FAMCO
هایپرصنعت

TECO

Ideal For Fan & Pump

Distributor

F510

Fan & Pump Drive

IP 20 / NEMA 1
IP 55 / NEMA 12

TAIWAN EXCELLENCE 2013

TECO
TECO ELECTRIC & MACHINERY CO., LTD.
10F, No. 3-1, Yuan Cyu St., Nan-Kang District, Taipei 115, Taiwan
TEL : 886-2-6615-9111Ext.1725 FAX : 886-2-6615-1033
http://www.teco.com.tw/sa/en

Specifications covered in this brochure may be subject to chi

www.famcocorp.com
E-mail: info@famcocorp.com
@famco_group

Tel:۰۲۱-۴۸۰۰۰۰۴۹
Fax :۰۲۱ - ۴۴۹۹۴۶۴۲

تهران، کیلومتر۲۱ بزرگراه لشگری (جاده مخصوص کرج)
روبروی پالایشگاه نفت پارس، پلاک ۱۲

FAMCO
هایپرصنعت

HAND / AUTO / OFF
LED / LCD Keypad
Easy assembly and hot plug digital keypad
FAULT FWD REV SEQ REF
REMOTE
Freq Ref
LOC REM
DSP FUN
RESET
READ ENTER
AUTO
STOP

F510

Mechanical Features

F510 realizes modular design, not only for applications of high protection level, but also for maintaining equipment inclusive of Hot plug display, communication card, removable fan, and etc...

Hand/Auto/Off

Hand/Auto selection is a very convenient function when system failure , test and inspection. F510 provides friendly user interface of Hand/Auto selection. To get this function by using optional HOA digital operator.

IP55

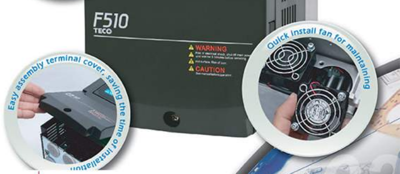
Water and Dust Protection Design

Teco launches the all new drives for fan and pump control which meet protection level-IP55 to provide various options for harsh environment.

Enclosure

IP20

IP55 / NEMA12


F510
TECO
WARNING
CAUTION
Easy assembly terminal cover, saving the time of installation
Quick install fan for maintaining

FAMCO
هایپرصنعت

- Possess constant pressure control technology.
- Provide quick parameter setting, favorable for most of water supply applications.
- Pump Cascade Control via optional pump card.

F510
Energy Efficient Pump Control

Pump Cascade Control

1 to 8 pump card is available for a larger water supply and constant pressure applications. It is sophisticated in water supply industry by built-in PID controller and simple PLC of the advantages of drive. F510 series provides variable frequency power to realize the continuously variable speed of pump, and keep the pressure stable by built-in PID controller. 1 to 8 pump option card can control with up to 8 pumps.

PUMP Card
1 to 8

Excellent Pump Control

Built-in multi-pump control mode. According to the load of water supply system,use intelligent control to coordinate pumps. It distributes running hours evenly across master and slave pumps to increase system efficiency and extend the life of drive.

Blockage Inspection

F510 can detect clog of pump and give alarm to prevent overload pressure to damage pipes.

Sleep Mode

Sleep mode saves energy by detecting when flow is low or zero. It can stop system to extend the life of drive.

Dry Pump Protection

F510 can evaluate the system pressure and detect pump running dry. It will shut off pump immediately to protect it from heat and friction damage.

FAMCO
هایپرصنعت

F510
High Efficient Fan Control

With hardware safe torque off function and fire override mode for emergency.

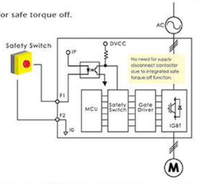
Fire Override Mode

This feature is crucial for ensuring smoke extraction from building by air conditioner or fume extractor. In Fire mode, the drive will be used in full load operation as either forward or reverse direction and ignore all software protection until trigger hardware protection or drive damaged, to achieve the requirements of smoke extraction and reduce smoke damage to human as possible.

Hardware Safe Torque Off Function

Built-in high reliable hardware circuit for safe torque off.

The operator can use the safety switch to protect staff or system in emergency timely.


