FST-380L 820 860 880 (100)

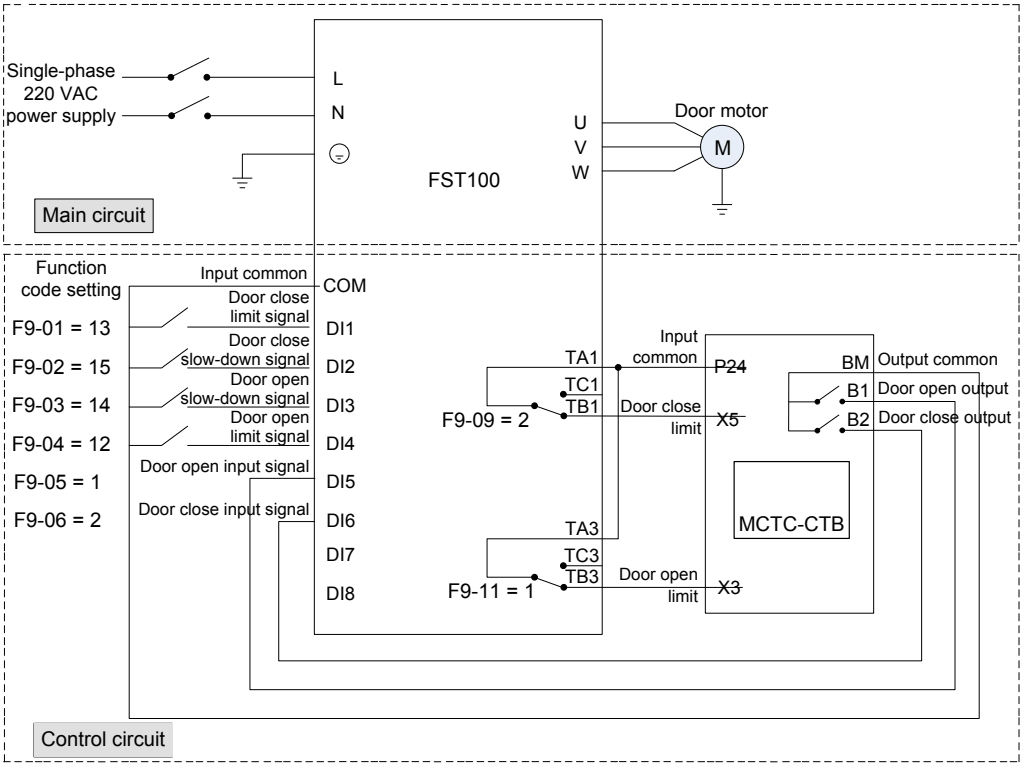
Product Information

Anyhertz Drive (Shenzhen) Co., Ltd.

FST-100

Product Information

FST100 door machine dedicated frequency converter



Technical Specifications

item	Subproject	Technical indicators
performancec ontrol	Maximum output frequency	99.00Hz
	Speed range	1: 50 (magnetic flux vector control): 1: 100O (closed loop vector control)
	Steady speed accuracy	± 0.5% (flux vector control): ± 0.05%% (closed-loop vector control)
	Starting torque	0Hz - 180% (closed loop vector control): 1Hz - 150% (magnetic flux vector control)
	buccal resolution	0.01Hz
	Current resolution	0.01A
	Carrier rate	2.0kHz ~ 16.0kHz
Main Function	For AC asynchronous machines, it supports static and dynamic tuning of motor parameters;For AC permanent magnet synchronous machines, it supports tuning of motor parameters and encoder zero position in no-load and on-load modes.	
	Supports AC permanent magnet synchronous machine closed-loop vector control under ordinary ABZ encoder mode, encoder open collector output or push-pull cure method	
	Under magnetic flux vector control, it supports functions such as automatic torque boost, manual torque boost, and over-excitation.	
	Support door width self-learning function	
	Support automatic demonstration function	
	Support automatic recognition function when encountering obstacles	
	Support one-click debugging function	
Protect Function	Controller overload protection: rated current 150% protection for 1 minute, 180% protection for 1 second	
	Support controller over-voltage protection, under-voltage protection, over-current protection, output phase loss protection, phase-to-phase short circuit protection, power outage anti-clamping protection and other protection functions	
Environment Require	Installation Environment	Indoors, away from direct sunlight, dust, corrosive gases, flammable gases, oil mist, water vapor,Salt, etc.
	Altitude	Below 1000m, please derate when above 1000m.
	Ambient temperature	-10℃~+40℃(Ambient temperature is between 40℃~50℃, please derate)
	Humidity	Less than 95%RH, no condensation of water droplets
	Vibration	Less than 5.9ms(o.6g)
	Storage temperature	-20℃~+ 60℃
	Cooling method	0.2kW adopts self-cooling method, 0.4kW and 0.75kW adopt air-cooling method.
	Protection level	IP20
	Storage place	Store in a clean, dry indoor location
	Means of transportation	In standard packaging boxes, it can be transported by cars, trains, airplanes, ships, etc.
	Transportation vibration	When sine vibration is 9~200Hz: 15m/s²(1.5g)

