

0.50 - 3HP, 115V, 230V OR 460V, SINGLE OR THREE PHASE, IP20

TD20 SERIES

VECTOR CONTROL MICRO DRIVES

Product Overview

Topdrive20 series is a micro type general vector inverter, specifically designed as a high performance mini VFD used in the small power market, using the leading international vector control algorithm with excellent product features. Topdrive20 series is compatible with wall and rail installation by utilizing a smaller, compact, efficient design. Topdrive20 series is widely used in textile machinery, food machinery, printing/packaging, fans and pumps, ceramic equipment, wood working equipment, conveying equipment, etc.



POWER RANGE

1AC 110-120V: 120V	0.5 - 1.5HP
1AC 200-240V: 220V	0.5 - 3HP
3AC 200-240V: 220V	0.5 - 3HP
3AC 380-480V: 460V	1 - 3HP
50/60Hz	Allowed range: 47 ~ 63Hz

Operating Parameters

- IP20 standard, NEMA 1/IP21 kits available
- 10~40°C, de-rate 1% for every additional 1°C to 50°C
- Installation up to 1000 MASL (3300 ft.)

Multi-Function & Easy To Use

- Modbus RTU/RS485 built in (standard)
- Simple PLC supporting multiple run modes
- Multiple V/F curve settings
- Motor autotuning modes

Standard Features

- V/F (SVPWM) and Sensorless Vector (SVC)
- Asynchronous AC induction motors
- Advanced PID functions
- Mini design for smaller installation space and parallel/side-by-side installations
- High performance LED keypad with digital potentiometer. LED external keypad kit optional.
- Overload capability 200% 1s, 180% 10s, 150% 60s
- Multiple installation modes, wall and rail mount
- Embedded braking transistors
- Removable cooling fan for easy maintenance
- Multiple braking modes
- Continuous running in instant power loss

Technical Specifications

FUNCTIONS	SPECIFICATIONS	
Power Input	Input voltage (V)	AC 1PH 110~120V Rated Voltage: 110V AC 1PH 200~240V Rated Voltage: 220V AC 3PH 200~ 240V Rated Voltage: 220V AC 3PH 380~480V Rated Voltage: 460V
	Input frequency (Hz)	50Hz/60Hz, Allowed range: 47~63Hz
Power Output	Output voltage (V)	0~input voltage error <5%
	Output frequency (Hz)	0~400Hz standard, higher frequencies upon request
Technical Control Features	Control mode	V/F (SVPWM) and SVC
	Motor type	Asynchronous AC induction motors
	Speed ratio	1:100
	Speed control accuracy	±0.2% (SVC)
	Speed fluctuation	±0.3% (SVC)
	Torque response	(SVC)
	Torque control accuracy	10% (SVC)
	Starting torque	Asynchronous motor: 0.50Hz/150% (SVC)
	Overload capability	150% of rated current: 1 minute 180% of rated current: 10 seconds 200% of rated current: 1 second
Running Control Features	Frequency Setting	Digital setting, analog setting, pulse frequency setting, multi-step speed running setting, simple PLC setting, PID setting, MODBUS communication setting,
	Auto-adjustment of the voltage	Keep constant voltage automatically with grid voltage transients
	Fault protection	Provides more than 30 fault protection functions: overcurrent, overvoltage, undervoltage, overheating, phase loss and overload, etc.
	Restart after rotating speed tracking	Smooth starting of the rotating motor
Peripheral Interface	Analog input	1 (AI2) 0~10V/0~20mA and 1 (AI3) -10~10V
	Analog output	2 (AO1, AO2) 0~10V/0~20mA
	Digital input	4 common inputs, the maximum frequency: 1kHz 1 high speed input, the maximum frequency: 50kHz
	Digital output	1 Y terminal open collector output
	Safety Function	"-EU" Models Only, STO (Safe Torque OFF), SIL3
	Relay output	2 programmable relay outputs: RO1A NO, RO1B NC, RO1C common terminal RO2A NO, RO2B NC, RO2C common terminal Contactor capacity: 3A/250VAC
Others	Mountable method	Wall and rail mountable
	Temperature of the running environment	-10~50°C, if above 40°C, de-rate 1% for every additional 1°C
	Protective degree	IP20 standard, NEMA 1/IP21 kits available
	Free Software	Topdrive Workshop (available at www.techtopcanada.com)
	Cooling	Air-cooling
	Braking unit	Built-in braking transistors
	Braking resistor	Optional
	EMC filter	External only