AC
Safety Switch
DVCC
IP
No need for supply disconnect contactor due to integrated safe torque off function.
F1
F2
IG
MCU
Safety Switch
Gate Driver
IGBT
M

Skip Frequency

F510 can avoid resonance by quick parameter setting. Preventing mechanical damage to system and fans.

FAMCO
هایپرصنعت

F510

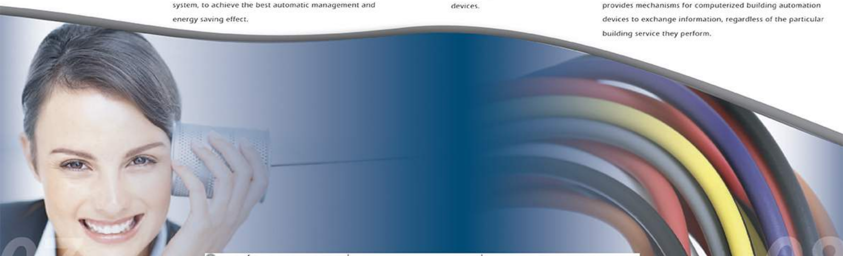
Communication Network Protocol

Advanced network fuctions for building automation inclusive of BACnet , Metasys N2 and Modbus. F510 can reduce the cost of installing automatic central air conditioning system.

METASYS is a communication protocol developed by Johnson Controls Inc. It is according to the actual needs of user and manager in building. Metasys N2 is easy to install, use, and adjust. System maintenance becomes very convenient. Metasys N2 may also collect, record, preserve and manage important message and data of the system, to achieve the best automatic management and energy saving effect.

Modbus has become a de facto standard communication protocol, and it is now amongst the most commonly available means of connecting industrial electronic devices.

BACnet is a communications protocol for building automation and control networks. It is an ASHRAE, ANSI, and ISO standard protocol. BACnet was designed to allow communication of building automation and control systems for applications such as heating, ventilating, and air-conditioning control, lighting control, access control, and fire detection systems and their associated equipment. The BACnet protocol provides mechanisms for computerized building automation devices to exchange information, regardless of the particular building service they perform.



FAMCO
هایپرصنعت

Ultra Low Motor Noise

Soft PWM technology reduces common-mode

Permanent-Magnet Motor Control Technology

Permanent-magnet motor control technology avoids energy wasting. PM motor with high efficiency rises importance for present trend

RTC Function / Simple PLC

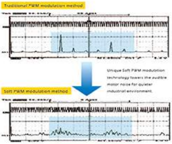
Automatic control has been mainstream. It is not only saving human resource cost ,but also handling system load more efficiently. To adjust load to avoid unnecessary expense by built-in simple PLC with Real Time Clock Function. It can modulate load easily to achieve the purpose of daylight saving.

※ The RTC fuction only for LCD keypad.

F510

Saving Energy

The issue of saving energy and emission reduction become popular in recent years. The importance of relative technologies grows as voltage to restrain EMI and make motor noise down significantly.



of energy saving and emission reduction.

Conformity To Global Standards

Conformity to ROHS directive and international recognized certification.

RoHS

UL/cUL approval and CE certification.

CE c UL us

Automatic Energy Saving Function

F510 can adjust the optimum output voltage, and lower the output current of the drive according to the load automatically. The output power changes by the load proportion. In light duty, the AES has highest efficiency.

time. F510 provides various technologies of saving energy.

AUTO ENERGY SAVING
SAVE
25%
AUTO ENERGY SAVING

※ The Value of saving 25% consum

t 20% Load and used 30HP VFD to drive the motor as the same level.

BASIC SPECIFICATIONS

220V Class

	Inverter Capacity (HP)		5	7.5	10	15	20	25	30	40	50	60	75	100	125	150	175
Output Rated	Rated Output Capacity (KVA)		5.5	8	11.4	15.2	21.3	26.2	30	41.9	52.5	64.3	76.2	95.2	119	152	171
	Rated Output Current (A)		14.5	21	30	40	56	69	79	110	138	169	200	250	312	400	450
	Maximum Applicable Motor	(HP)	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150	175
		(KW)	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	130
	Maximum Output Voltage (V)		Three Phase, 200V~240V														
	Maximum Output Frequency (Hz)		Based on parameter setting 0.1~400.0 Hz*3														
Input Power	Rated Voltage, Frequency		Three Phase, 380V ~ 480V, 50/60Hz														
	Allowable Voltage Fluctuation		-15% ~ +10%														
	Allowable Frequency Fluctuation		±5%														