FST-820

Product Information

FST820 elevator dedicated closed-loop frequency converter

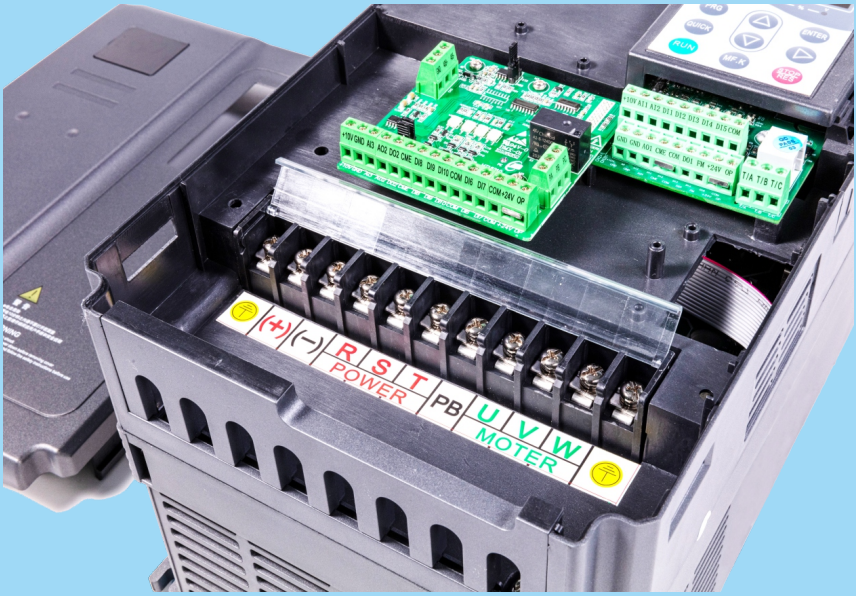
Technical Specification

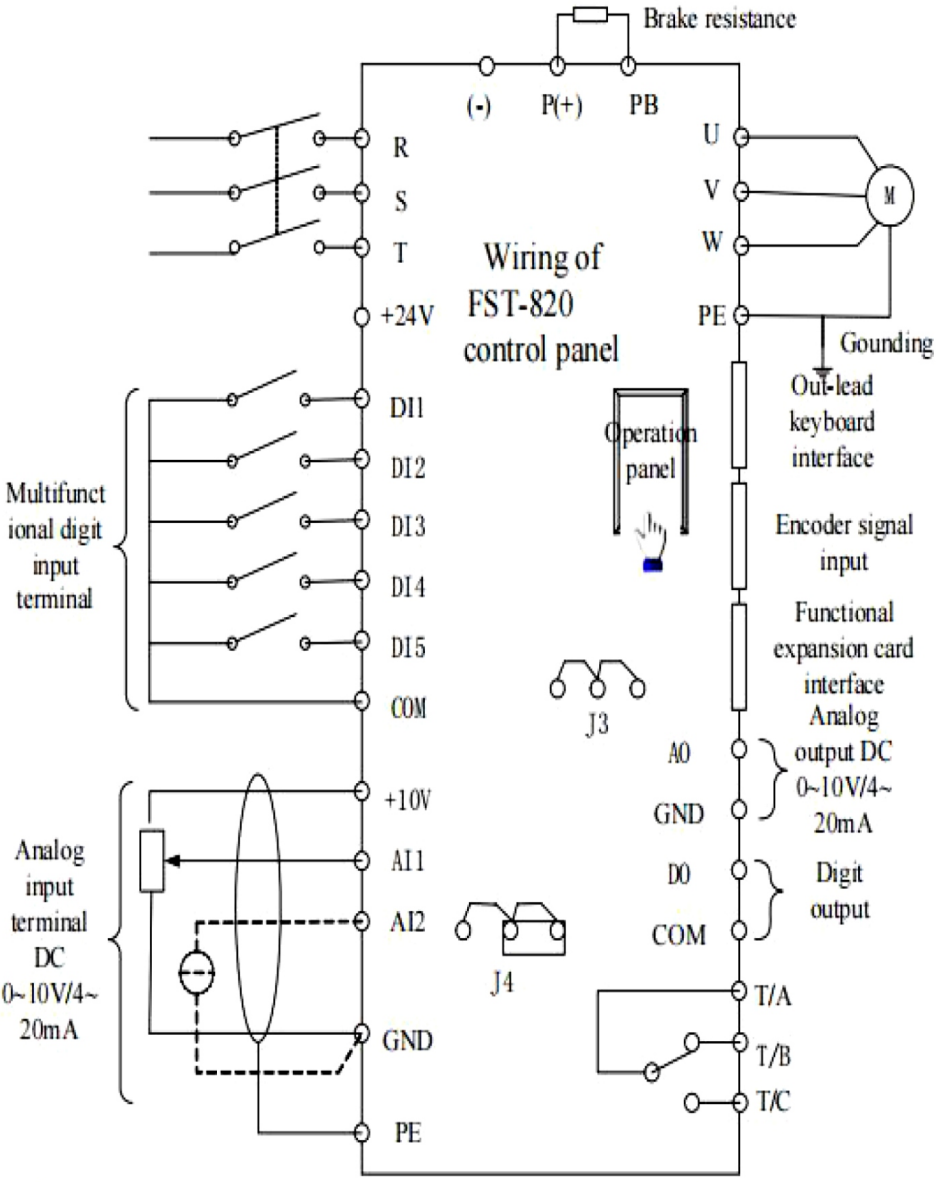
Technical Specifications

Item		Specification	
Basic specification	Carrier frequency	0.5k ～16k(Hz)：Carrierfrequencycanbeadjustedautomaticallyaccordingtotheloadcharacteristic.	
	Input frequency resolution	Data setting：0.01HzAnalogsetting：highestfrequencyx0.1%	
	Output frequency accuracy	Data setting：highestfrequencyx±0.01%Analogsetting：highestfrequencyx±0.01%	
	Control mode	Split-ring vector control (SVC)/ Closed loop vector control (VC)	
	Startup torque	0.5Hz/180%（SVC）；0Hz/200%（VC）	
	Speed control range	1：100（SVC）	1：1000（VC）
	Speed accuracy	±0.5%（SVC）	±0.05%（VC）
	Overload capability	150% rated current for 60 seconds; 180% rated current for 1 second.	
	Speed up and speed down curve	Straight line or S curve acceleration and deceleration way：4groupaccelerationanddecelerationtimeandScurvesettings;variouscombinations	
	Testing and mending control	Can be appointed by any multi-stage speed	
	Multi-stage running	Realize at least 8 stage speed	

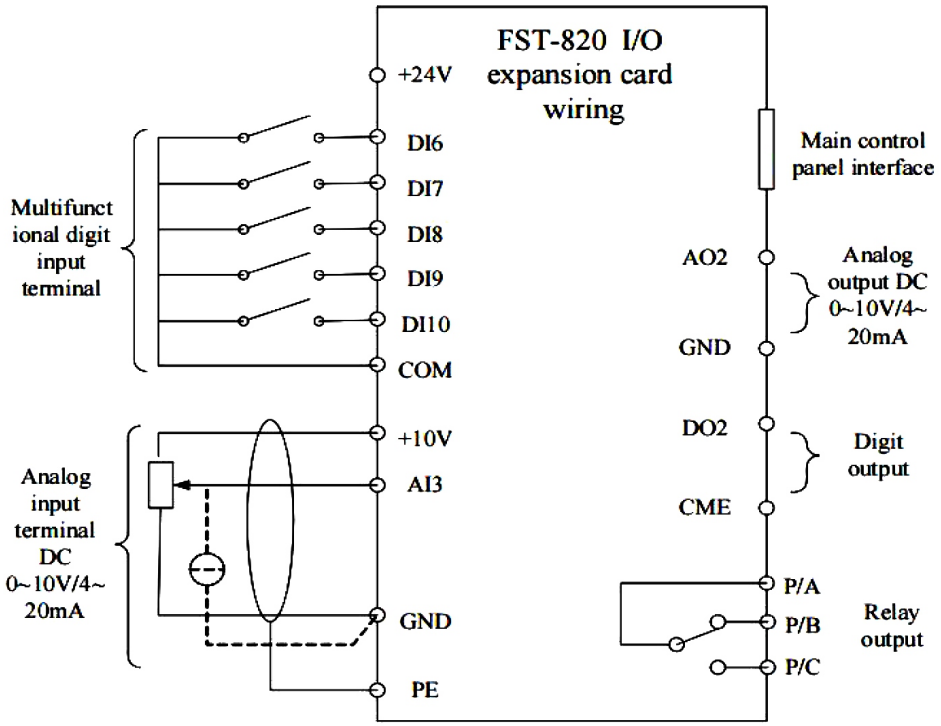
Item		Specification
	Automatic voltage regulation（AVR）	Keep output voltage permanent, when network voltage changes
Display and operation	LED display	Display setting frequency, output frequency, output voltage, output current and other parameters
	LCD display operating panel	Choose parts, operation tips in Chinese/English
	Parameter copy	LCD operating panel makes a copy of parameters quickly
