DT240 Series Inverter/VFD/AC Drive

User Manual

A&TS TECHNOLOGY

CORPORATION LIMITED

https://www.a-ts.net

DECLARATION

The information provided in this publication will be updated regularly, and any necessary corrections will be implemented in subsequent releases. Suggestions for improvement are welcome at any time.

Version	Product	Release Date	Note
V-25-01	DT240	25.08.2025	N/A
V-26-01	DT240	20.03.2026	N/A

1. Inspection

Product Overall Checking

Don’t install or use any Inverter/VFD that is damaged or have defective parts, otherwise it may cause injury!

Check the following items when unpacking.

1. Check the nameplate, make sure inverter model matches your order. The box contains a complete inverter/VFD product.

2. Inspect the whole exterior of inverter to ensure there are no scratches or other damage caused by transportation. If the inverter/VFD is damaged during transportation, or users find any missing or damage, please contact A&TS or your local supplier immediately.

3. If users have ordered optional parts, ensure the optional parts match your order.

4. If there is any damage in the inverter or other parts, please contact the local supplier or A&TS Company as early as possible.

2. Specifications and Optional Parts

2.1 DT240 Technical Specifications

Table 2-1 DT240 Technical Data

Item		Specifications
Rated input	Input voltage	380VAC, 300V-460V 220VAC, 190V-260V
	Frequency	50Hz/60Hz, fluctuation range ± 5%
	Permissible fluctuation range	Continuous fluctuation range≤±10%, Transient fluctuation range≤-15%-+10%. Voltage unbalance range≤3%, Frequency fluctuation≤5%
Rated output	Output voltage	3AC 0 – U_{supply} (the input voltage)
	Frequency range	Vector control, 0-300Hz V/F control, 0-3200Hz
	Overload ability	G type: 150% rated current for 60s, 180% rated current for 3s P type: 120% rated current for 60s, 150% rated current for 3s
Control features	Control modes	V/F control Sensor less flux vector control (SFVC, without PG) Closed-loop vector control (CLVC, with PG)
	Speed range	1:100 (SFVC) 1:1000 (CLVC)

	Starting torque	G type: 0.5Hz/150% (SFVC) 0Hz/180% (CLVC) P type: 0.5Hz/100%
	Torque boost	Auto torque boost, Manual torque boost 0.1%-30.0%
	Torque control accuracy	±5% (CLVC)
	Accuracy of speed at steady state	≤±0.5% rated synchronous speed ±0.5%(SFVC) ±0.02% (CLVC)
	Frequency resolution	Digital setting: 0.01Hz Analog setting, maximum frequency×0.025%
	Carrier frequency	0.5kHz-16kHz Automatic adjustment, according to load characteristics
	V/F curve	Three modes: linear type, multi-point type, N power V/F curve (1.2 power, 1.4 power, 1.6 power, 1.8 power, 2 power)
	V/F separation	2 modes, full separation, half separation
	Acc/Dec curve	Linear or S shape curve acc/dec mode
	Acc/Dec time	4 type acc/dec time, time range, 0.0-6500.0s
	Jog control	Jog frequency range: 0.00Hz-50.00Hz. Jog Acc/Dec time: 0.0-6500.0s.

	DC braking	DC braking frequency: 0.00Hz-maximum frequency Braking time: 0.0s-36.0s Braking action current value: 0.0%-100.0%
	Built-in PLC, Multi-speed operation	16 segments frequency, via the built-in PLC or terminals
	Built-in PID	PID process closed loop control
	Automatic voltage regulation (AVR)	Keep the output voltage stable, when the power grid voltage fluctuates
	Auto voltage/current regulation	Voltage/current amplitude is regulated to avoid overvoltage or overcurrent automatically.
	Torque limitation and control	Auto torque limitation, to avoid overcurrent tripping.
	Vector control	Current vector control technology, supports both asynchronous and synchronous motor.
Operation features	Immunity to transient power failure	By regenerative load power to control busbar voltage, the AC Drive/VFD still gives output when transient power failure occurs.
	Virtual IO	5 groups virtual terminals, supports basic logic
	Timing control	Time setting range, 0.0 min - 6500.0 min
	Multi-motor switchover	Supports 2 groups of motor parameters, 2 motors switchover control