440V Class

	Inverter Capacity (HP)		5	7.5	10	15	20	25	30	40	50	60	75
Output Rated	Rated Output Capacity (KVA)		7	8.4	13	18	24	28.9	34	41	55	67	78
	Rated Output Current (A)		9.2	11	18	23	31	38	44	54	72	88	103
	Maximum Applicable Motor	(HP)	5	7.5	10	15	20	25	30	40	50	60	75
		(KW)	4	5.5	7.5	11	15	18.5	22	30	37	45	55
	Maximum Output Voltage (V)		Three Phase, 380V~480V										
	Maximum Output Frequency (Hz)		Based on parameter setting 0.1~400.0Hz*3										
Input Power	Rated Voltage, Frequency		Three Phase, 380V ~ 480V, 50/60Hz										
	Allowable Voltage Fluctuation		-15% ~ +10%										
	Allowable Frequency Fluctuation		±5%										

	Inverter Capacity (HP)		100	125	150	175	215	250	300	375	425	535*2	670*2	800*2
Output Rated	Rated Output Capacity (KVA)		110	125	158	190	225	250	331	392	445	525	640	731
	Rated Output Current (A)		145	165	208	250	296	328	435	515	585	690	840	960
	Maximum Applicable Motor	(HP)	100	125	150	175	215	250	300	375	425	535	670	800
		(KW)	75	90	110	132	160	185	220	280	315	400	500	600

Remarks :

1. Based on the standard 4-pole induction motor. Selecting inverter must have a higher output current rating than motor.
2. 440V 535HP models or above are under development.
3. The maximum output frequency of each control mode is different, please refer to user manual for more details.

GENERAL SPECIFICATIONS

Control Characteristics	Display		LED keypad with 5-digits seven-segment display or LCD keypad (HOA LCD keypad option)all LCD keypad with parameter copy function
	Control Modes		V/F, SLV, PMSLV with Space Vector PWM Mode
	Output Frequency		0.1Hz ~ 400.0Hz
	Frequency Accuracy		Digital references : ±0.01%(-10 ~ +40°C), Analog references : ±0.1% (25°C ±10°C)
	Speed Control Accuracy		±0.5% (Sensorless Vector Control Mode)*1
	Frequency Setting Resolution		Digital references : 0.01Hz, Analog references : 0.06Hz/60Hz
	Output Frequency Resolution		0.01Hz
	Overload Tolerance		120% /1 min
	Frequency Setting Signal		DC 0 ~ +10V / -10V~ +10V or 4 ~ 20mA
	Acceleration / Deceleration Time		0.0 ~ 6000.0 second (separately set acceleration and deceleration time)
	Voltage / Frequency Characteristics		Can arbitrarily set V / F curve based on parameters
	Braking Torque		About 20%
	Main Control Functions		Auto Tuning, Soft-PWM, Over-Voltage Protection, Dynamic Braking, Speed Search, Momentary Power Loss Restart, 2 Sets of PID Control, Slide Difference Compensation, RS-485 Communication Standard, Simple PLC Function, 2 Sets of Analog Output, Safety Switch
	Other Functions		Records of Power On and Operation Time, 4 Fault History Records and Latest Fault Record State, Energy-Saving Function, Phase Loss protection, Smart Braking, DC Braking, Dwell, S Curve Acceleration and Deceleration, Up / Down Operation, Modbus, BACNet MS/TP, and Metasys N2 Communication Protocol, Display of Multi- Engineering Unit, Local / Remote Switch, SINK / SOURCE Input Selection, User Parameter Settings
Protection Functions	Stall Protection		Current level can be set (in acceleration or constant speed, it can be set separately. In deceleration, it can be set with or without protection)
	Over Current (OC) and Output Short-circuit (SC) Protection		It stops when the current exceeds 160% of the inverter rated current
	Inverter Overload Protection (OL2)		Inverter will be stopped when the outout higher than 120% rated current for 1 min, Carrier frequency is 2~4KHZ*2
	Motor Overload Protection (OL1)		Electrical overload protection curve
	Over Voltage Protection (OV)		If the main circuit DC voltage is over 410V (220V class) / 820V (440V class), the motor stops running
	Under Voltage Protection (UV)		If the main circuit DC voltage is under 190V (220V class) / 380V (440V class), the motor stops running
	Momentary Power Loss Restart		Power loss exceeds 15ms. You can set the function of momentary power loss restart up to 2sec
	Overheat Protection(OH)		Thermistor sensor on heatsink
	Ground Fault Protection(GF)		Protection by current detection circuit
	Charge Indicator		When main circuit DC voltage ≥50V, the CHARGE LED is on
	Output Phase Loss Protection (OPL)		If the OPL function acts, the motor stops rotation automatically
Environment Specification	Location		Indoor (protected from corrosive gases and dust)
	Ambient Temperature		-10 ~ +40°C (IP20/NEMA1 and IP55/NEMA12), -10 ~ +50°C (IP00), with de-rating, its maximum operation temperature is 60°C
	Storage Temperature		-20 ~ +70°C
	Humidity		95%RH or less (no condensation)
	Altitude and Vibration		Altitude of 1000 meters or lower, below5.9m/s² (0.6G)
Communication Function			Built-in RS-485 as standard (Modbus protocol with RJ45 / BACnet / Metasys N2)
PLC Function			Built-in
Electromagnetic Interference (EMI)			Meet EN61800-3 Standard, IP20 400V 75HP or below and IP55 400V 60HP can be built in
Electromagnetic Susceptibility (EMS)			Meet EN61800-3 Standard
Certification		CE	Meet EN61800-3(CE & RE) and EN61800-5-1(LVD)
		UL	UL508C
Option Card			1 to 8 Pump card, HOA LCD keypad, Profibus card