	Protection function	Provide 40 kinds of protection such as electrify short circuit survey, in-out lack phase protection, over current protection, over voltager protection, undervoltage protection etc.
	Key lock and function choosing	Set partial or complete lock of the keys; define function range of part of the keys to avoid misoperation
Special function	Electrify peripheral equipment safety self-examination	Implement electrify and do peripheral equipment detection like grounding, short circuit etc.
	Blackout emeegency function	The realization of emergency project is easy and convenient
	Over speed protection	Elevatoe over speed protection function built in; various operation choices
	Judgment of speed deviation	Speed deviation testing function built in to find out potential risks in time
	Forced speed changing function	Effectively avoid hoisting and resting of the elevator
	Motor temperature testing	Judge the temperature of the motor in time and eliminate potential risks
	Startup compensation	Two ways of startup torque compensation；analogueordigit
	QUICK key	Customers can define shortcut menu freely
	Timing control	Convenient for timing
Input/output characteristi	Running order channel	Three channels：decidedbyoperationpanel,controlterminal,communication
	Frequency source	Five frequency source：decidedbydigit,analoguevoltage,analoguecurrent,communication,multi-stagespeed
	Input terminal	10-path digit input terminal, 1 path of it can be used as high-speed pulse input, which is compatible to PNP or NPN3-path analogue input terminal, 1 path of it can only be used as voltage input, another one can be used as voltage or current input.