	Communication	Supported fieldbus: RS-485
	Multi-encoder	Supports differential, open collector, UVW, resolver, sin-cos encoder and so on.
	Frequency setting channel	10 types, digital setting, analog voltage setting, analog current setting, pulse setting, serial port setting.
	Auxiliary frequency setting	10 types, supports flexible auxiliary frequency tuning, frequency synthesis.
	Command channel	Operation panel setting, terminals setting and serial port setting.
	Wobble frequency function	Triangular wave frequency control function for the textile industry
	Output terminal	Standard configuration: 1 high speed impulse output terminal (Could be open collector mode), supports 0 - 100kHz square wave signal output. 1 digital output (DO) terminal 2 relay output terminals 2 analog output (AO) terminals, supports 0 - 20mA or 0 - 10V (selectable)
	Input terminal	Standard configuration: 6 digital input (X) terminals, one of them supports 100kHz impulse input 2 analog input (AI) terminals, one supports 0 - 10V voltage input only, the other supports 0 - 10V voltage input or 0 - 20mA current input

	Protective function	Over/Under voltage protection, Over current protection, overload protection, Phase-failure protection (Input and output), Short circuit protection, Motor overspeed protection, No load protection, Short-circuit braking protection, Braking resistor short-circuit detection, Motor short circuit detection after power on, Input/output phase loss failure protection, Over/Under current protection, Over/Under voltage protection, Overheat and overload protection. etc.
	Other functions	Restart after power failure, Speed tracking, Immunity to momentary power outage, Multi-segment speed, Built-in PLC, Slip compensation, Parameter auto-tuning, Torque limitation, Phase sequence transformation, Frequency hopping, Torque and speed control mode switching, DC braking, etc.
	LED keypad	Able to show many parameters, such as, frequency setting, output frequency, output voltage, etc.
	Keypad lock	Total lock or partially lock, in order to avoid misoperation.
Others	Operating ambient temperature	-10℃-＋40℃, derating is required during 40-50℃. above 40℃, each degree increased, derating 2%. Highest temperature, 50℃.
	Operating environment	In-door, no direct sunlight, no dust, no corrosive gas or combustible gas, no oil mist, vapor, drip, or salinity.
	Cooling	Fan cooling, natural cooling

	Storage temperature	-40°C - +60°C
	Relative humidity	Less than 95% RH, No condensation of moisture, No frost allowed
	Installation altitude	Less than 1000m (Above 1000m derating)
	Vibration	Less than 5.9m/s2(0.6g)
	IP Grade	IP20
	Certification	CE
	Power distribution system	TN, TT

2.2 Products Series Profile

2.2.1 DT240 Designation

1	2	3	4		5	6	7	8	9	10	11		12	13	14	15
DT	2	4	0	—	4	T	0	7	5	0	G	—	A	B	R	E

[1] Product Name	
DT	DT Series Inverter/VFD
[2-4] Product Series	
320	High-performance Inverter/VFD/Servo
240	Standard general-purpose Inverter/VFD
120	Economical general-purpose Inverter/VFD

[5] Voltage	
2	220V
4	380V
[6] Phase	
S	Single Phase
T	Three Phase
[7-10] Rated Power	
0022	2.2KW
0750	75KW
[11] Type/Mode	
G	High Overload/Constant Torque
P	Low Overload/Variable Torque

[12] Motor Type	
A	AC Asynchronous Motor
M	Permanent Magnet Synchronous Motor
H	High-speed Synchronous Motor
[13-14] Braking Unit & Reactor	
B	With the Built-in Braking Unit
R	With DC Reactor
X	With Default Configuration
[15] Encoder Board	
Null	Without Encoder Board
EC	With Encoder Board