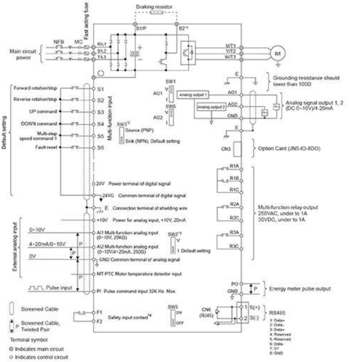
Remarks :

1.Speed control accuracy will be influenced when the motor and installation condition are different.

2.The default setting of carrier frequency is different from models.

WIRING DIAGRAM

DIMENSIONS


Braking resistor
Fast acting fuse
B1/P
B2*1
Main circuit power
NFB
MC
R/L1
S/L2
T/L3
U/T1
V/T2
W/T3
IM
E
Grounding resistance should lower than 100Ω
SW1
AO1
V
I
Analog output 1
Analog output 2
AO2
SW6
GND
Analog signal output 1, 2 (DC 0~10V)/4-20mA
Default setting
Forward rotation/stop
Reverse rotation/stop
UP command
DOWN command
Multi-step speed command 1
Fault reset
S1
S2
S3
S4
S5
S6
Multi-function input
SW3*2
Source (PNP)
Sink (NPN), Default setting
CN3
Option Card (JN5-IO-8DO)
R1A
R1B
R1C
R2A
R2C
R3A
R3C
Multi-function relay output 250VAC, under to 1A 30VDC, under to 1A
24V Power terminal of digital signal
24VG Common terminal of digital signal
E Connection terminal of shielding wire
+10V Power for analog input, +10V, 20mA
External analog input
0~10V
4~20mA/0~10V
0V
P
AI1 Multi-function analog input (0~10V, 20KΩ)
AI2 Multi-function analog input (0~10V/4~20mA, 250Ω)
SW2*3
V
I Default setting
GND Common terminal of analog signal
MT PTC Motor temperature detector input
Pulse input
PI Pulse command input 32K Hz. Max.
PO
GND
Energy meter pulse output
Screened Cable
Screened Cable, Twisted Pair
F1
F2
Safety input contact*4
SW5
ON
OFF
CN6 (RJ45)
1 S(+)
2 S(-)
RS485
1: Data+
2: Data-
3: Data+
4: Reserved
5: Reserved
6: Data-
7: 5V
8: GND
Terminal symbol
◎ Indicates main circuit
○ Indicates control circuit

Remark:

*1: Only the main circuit of IP20 220V 5~30HP, 440V 5~40HP (included) and IP55 440V 5~25HP with built-in braking transistor provide terminal B2. The braking transistor can be connected directly between B1 and B2.

