din rail (U20AR0K7) mounted.

Basic Wiring Diagrams



Terminations to Inverter must be made with either listed field wiring lug kits or listed crimp type ring terminals



● **Other connections(external 24V supply)**



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