Figure 2-1 DT240 inverter/VFD Model Designation

2.2.2 DT240 Models List

Table 2-2 DT240 general purpose series inverter/VFD

Inverter model (G, high overload. P, light overload)	Rated input current (A)	Rated output current (A)	Moto power (kW)
DT240-2S0007G-AB	8.2	4.0	0.75
DT240-2S0015G-AB	14.0	7.5	1.5
DT240-2S0022G-AB	23.0	9.0	2.2
DT240-2T0007G-AB	5.3	4.0	0.75
DT240-2T0015G-AB	9.0	7.5	1.5
DT240-2T0022G-AB	11.0	9.0	2.2
DT240-2S0040G-AB	36.0	17.0	4.0
DT240-2S0055G-AB	55.0	25.0	5.5
DT240-2S0075G-AB	68.0	32.0	7.5
DT240-2T0040G-AB	19.0	17.0	4.0
DT240-2T0055G-AB	28.0	25.0	5.5
DT240-2T0075G-AB	35.0	32.0	7.5
DT240-2T0110G-AB	47.0	45.0	11.0
DT240-2T0150G-AB	62.0	55.0	15.0
DT240-2T0185G-AX	77.0	70.0	18.5
DT240-2T0220G-AX	92.0	80.0	22
DT240-2T0300G-AX	113.0	110.0	30
DT240-2T0370G-AX	156.0	130.0	37
DT240-2T0450G-AX	180.0	160.0	45
DT240-2T0550G-AX	214.0	200.0	55

Inverter model (G, high overload. P, light overload)	Rated input current (A)	Rated output current (A)	Moto power (kW)
DT240-2T0750G-AX	256.0	253.0	75
DT240-4T0007G/0015P-AB	3.4/5.0	2.3/3.7	0.75/1.5
DT240-4T0015G/0022P-AB	5.0/5.8	3.7/5.0	1.5/2.2
DT240-4T0022G/0040P-AB	5.8/10.0	5.0/9.0	2.2/4.0
DT240-4T0040G/0055P-AB	10.0/14.6	9.0/13.0	4.0/5.5
DT240-4T0055G-AB	14.6	13.0	5.5
DT240-4T0055G/0075P-AB	14.6/20.5	13.0/17.0	5.5/7.5
DT240-4T0075G/0110P-AB	20.5/26.0	17.0/25.0	7.5/11
DT240-4T0110G/0150P-AB	26.0/35.0	25.0/32.0	11/15
DT240-4T0150G-AB	35.0	32.0	15
DT240-4T0150G/0185P-AB	35.0/38.5	32.0/37.0	15/18.5
DT240-4T0185G-AB	38.5	37.0	18.5
DT240-4T0185G/0220P-AB	38.5/46.5	37.0/45.0	18.5/22
DT240-4T0220G/0300P-AB	46.5/62.0	45.0/60.0	22/30
DT240-4T0300G-AB	62.0	60.0	30
DT240-4T0300G/0370P-AX	62.0/76.0	60.0/75.0	30/37
DT240-4T0370G/0450P-AX	76.0/92.0	75.0/90.0	37/45
DT240-4T0450G/0550P-AX	92.0/113.0	90.0/110.0	45/55
DT240-4T0550G/0750P-AX	113.0/157.0	110.0/152.0	55/75
DT240-4T0750G/0900P-AX	157.0/180.0	152.0/176.0	75/90
DT240-4T0900G-AX	180.0	176.0	90
DT240-4T0900G/1100P-AX	180.0/214.0	176.0/210.0	90/110