*2: The multi-function digital input terminals S1~S6 can be set to source (PNP) or sink (NPN) mode by SW3.

*3: The multi-function analog input 2 (AI2) can be set to the voltage command input (0~10v) or the current command input (4~20mA) through the SW2.

*4: When integrated safety function is NOT used, connect a link across terminals F1 & F2 for the inverter output to function. External safety circuits can be interfaced with inverter using terminals F1 and F2.

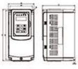


Figure A

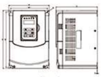


Figure B

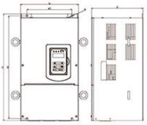


Figure C

Figure	Enclosure	Frame	Models	Dimensions(mm)							
				W	H	D	W1	H1	t	d	Weight (kg)
A	IP00/ IP20(NEMA1)	Frame2	F510-2005-H3	140	279	177	122	267	7	M6	3.8
			F510-2008-H3	140	279	177	122	267	7	M6	3.8
			F510-4005-H3	140	279	177	122	267	7	M6	3.8
			F510-4008-H3	140	279	177	122	267	7	M6	3.8
			F510-4010-H3	140	279	177	122	267	7	M6	3.8
B	IP00/ IP20(NEMA1)	Frame 3	F510-2010-H3	210	300	215	192	286	1.6	M6	6.2
			F510-2015-H3	210	300	215	192	286	1.6	M6	6.2
		Frame 4	F510-2020-H3	265	360	225	245	340	1.6	M8	10
			F510-2025-H3	265	360	225	245	340	1.6	M8	10
			F510-2030-H3	265	360	225	245	340	1.6	M8	10
		Frame 3	F510-4015-H3	210	300	215	192	286	1.6	M6	6.2
			F510-4020-H3	210	300	215	192	286	1.6	M6	6.2
		Frame 4	F510-4025-H3	265	360	225	245	340	1.6	M8	10
			F510-4030-H3	265	360	225	245	340	1.6	M8	10
			F510-4040-H3	265	360	225	245	340	1.6	M8	10
C	IP00/ IP20(NEMA1)	Frame 5	F510-2040-H3	284	525	252	220	505	1.6	M8	30
			F510-2050-H3	284	525	252	220	505	1.6	M8	30
			F510-4050-H3	284	525	252	220	505	1.6	M8	30
			F510-4060-H3	284	525	252	220	505	1.6	M8	30
			F510-4075-H3	284	525	252	220	505	1.6	M8	30

DIMENSIONS

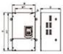


Figure D

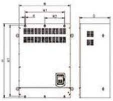


Figure E

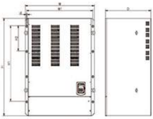


Figure F

Figure	Enclosure	Frame	Models	Dimensions(mm)									
				W	H	D	W1	W2	H1	H2	t	d	Weight (kg)
D	IP00	Frame 6	F510-2060-H3	344	580	300	250	N/A	560	N/A	1.6	M10	40.5
			F510-2075-H3	344	580	300	250	N/A	560	N/A	1.6	M10	40.5
		Frame 7	F510-2100-H3	459	790	325	320	N/A	760	N/A	1.6	M10	74
			F510-2125-H3	459	790	325	320	N/A	760	N/A	1.6	M10	74
		Frame 6	F510-4100-H3	344	580	300	250	N/A	560	N/A	1.6	M10	40.5
			F510-4125-H3	344	580	300	250	N/A	560	N/A	1.6	M10	40.5
		Frame 7	F510-4150-H3	459	790	325	320	N/A	760	N/A	1.6	M10	74
			F510-4175-H3	459	790	325	320	N/A	760	N/A	1.6	M10	74
			F510-4215-H3	459	790	325	320	N/A	760	N/A	1.6	M10	74
			F510-4250-H3	459	790	325	320	N/A	760	N/A	1.6	M10	74
E	IP00	Frame 8	F510-2150-H3	690	1000	410	530	265	960	N/A	1.6	M12	184
			F510-2175-H3	690	1000	410	530	265	960	N/A	1.6	M12	184
			F510-4300-H3	690	1000	410	530	265	960	N/A	1.6	M12	184
			F510-4375-H3	690	1000	410	530	265	960	N/A	1.6	M12	184
			F510-4425-H3	690	1000	410	530	265	960	N/A	1.6	M12	184
F	IP00	Frame 9	F510-4535-H3	960	1356	632	920	N/A	1050	350	3	M12	290
			F510-4670-H3	960	1356	632	920	N/A	1050	350	3	M12	290
			F510-4800-H3	960	1356	632	920	N/A	1050	350	3	M12	290