Item		Specification
	Output terminal	3-path digit output terminal
		2-path relay output terminal
		2-pathanalogueoutputterminal,0/4～20mAor0/2~10Vcanbechosen, canrealizetheoutputofsetting frequency,outputfrequencyandotherphysicalquantities
Circumstance	Altitude	Lower than 1000 meters
	Surrounding temperature	-10°C～+40°C(D12whenwithin40°C～50°C,deratingisrequired)
	Humidity	Lessthan95%RH, nocondensation

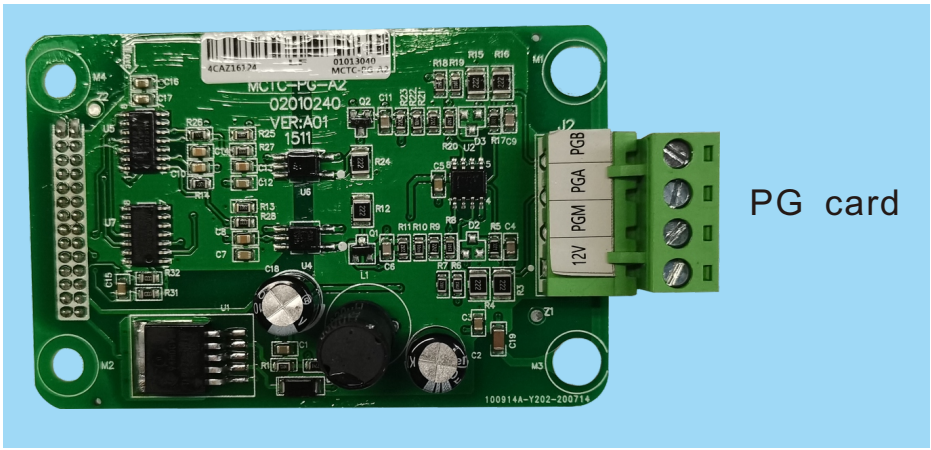




Applicable to FST-820-7R5GT4～FST-820-037GT4 inverter



FST-820 Inverter I/O Expansion board wiring



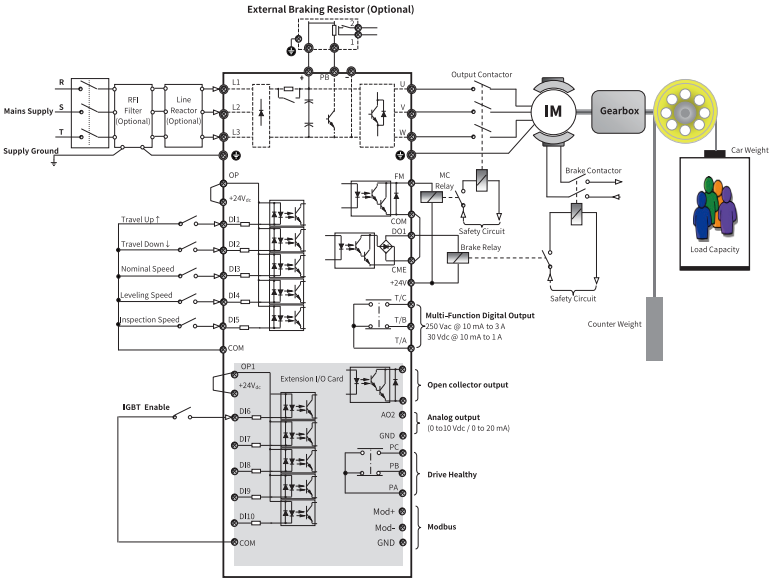
FST-380L

Information

FST-380L elevator dedicated open-loop frequency converter

FST-380L elevator dedicated open-loop frequency converter

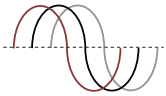
Information and Wiring



Application Features

- Smooth ride performance
- Integrated brake control
- UPS/ARD (sine & quasi square type) rescue light load direction sensing
- 5 independent S-Ramps
- Easy setup with default factory setting. gets you started quickly
- Programmable DC injection braking

Enhanced reliability with conformal coating. protects against humidity and dust pollution



Operation in high 45°Cavg ambient temperatures

Wide operating voltagerange 323 to 528 Vac

Cooling fan removable for easy maintenance

Drive Key Features

- Automatic torque boost
- Slip compensation
- Flexible programmable I/O's
- Onboard Modbus-RTU
- Comprehensive trip diagnostics
- Built-in dynamic braking unit
- Output frequency 0.00~100.00 Hz

Drive Model			FST-380L-4R0T4	FST-380L-5R5T4	FST-380L-7R5T4	FST-380L-011T4	FST-380L-015T4
Dimensions	Height [mm]		248		322		
	Width [mm]		160		208		
	Depth [mm]		183		192		
Drive Input	Rated Input Voltage		3-phase 380 to 480 Vac,-15% to +10% (323 to 528 Vac)				
	Rated input Current [A]		10.5	14.6	20.5	26	35
	Rated Input Frequency		50/60 Hz, ±5% (47.5 to 63 Hz)				
Drive Output	Applicable Motor	[kw]	4.0	5.5	7.5	11	15
		[HP]	5	7.5	10	15	20
	Output Current [A]*2		9	13	17	25	32
	Power Capacity [kVA]		5.9	8.9	11	17	21
	Overload Capacity		150% for 60 Sec & 180% for 3 Sec				
	Max. Output Voltage		3-phase 380 to 480 Vac(Proportional to input voltage)				
	Max. Output Frequency		100.00 Hz				
Braking Resistor	Recommended Power [W]		750	1200	1500	2500	3000
	Recommended Resistance[Q]		≥130	≥90	≥65	≥43	≥32
Enclosure			IP20				