Inverter model (G, high overload. P, light overload)	Rated input current (A)	Rated output current (A)	Moto power (kW)
DT240-4T1100G/1320P-AX	214.0/256.0	210.0/253.0	110/132
DT240-4T1320G/1600P-AX	256.0/307.0	253.0/304.0	132/160
DT240-4T1600G-AX	307.0	304.0	160
DT240-4T1600G/1850P-AX	307.0/345.0	304.0/340.0	160/185
DT240-4T1850G/2000P-AX	345.0/385.0	340.0/380.0	185/200
DT240-4T2000G/2200P-AX	385.0/430.0	380.0/426.0	200/220
DT240-4T2200G/2500P-AX	430.0/488.0	426.0/470.0	220/250
DT240-4T2500G-AX	488.0	470.0	250
DT240-4T2500G/2800P-AX	488.0/525.0	470.0/520.0	250/280
DT240-4T2800G/3150P-AX	525.0/605.0	520.0/590.0	280/315
DT240-4T3150G/3550P-AX	605.0/667.0	590.0/650.0	315/355
DT240-4T3550G/4000P-AX	667.0/750.0	650.0/725.0	355/400
DT240-4T4000G/4500P-AX	750.0/830.0	725.0/820.0	400/450
DT240-4T4500G/5000P-AX	830.0/920.0	820.0/900.0	450/500
DT240-4T5000G-AX	920.0	900.0	500

NOTE

For inverter/VFD with a power greater than or equal to 160kW, DC reactors can be configured when needed.

2.2.3 DT240 Mounting Dimension

Table 2-3 Dimensions of DT240 series (mm)

Inverter/VFD model	D	H	W	Bore diameter(mm)	Gross weight (kg)	Mounting
DT240-2S0007G-AB	166	186	126	4.5	2.1	Wall-mounted
DT240-2S0015G-AB						
DT240-2S0022G-AB						
DT240-2T0007G-AB						
DT240-2T0015G-AB						
DT240-2T0022G-AB						
DT240-4T0007G/0015P-AB						
DT240-4T0015G/0022P-AB						
DT240-4T0022G/0040P-AB						
DT240-4T0040G/0055P-AB						
DT240-4T0055G-AB						
DT240-2S0040G-AB	180	256	150	5.5	4.5	Wall-mounted
DT240-2S0055G-AB						
DT240-2S0075G-AB						
DT240-2T0040G-AB						
DT240-2T0055G-AB						
DT240-2T0075G-AB						

Inverter/VFD model	D	H	W	Bore diameter(mm)	Gross weight (kg)	Mounting
DT240-4T0055G/0075P-AB						
DT240-4T0075G/0110P-AB						
DT240-4T0110G/0150P-AB						
DT240-4T0150G-AB						
DT240-4T0185G-AB						
DT240-2T0110G-AB						
DT240-2T0150G-AB						
DT240-4T0150G/0185P-AB	210	338	221	6.5	8.5	Wall-mounted
DT240-4T0185G/0220P-AB						
DT240-4T0220G/0300P-AB						
DT240-4T0300G-AB						
DT240-2T0185G-AX						
DT240-2T0220G-AX						
DT240-4T0300G/0370P-AX	236	430	283	6.5	18	Wall-mounted
DT240-4T0370G/0450P-AX						
DT240-4T0450G/0550P-AX						
DT240-2T0300G-AX	270	510	340	8.0	38	Wall-mounted

Inverter/VFD model	D	H	W	Bore diameter(mm)	Gross weight (kg)	Mounting
DT240-2T0370G-AX						
DT240-2T0450G-AX						
DT240-4T0550G/0750P-AX						
DT240-4T0750G/0900P-AX						
DT240-4T0900G-AX						
DT240-2T0550G-AX						
DT240-2T0750G-AX						
DT240-4T0900G/1100P-AX	311	671	395	12.0	65	Wall-mounted
DT240-4T1100G/1320P-AX						
DT240-4T1320G/1600P-AX						
DT240-4T1600G-AX						
DT240-4T1600G/1850P-AX						
DT240-4T1850G/2000P-AX						
DT240-4T2000G/2200P-AX	325	714	445	12.0	80	Wall-mounted or cabinet
DT240-4T2200G/2500P-AX						
DT240-4T2500G-AX						
DT240-4T2500G/2800P-AX	388	966	596	12.0	160	nt ed or

Inverter/VFD model	D	H	W	Bore diameter(mm)	Gross weight (kg)	Mounting
DT240-4T2800G/3150P-AX	388	1496	720	14.0	240	Wall-mounted
DT240-4T3150G/3550P-AX						
DT240-4T3550G/4000P-AX		1235				
DT240-4T4000G/4500P-AX						
DT240-4T4500G/5000P-AX		1684				Cabinet
DT240-4T5000G-AX						

2.2.4 Operation Panel

Parameter setting and configuration can be done on the operation panel. Please refer to the dimensions in Figure 2-3.