DIMENSIONS

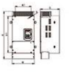


Figure G

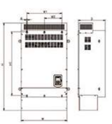


Figure H

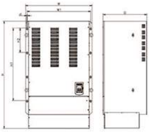


Figure I

Figure	Enclosure	Frame	Models	Dimensions(mm)									
				W	H	D	W1	W2	H1	H2	t	d	Weight (kg)
G	IP20(NEMA1)	Frame 6	F510-2060-H3	348.5	740	300	250	N/A	560	N/A	1.6	M10	44
			F510-2075-H3	348.5	740	300	250	N/A	560	N/A	1.6	M10	44
		Frame 7	F510-2100-H3	463.5	1105	324.5	320	N/A	760	N/A	1.6	M10	81
			F510-2125-H3	463.5	1105	324.5	320	N/A	760	N/A	1.6	M10	81
		Frame 6	F510-4100-H3	348.5	740	300	250	N/A	560	N/A	1.6	M10	44
			F510-4125-H3	348.5	740	300	250	N/A	560	N/A	1.6	M10	44
		Frame 7	F510-4150-H3	463.5	1105	324.5	320	N/A	760	N/A	1.6	M10	81
			F510-4175-H3	463.5	1105	324.5	320	N/A	760	N/A	1.6	M10	81
			F510-4215-H3	463.5	1105	324.5	320	N/A	760	N/A	1.6	M10	81
			F510-4250-H3	463.5	1105	324.5	320	N/A	760	N/A	1.6	M10	81
H	IP20(NEMA1)	Frame 8	F510-2150-H3	690	1313	410	530	265	960	N/A	1.6	M12	194
			F510-2175-H3	690	1313	410	530	265	960	N/A	1.6	M12	194
			F510-4300-H3	690	1313	410	530	265	960	N/A	1.6	M12	194
			F510-4375-H3	690	1313	410	530	265	960	N/A	1.6	M12	194
			F510-4425-H3	690	1313	410	530	265	960	N/A	1.6	M12	194
I	IP20(NEMA1)	Frame 9	F510-4535-H3	960	1556	632	920	N/A	1050	350	3	M12	300
			F510-4670-H3	960	1556	632	920	N/A	1050	350	3	M12	300
			F510-4800-H3	960	1556	632	920	N/A	1050	350	3	M12	300

DIMENSIONS

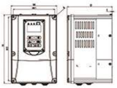


Figure J

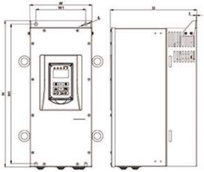
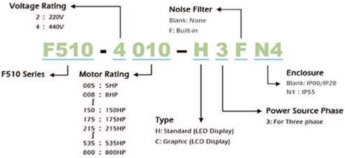


Figure K

Figure	Enclosure	Frame	Models	Dimensions(mm)							
				W	H	D	W1	H1	t	d	Weight (kg)
J	IP55(NEMA12)	Frame 1	F510-4005-C3FN4	189	284	186	171	266	1.2	M5	7
			F510-4008-C3FN4	189	284	186	171	266	1.2	M5	7
		Frame 2	F510-4010-C3FN4	230	320	210	210	305	2	M5	10.5
			F510-4015-C3FN4	230	320	210	210	305	2	M5	10.5
		Frame 3	F510-4020-C3FN4	265	396	227	249	380	2	M5	17
			F510-4025-C3FN4	265	396	227	249	380	2	M5	17
K		Frame 4	F510-4030-C3FN4	224	527	311	180	505	2	M10	32.5
			F510-4040-C3FN4	224	527	311	180	505	2	M10	32.5
			F510-4050-C3FN4	224	527	311	180	505	2	M10	32.5
		Frame 5	F510-4060-C3FN4	326	695	343	276	671	2.3	M10	55
			F510-4075-C3N4	326	695	343	276	671	2.3	M10	55
			F510-4100-C3N4	326	695	343	276	671	2.3	M10	55