FST-860

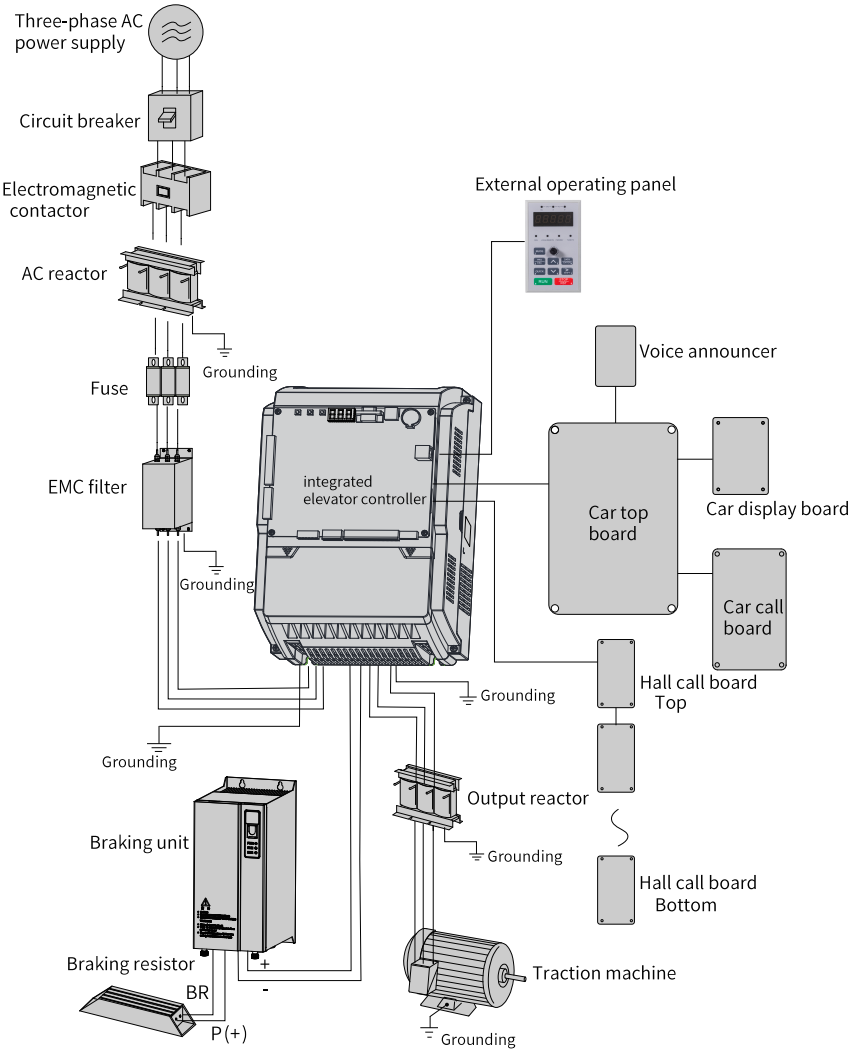
Information

FST-860 elevator dedicated frequency converter integrated machine

Technical Specifications

Technical specifications of the 860

Item		Specification
Basic specifications	Maximum frequency	99 Hz
	Carrier frequency	2–16 kHz, adjusted automatically based on the load features
	Motor control mode	Sensorless vector control (SVC) Closed-loop vector control (CLVC) Voltage/Frequency (V/F) control
	Startup torque	0.5 Hz: 180% (SVC) 0 Hz: 200% (CLVC)
	Speed adjustment range	1:100 (SVC) 1:1000 (CLVC) 1:50 (V/F)
	Speed stability accuracy	±0.5% (SVC) ±0.05% (CLVC)
	Torque control accuracy	±5% (CLVC)
	Overload	60s for 150% of the rated current, 1s for 200% of the rated current
	Motor auto-tuning	With-load auto-tuning; no-load auto-tuning



Peripheral components connection

Item		Specification
Basic specifications	Distance control	Direct travel ride mode in which the leveling position can be adjusted flexibly
	Acceleration/ Deceleration curve	N curves generated automatically
	Slow-down	New reliable slow-down function, automatically identifying the position of the slow-down shelf
	Shaft auto-tuning	32-bit data, recording the position in the shaft accurately
	Leveling adjustment	Flexible and easy leveling adjustment function
	Startup torque compensation	Load cell startup pre-torque compensation No-load-cell startup pre-torque self-adaption
	Real-time clock	Real-time clock for time-based floor service, peak service and automatic password
	Test function	Easy to implement multiple elevators commissioning functions.
	Fault protection	Solutions to different levels of elevator faults
	Intelligent management	Remote monitoring, user management, and group control adjustment
	Security check of peripheral devices after power-on	Security check of peripheral devices, such as grounding and short circuit, after power-on
	Status monitor	Monitoring the state of feedback signals to ensure that the elevator works properly
I/O feature	Digital input (DI)	24 x DI Input specification: 24 V, 5 mA
		3 heavy-current detection input terminals of safety circuit and door lock circuit Input specification: 95–125 V
	Analog input (AI)	AI (voltage range: –10 V to +10 V)
	Communication port	2 CANbus communication ports 1 Modbus communication port
	Output terminal block	6 relay outputs The terminals can be allocated with different functions.
	Encoder interface	Supporting different encoders by using an optional PG card
Operation and display	Keypad	3-digit LED display, implementing certain commissioning functions
	LED operation panel	5-digit LED display, querying/modifying most parameters and monitoring the system state
	Status monitor	Connecting the control system and the host computer, convenient for querying/motoring the system state.