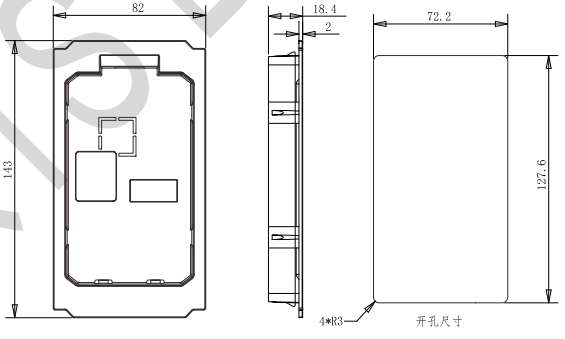


Figure 2-3 Operation panel dimensions of DT240 inverter/VFD

2.2.5 Optional Parts

A&TS provides below optional parts.

Accessory Name	Selection range	Specification	Remark
Braking Unit	-	-	-
Keyboard tray	0.4kW-500kW optional	-	Hole-cutting Size
Keyboard extension cable	0.4kW-500kW optional	0.5m, 1.5m, 3m	Flat ribbon cable (the keyboard potentiometer is functioning)
			Network cable (the keyboard potentiometer does not take effect)
DC reactor	160kW-500kW optional	-	-

3. Installation and Wiring

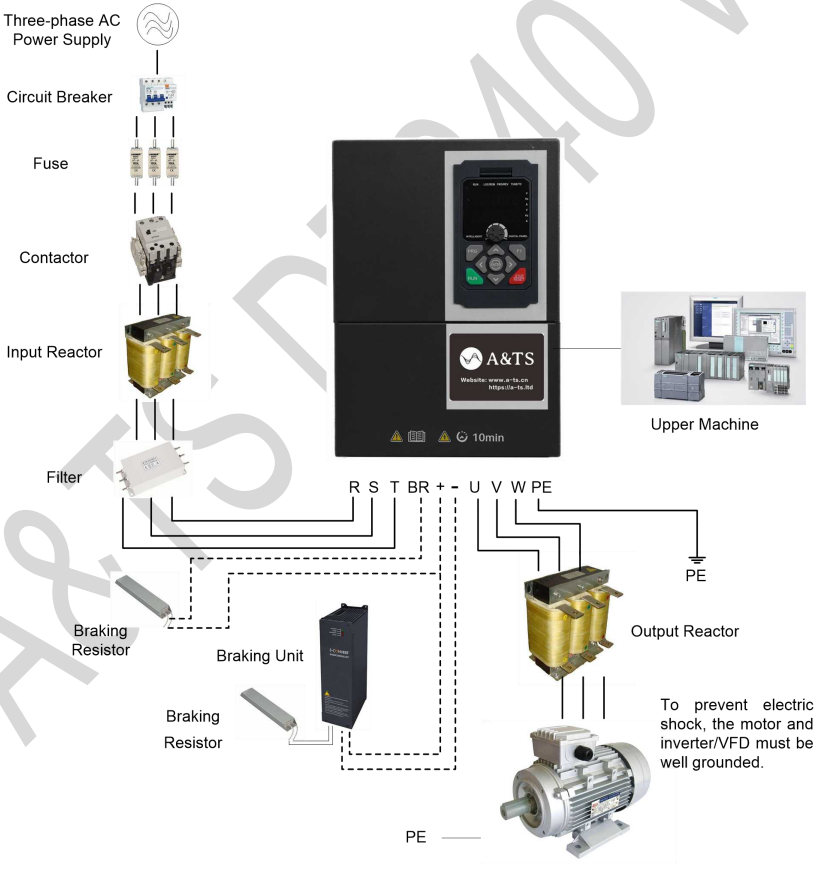
3.1 Installation

Ambient temperature, -10 ℃-40 ℃.