Model Designation

TD20-1R5G-S2



FUNCTION	NO.	DESCRIPTION	DETAILED CONTENT
Abbreviation	1	Product Abbreviation	TD20: Topdrive20 series
Power Range	2	Power Range	1R5G: 1.5kW, G: Constant torque
Voltage Degree	3	Voltage Degree	S1: AC 1PH 100-120V Rated Voltage: 110V S2: AC 1PH 200~240V Rated Voltage: 220V 2: AC 3PH 200~240V Rated Voltage: 220V 4: AC 3PH 380~480V Rated Voltage: 460V

Purchasing Data

HEAVY DUTY (HD) CT 150% OL 1MIN					TD20 IP20 VFD	NEMA 1/IP21 KIT		
HP	OUTPUT CURRENT (A)	FRAME SIZE	WEIGHT (LB)	DIMENSIONS WxHxD (mm)	MODEL	LIST PRICE	MODEL	LIST PRICE
AC 110V 1PH Input / AC 220V 3PH Output								
0.5	2.5	2	2.2	80*185*140.5	TD20-0R4G-S1	\$ 503	TD20N1KIT-2	\$ 28
1	4.2	2	2.2	80*185*140.5	TD20-0R7G-S1	\$ 517	TD20N1KIT-2	\$ 28
1.5	5.8	2	2.2	80*185*140.5	TD20-1R1G-S1	\$ 670	TD20N1KIT-2	\$ 28
AC 220V 1PH Input / AC 220V 3PH Output								
0.5	2.5	1	2.0	80*160*123.5	TD20-0R4G-S2	\$ 454	TD20N1KIT-1	\$ 21
1	4.2	1	2.0	80*160*123.5	TD20-0R7G-S2	\$ 468	TD20N1KIT-1	\$ 21
2	7.5	2	2.6	80*185*140.5	TD20-1R5G-S2	\$ 607	TD20N1KIT-2	\$ 28
3	10	2	2.6	80*185*140.5	TD20-2R2G-S2	\$ 719	TD20N1KIT-2	\$ 28
AC 220V 3PH Input / AC 220V 3PH Output								
0.5	2.5	2	2.2	80*185*140.5	TD20-0R4G-2	\$ 524	TD20N1KIT-2	\$ 28
1	4.2	2	2.2	80*185*140.5	TD20-0R7G-2	\$ 547	TD20N1KIT-2	\$ 28
2	7.5	3	6.8	146*256*167	TD20-1R5G-2-EU	\$ 669	TD20N1KIT-3	\$ 60
3	10	3	6.8	146*256*167	TD20-2R2G-2-EU	\$ 689	TD20N1KIT-3	\$ 60
AC 460V 3PH Input / AC 460V 3PH Output								
1	2.5	2	2.2	80*185*140.5	TD20-0R7G-4	\$ 610	TD20N1KIT-2	\$ 28
2	4.2	2	2.2	80*185*140.5	TD20-1R5G-4	\$ 648	TD20N1KIT-2	\$ 28
3	5.5	2	2.2	80*185*140.5	TD20-2R2G-4	\$ 711	TD20N1KIT-2	\$ 28