Item		Specification
Environment	Altitude	Below 1000 m (de-rated 1% for each 100 m higher)
	Ambient temperature	–10°C to 40°C (de-rated if the ambient temperature is above 40°C, maximum temperature: 50°C)
	Humidity	Maximum relative humidity 95%, non-condensing
	Vibration	Maximum vibration: 5.9 m/s²(10–55 Hz, 0.35 mm)
	Storage temperature	–20°C to 60°C
	IP level	IP20
Environment	Pollution degree	PD2
	Power distribution system	TN, TT

Name	Model	Function	Remark
External braking unit	MDBUN	It is provided for the 860 of 37 kW and above.	For details, see section 2.7 "Selection of Braking Resistor".
PG card	MCTC-PG-A2	It is used to adapt to the push-pull and open-collector incremental encoders.	-
	MCTC-PG-D	It is used to adapt to the UVW differential encoder and applied to synchronous motor. It requires 5 V power supply.	-
	MCTC-PG-E	It is used to adapt to the SIN/COS encoder.	-
	MCTC-PG-F1	It is used to adapt to the absolute encoder (Heidenhain ECN413/1313)	-
Car top board (CTB)	MCTC-CTB	The MCTC-CTB is the car control board of the 860. It has 8 DIs, 1 AI and 9 relay outputs (7 as standard configuration). It can communicate with the CCB and HCB simultaneously.	-
Hall call board (HCB)	MCTC-HCB	The HCB receives the passenger calls and displays the floor where the elevator is located and the running direction. It can also be used as car display board.	A number of HCB models are available. For details, see section 3.3.
Car call board (CCB)	MCTC-CCB	The MCTC-CCB is another interface for passengers tointeract with the control system. It mainly collects the car alls and outputs the call indicator state.	-
External LED operation panel	MDKE	It is the external LED display and operation panel.	It provides the RJ45 interface for connecting to the controller.
Extension cable	MDCAB	It is a standard 8-core network cable and can be connected to MDKE and MDKE3.	The cable length is 3 m in the standard configuration.

FST-880

Information

FST-880 elevator dedicated open-loop frequency converter

General specifications

Voltage class			380/400/415VAC						
Drive Model			FST-880-7R5GT4	FST-880-011GT4	FST-880-015GT4	FST-880-018GT4	FST-880-022GT4	FST-880-030GT4	FST-880-037GT4
Dimension		Height	[H] :322 mm			[H] : 210mm			
		Width	[W] :208 mm			[W] : 345mm			
		Depth	[D] : 192 mm			[D] : 210mm			
Mounting Hole			ø 6			ø 10			
Drive Input	Rated Input Voltage		Three-phase380to480V,-15%to+10% (323Vac to528Vac)						
	Rated Input Current, [A]		20.5	26	35	46	52	70	90
	Rated input frequency		50/60 Hz, ±5%(47.5to63Hz)						
Drive Output	Applicable Motor	[kW]	7.5	11	15	18.5	22	30	37
		[HP]	10	15	20	25	30	40	50
	Output Current ,[A]*1		17	25	32	37	45	60	75
	Power Capacity, [kVA]		11	17	21	25.7	29.6	39.5	49.4
	Overload Capacity		150% for 60 Sec & 180% for 3 Sec						
	Max. output voltage		Three-phase 380Vac to 480Vac (Proportional to input voltage)						
	Max. output frequency		100 Hz						
Braking Resistor	Recommended Power, [W]		1500	2500	3000	4500	5000	6000	7500
	Recommended Power, [Ω]		≥65	≥43	≥32	≥16	≥13.6	≥13.6	≥13.6
Enclosure			IP 21						