If the temperature is higher than 40 ℃, heat dissipation is required and the inverter/VFD should be derated.

Humidity should be less than 95%, no condensation.

Mounting in the location free of direct sunlight, dust, greasy dirt, metal powder, corrosive gas, explosive gas and combustible gas.



Install the inverter/VFD vertically indoors, with good ventilative conditions for heat dissipation.

Vibration should be less than 5.9m/s^2 (0.6g), away from the punching machine or the similar machines.

If there are any special requirements for installation, please contact your local supplier or A&TS for help.

The requirements on mounting space and clearance are shown in Figure 3-1 and 3-2.

When two inverters are mounted one on top the other, an insulation guide plate (air flow diversion) should be fixed between them as shown in Figure 3-3.

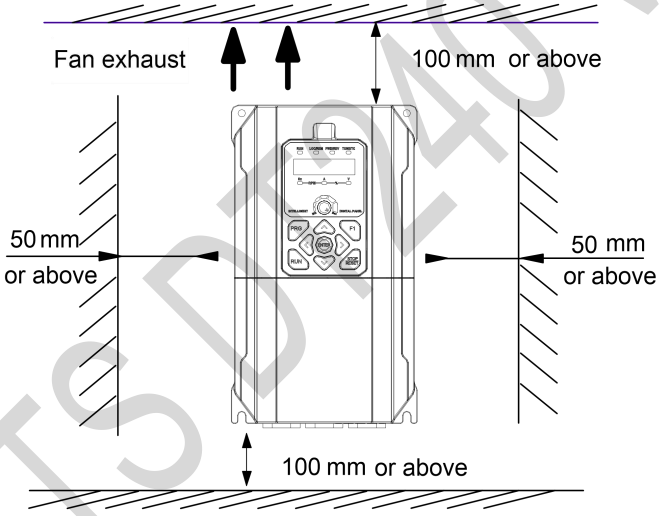


Figure 3-1 Installation spacing distance

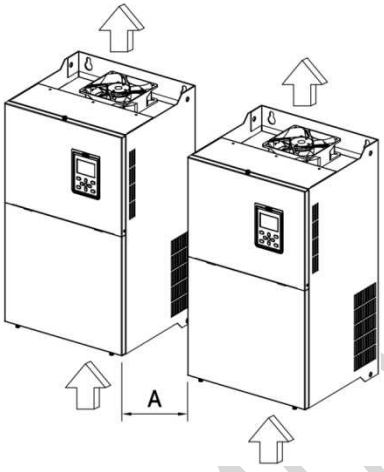


Figure 3-2 Installation of several inverters

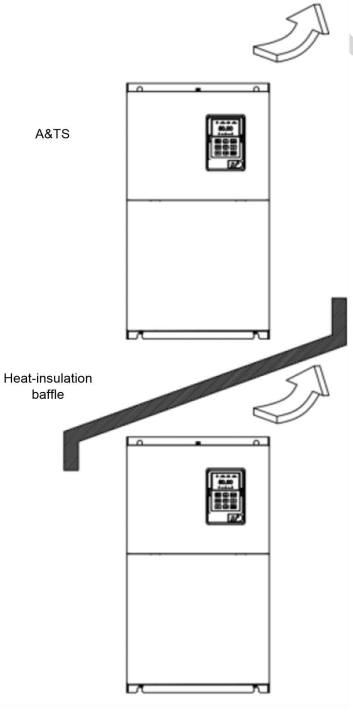


Figure 3-3 Installation of one inverter on top the other

4. Operation Procedure

4.1 Inverter/VFD Operation Panel

- **Operation Panel Appearance and Key Function Description**

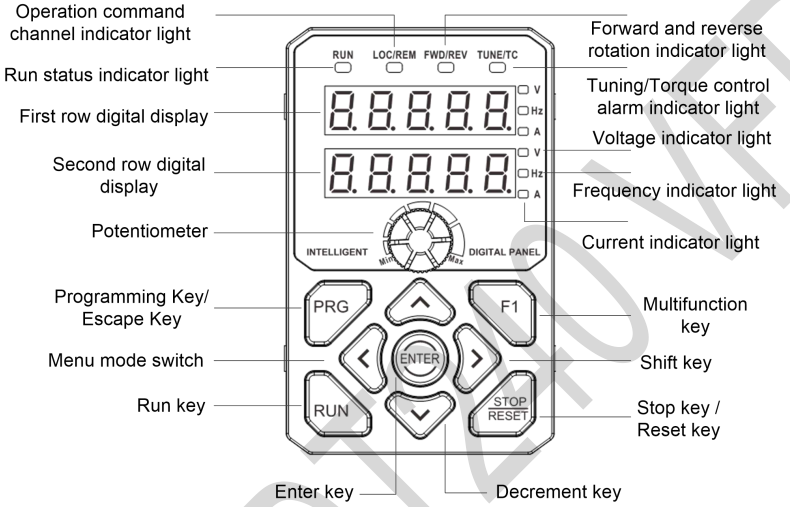
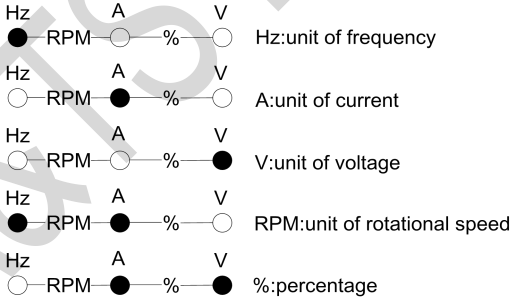


Figure 4-1 Operation panel

- **Indicator parameter unit**



There are 9 keys on inverter/VFD operation panel. Function of each key is defined as the table 4-1

Table 4-1 Operation Panel Menu

Key	Name	Function
PRG	Programming Key/Escape Key	Enter or exit programming mode
ENTER	Enter key	Enter the submenu or confirm the data
	Increment key	Increment of data or function code
	Decrement key	Decrement of data or function code
	Shift key	In editing mode, it can be used to select the modification bits for setting data; In other modes, it can switch the displayed status parameters.
	Menu mode switch	Set the mode to be switched through PP-04.