Dimensional Drawings IP20

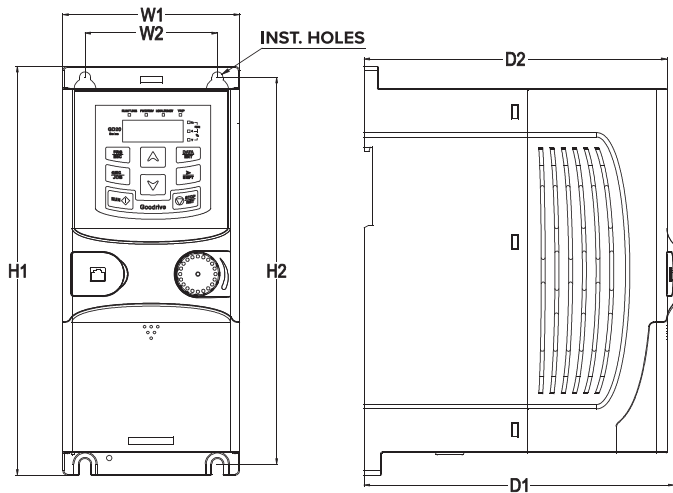


Figure 1 - Wall Mount Frames 1 - 3

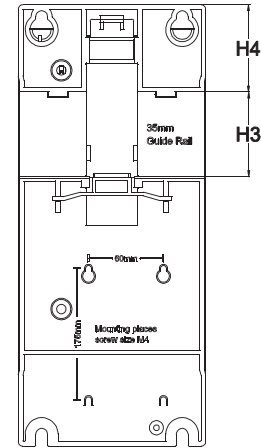


Figure 2 - Din Rail Mount Frames 1 - 2

FRAME	W1	W2	H1	H2	H3	H4	D1	D2	INSTALLATION HOLES
1	80	60	160	150	35.4	36.6	123.5	120.3	4-Ø5
2	80	60	185	175	35.4	36.6	140.5	137.3	4-Ø5
3	146	131	256	243.5	--	--	175	167	4-Ø5