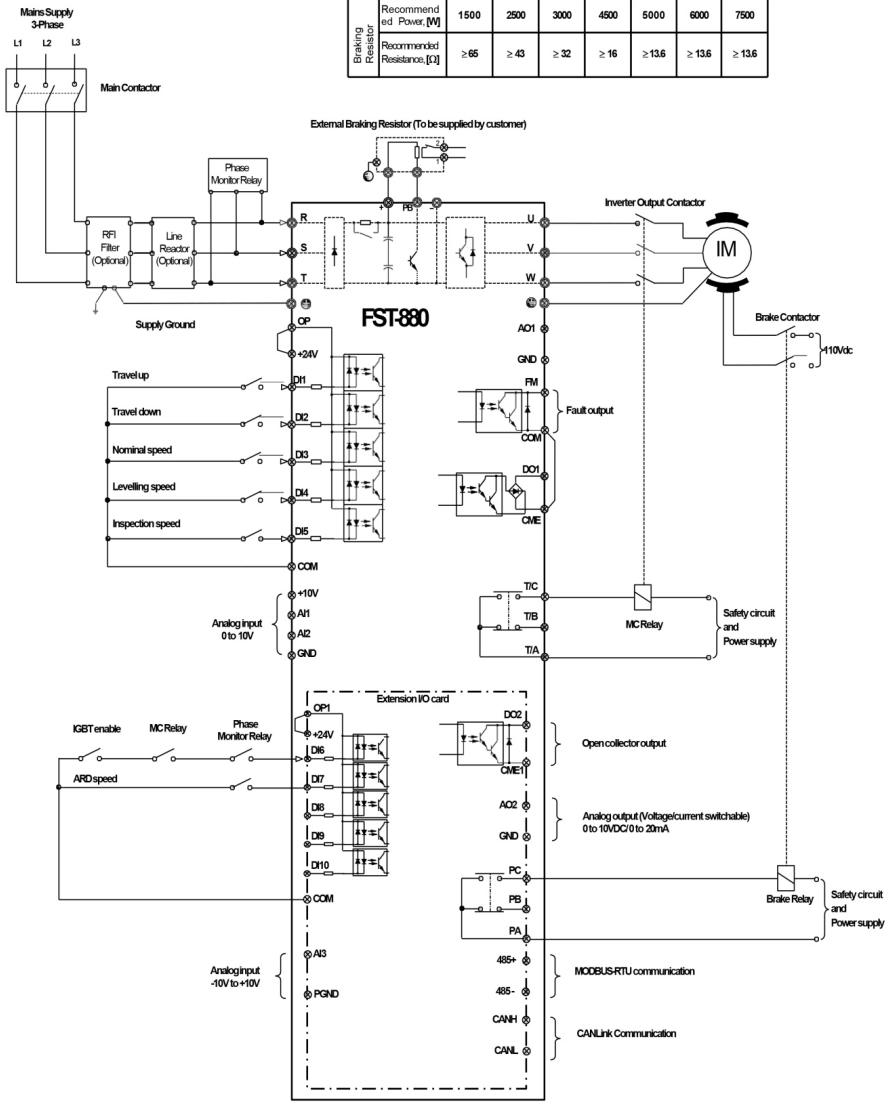
Wiring

Typical wiring 1 (use multi-reference input as frequency reference)

(Default: **F0-03=6**, use multi-reference)

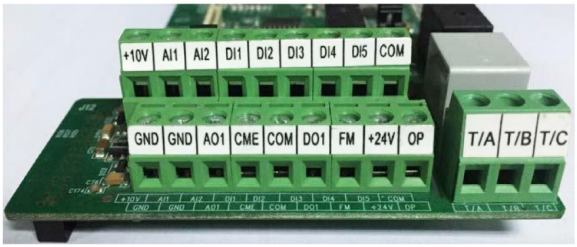
Recommended Braking Resistor

Voltage class		380/400/415VAC						
Drive Model		FST-880 -7R5GT4	FST-880 -011GT4	FST-880 -015GT4	FST-880 -018GT4	FST-880 -022GT4	FST-880 -030GT4	FST-880 -037GT4
Braking Resistor	Recommended Power, [W]	1500	2500	3000	4500	5000	6000	7500
	Recommended Resistance, [Ω]	≥ 65	≥ 43	≥ 32	≥ 16	≥ 13.6	≥ 13.6	≥ 13.6



NOTE: Extension I/O card MD38IO1 applies to the drive 3.7 kW and above only.

✓ **Terminals of main control board**



Terminal	Terminal Name	Description
+10V-GND	+10 VDC power supply	Provide +10 VDC power supply externally. Usually, it provides power supply to the external potentiometer with resistance range of 1 to 5 kΩ. Max. output current: 10 mA.
+24V-COM	+24 VDC power supply	Provide +24 VDC power supply externally. Usually, it provides power supply to DI/DO terminals and external sensors. Max. output current: 200 mA.
OP	Input terminal of external power supply	Connect to +24 VDC by default. Whether it connects to +24 V or COM is decided by jumper J7. When DI1 to DI5 need to be driven by the external signal, OP needs to be connected to the external power supply and be disconnected from +24 VDC.
AI1-GND	Analog input 1	AI1 input voltage range: 0 to 10 VDC. Impedance: 22 kΩ.
AI2-GND	Analog input 2	AI2 can be used as voltage input or current input, which is chosen by jumper J8 on main control card. Input range: 0 to 10 VDC or 4 to 20 mA. Impedance: 22 kΩ if voltage input, 500 Ω if current input.
DI1-COM	Digital input 1	Optical coupling isolation, compatible with dual-polarity input. Impedance: 2.4 kΩ. Input voltage range: 9 to 30 VDC.
DI2-COM	Digital input 2	
DI3-COM	Digital input 3	
DI4-COM	Digital input 4	
DI5-COM	High-speed pulse input	Besides features of DI1 to DI4, it can be used for high-speed pulse input. Max. input frequency: 100 kHz.
AO1-GND	Analog output 1	Voltage or current output, determined by jumper J5 on main control board. Output voltage range: 0 to 10 VDC. Output current range: 0 to 20 mA.
DO1-CME	Digital output 1	Open-collector, dual polarity output, optical coupling isolated. Voltage range: 0 to 24 VDC. Current range: 0 to 50 mA.
FM-COM	High-speed pulse output	It is restricted by F5-00 (FM terminal output mode selection). As a high-speed pulse output, the maximum frequency is 100 kHz. As an open-collector output, its specification is the same as that of DO1: Voltage range: 0 to 24 VDC. Current range: 0 to 50 mA.
T/A-T/B	Normally closed terminal	Contact driving capacity: 250 VAC, 3 A; 30 VDC, 1 A.
T/A-T/C	Normally open terminal	

Extension I/O card MD38IO1

NOTE: MD38IO1 applies to the drive 3.7 kW and above only.