F1	Multifunction key	The F1 multifunction key can be defined for command source switching, jog, display mode switching, and other functions. It can be set through PE-05.
RUN	Operation key	Under operation panel, press this key for operation
STOP/RESET	Stop/Reset key	Halt or failure reset
◎	Potentiometer	Setting frequency

5 Maintenance and Troubleshooting

CAUTION

1. Only trained personnel can dismantle the inverter/VFD for repairing or device replacement.

2. Don't leave metal parts like screws or pads in the inverter/VFD, otherwise the equipment may be damaged.

5.1 Repairing and Maintenance of the DT240

5.1.1 Routine Maintenance

The influence of the ambient temperature, humidity, dust and vibration will cause the aging of the devices in inverter/VFD, which may cause potential faults or reduce the service life of the inverter/VFD. Therefore, it is necessary to carry out routine and periodic maintenance.

5.1.2 Periodic Inspection

The inverter/VFD should be checked every 3 months or 6 months according to the actual environment.

Please do perform periodic inspection in places where it is difficult to check.

5.1.3 Storage of the Inverter/VFD

For temporary and long-term storage of the inverter/VFD, pay attention to the following two aspects:

1) Pack the inverter/VFD with the original packing box provided by A&TS Company. Put them in locations free of high temperature, humidity, dust, metal powder, and with good ventilation.

2) Long-term storage degrades the electrolytic capacitor. Therefore, the inverter/VFD must be energized once every 2 years, each time lasting at least 5 hours. The input voltage must be increased gradually to the rated value with the regulator.

The End

A&TS Technology Corporation Limited

Address: Building A, 1970 Creative Industry Park, Ping'an road, Longhua District, Shenzhen, China 518110

Web: https://www.a-ts.net

Tel: +86-27-83520855

Mobile: +86-13322987810 (WhatsApp)

Email: contact@a-ts.net

service@a-ts.net

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