Dimensions are in mm

Dimensional Drawings NEMA 1/IP21 Kit

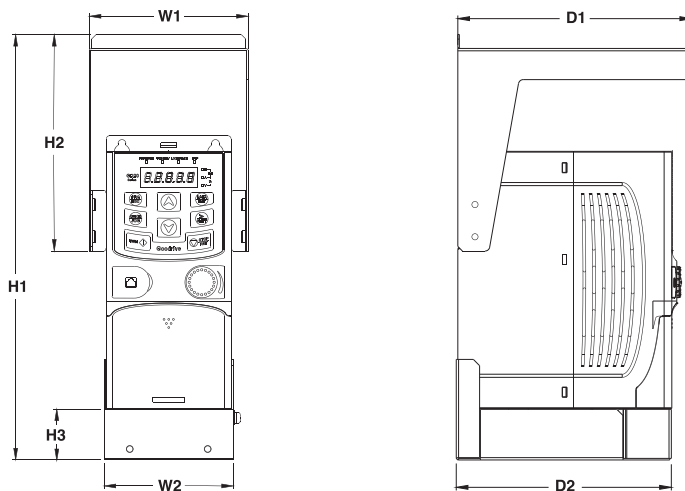


Figure 1 - Wall Mount Frames 1 - 3

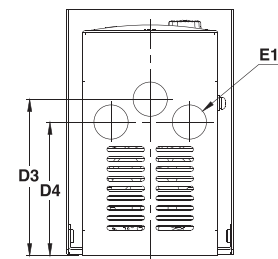
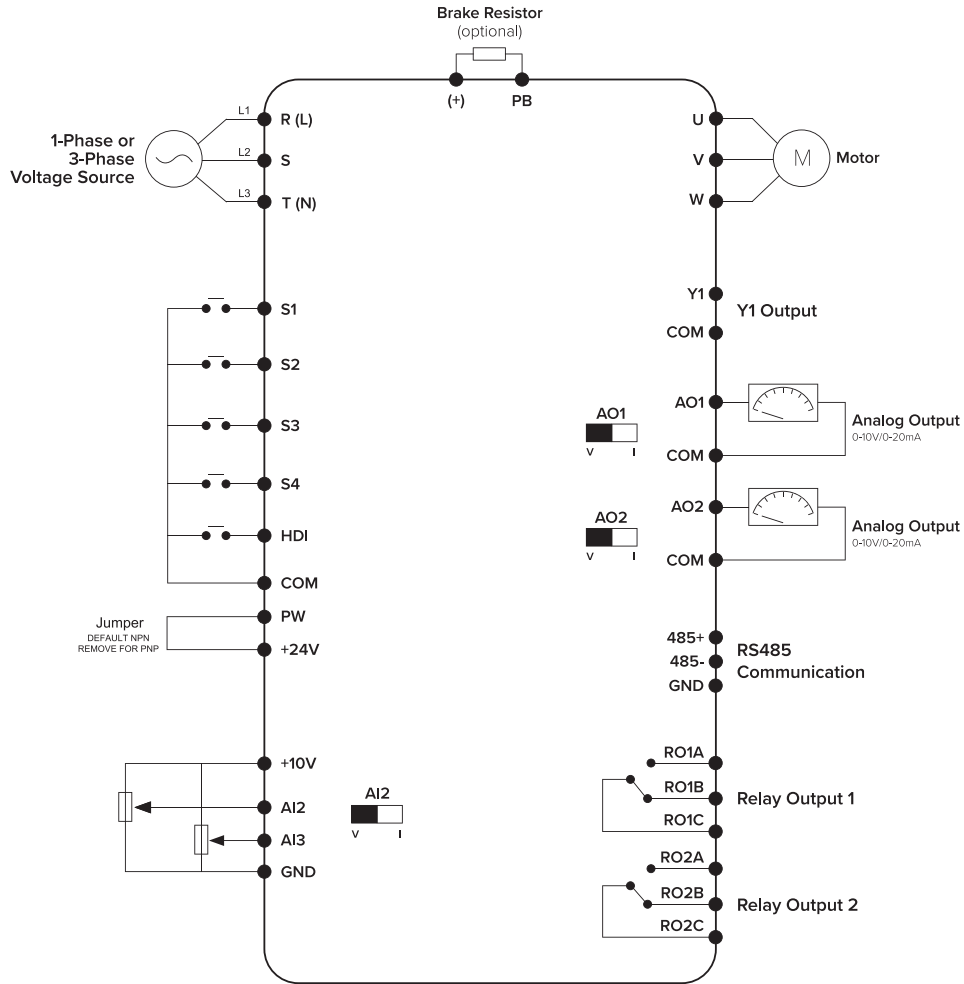


Figure 2 - Junction Box Frames 1 - 3

FRAME	W1	W2	H1	H2	H3	D1	D2	D3	D4	E1
1	102	83	248.5	139	32.5	150	122	90.5	76.5	3-Ø21
2	102	83	273	139	32.5	150	138	96	82	3-Ø21
3	167.5	155.5	451.5	134	60	240	169	128	--	2-Ø35

Dimensions are in mm

Control Circuit Wiring Diagram



Terminals

POWER TERMINALS	DESCRIPTION
L, N	Single phase AC input terminals which are generally connected with the power supply.
R, S, T (L1, L2, L3)	Three phase AC input terminals which are generally connected with the power supply.
PB, (+)	External dynamic braking resistor terminal.
U, V, W	Three phase AC output terminals which are generally connected to the motor.
PE	Protective grounding terminal.

INPUT/OUTPUT	TYPE	QUANTITY	DESCRIPTION
Input	Digital input	4 (S1-S4)	1kHz, NPN and PNP
	High speed pulse input	1 (HDI)	50kHz, NPN and PNP
	Analog input	2 (AI2-AI3)	0~10V, 0~20mA, -10V~+10V
Output	ON-OFF output	1 (Y1)	Maximum output frequency: 1kHz
	Analog output	2 (AO1-AO2)	0~10V, 0~20mA
	Relay output	2 (RO1-RO2)	3A/250VAC, NO+NC