✓ **Control configuration**

Item	Listing	Description
Inputs	5 digital inputs; 1 analog input	AI range:-10 to 10 VDC, it can be used as AI, PT100 and PT1000 input (thermal sensor, 0 to 200°C).
Outputs	1 relay; 1 digital output; 1 analog output	
Communication	RS485 interface; CAN interface	RS485 supports MODBUS-RTU protocol; CAN supports CANlink protocol

✓ **Terminals**

Terminal	Terminal Name	Description
+24V-COM	+24 VDC power supply	Provide +24 VDC power supply externally. Usually, it provides power supply to DI/DO terminals and external sensors. Max. output current: 200 mA.
OP1	Input terminal of external power supply	Connect to +24 VDC by default. Whether it connects to +24 V or COM is decided by jumper J8. When DI6 to DI10 need to be driven by the external signal, OP1 needs to be connected to the external power supply and be disconnected from +24 VDC.
AI3-PGND	Analog input 3	Optical coupling isolation, compatible with differential signal and PT100/PT1000 temperature sensor input (0 to 200°C). Input voltage range: -10 to 10 VDC. Use dial switch S1 to select different input mode: Analog, or PT1000 or PT100, must not select more than one mode at one time.
DI6-COM	Digital input 6	Optical coupling isolation, compatible with dual-polarity input. Impedance: 2.4 kΩ. Input voltage range: 9 to 30 VDC. .
DI7-COM	Digital input 7	
DI8-COM	Digital input 8	
DI9-COM	Digital input 9	
DI10-COM	Digital input 10	
AO2-GND	Analog output 2	Voltage or current output, determined by jumper J3 on extension I/O card. Output voltage range: 0 to 10 VDC. Output current range: 0 to 20 mA. Impedance range: for current output,0 to 500 Ω
DO2-CME1	Digital output 2	Multi-function and dual-polarity and open-collector output. Voltage range: 0 to 24 VDC. Current range: 0 to 50 mA.

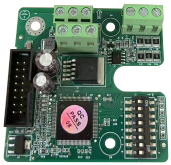
Terminal	Terminal Name	Description
485+-485-	MODBUS communication terminal	MODBUS protocol. Baud rate: 300 to 115200 bps. Max. nodes: 32. Terminal resistance dial switch: S2.
PA-PB	Normally closed terminal	Contact driving capacity: 250 VAC, 3 A; 30 VDC, 1 A.
PA-PC	Normally open terminal	
CANH-CANL	CANlink communication terminal	CANlink communication.

NOTE: see below configuration of jumpers

Jumper	Description
J3	AO2 output mode selection: voltage or current.
J4	CAN terminal resistance selection
J7	OME1 connection mode selection: connected to COM or not.
J8	OP1 connection mode selection: connected to internal +24V or not.
S1	AI input mode selection: analog input (voltage) or PT100 or PT1000 input (both 0 to 200°C).
S2	RS485 terminal resistance selection (RTU).

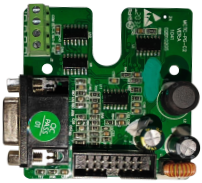
NOTE: see below configuration methods for dial switch S1:

S1 configuration	AI input mode
	Analog input (voltage).
	PT1000 thermal sensor (0 to 200°C).
	PT100 thermal sensor (0 to 200°C).

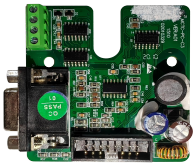


PG-A4

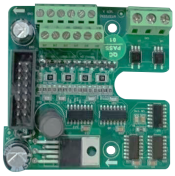
PG-C



PG-C2



PG-C3



PG-B

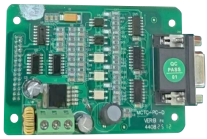
PG-5

650L

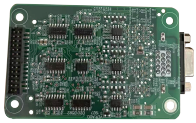
MDKE6

MDKE

PG-A2

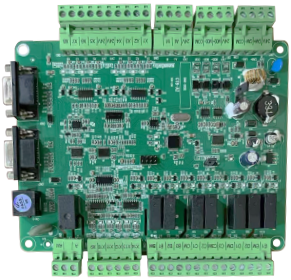


PG-D



PG-E

PG-F1



MCTC-CTB-A2

MCTC-CCB-A

HCB-U673

HCB-D630

Business Address:3 rd Floor,BuildingA Sanmin Industrial Park Shuitian Community Shiyan Street Baoan District Shenzhen Guangdong China， 518108

Tel:+86-755-83500685

Email: sales@anyhz.com

Web: www.anyhz.com