MODEL DESIGNATION



Voltage Rating
2 : 220V
4 : 440V

Noise Filter
Blank: None
F: Built-in

F510 - 4 010 – H 3 F N4

F510 Series

Motor Rating
005 : 5HP
008 : 8HP
∫
150 : 150HP
175 : 175HP
215 : 215HP
∫
535 : 535HP
800 : 800HP

Type
H: Standard (LED Display)
C: Graphic (LCD Display)

Enclosure
Blank: IP00/IP20
N4 : IP55

Power Source Phase
3: For Three phase

NOISE FILTER

Series	Capacity(HP)	Noise Filter		
		Models	Rated Current(A)	Notes
IP00 / IP20 3φ 220V	5 / 7.5	FS32124-23-99	23	External
	10 / 15	FS32123-42-99	42	External
	20	FS32125-61-99	61	External
	25 / 30	FS32125-86-99	86	External
	40 / 50	FS32125-150-99	150	External
	60 / 75	FS32125-232-99	232	External
	100 / 125	FS32125-343-99	343	External
	150 / 175	FN3270H-600-99	600	Under development
IP00 / IP20 3φ 440V	5 / 7.5 / 10	JN5-FLT-19A	19	
	15 / 20	JN5-FLT-33A	33	
	25 / 30 / 40	JN5-FLT-63A	63	
	50 / 60 / 75	JN5-FLT-112A	112	
	100 / 125	FS32126-181-99	181	External
	150 / 175 / 215 / 250	FS32126-361-99	361	External
	300 / 375 / 425	FN3270H-800-99	800	Under development
	535 / 670 / 800			Under development
IP55 3φ 440V	10 / 15	FS29040-30-99*1	30	External

Remarks :

1. The external noise filter for F510 IP55 4010/4015 models (FS29040-30-99) do not have IP55 enclosure .
2. F510 IP55 4010/4015 models meet EN61800-3 requirements for category c2 with external filter and category c3 without additional external mitigation.

www.famcocorp.com
E-mail: info@famcocorp.com
@famco_group

Tel:۰۲۱-۴۸۰۰۰۰۴۹
Fax:۰۲۱ - ۴۴۹۹۴۶۴۲

تهران، کیلومتر۲۱ بزرگراه لشگری (جاده مخصوص کرج)
روبـروی پالایشگاه نفت پارس، پلاک ۱۲

FAMCO
هایپـرصنعت

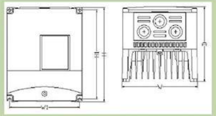
EXTERNAL BRAKING RESISTOR AND DETECTION MODULE

Drive		Braking Detection Module*1		Braking Resistor				Braking Torque
Series	Capacity (HP)	Models	Parallel Number	Models	Specification*2	Used Model Number	Dimensions(mm) (Total Number)*3	
IP00 / IP20 3φ 220V	5	-	-	JNBR-390W40	390W/40Ω	1	395×34×78	126%,10%ED
	7.5	-	-	JNBR-520W30	520W/30Ω	1	400×40×100	114%,10%ED
	10	-	-	JNBR-780W20	780W/20Ω	1	400×40×100	126%,10%ED
	15	-	-	JNBR-2R4KW13R6	2400W/13.6Ω	1	535×50×110 (2 pcs)	124%, 10%ED
	20	-	-	JNBR-3KW10	3000W/10Ω	1	615×50×110 (2 pcs)	126%, 10%ED
	25	-	-	JNBR-4R8KW8	4800W/8Ω	1	535×50×110 (4 pcs)	126%, 10%ED
	30	-	-	JNBR-4R8KW6R8	4800W/6.8Ω	1	535×50×110 (4 pcs)	124%, 10%ED
	40	JNTBU-230	2	JNBR-3KW10	3000W/10Ω	2	615×50×110 (4 pcs)	126%, 10%ED
	50	JNTBU-230	2	JNBR-3KW10	3000W/10Ω	2	615×50×110 (4 pcs)	105%, 10%ED
	60	JNTBU-230	2	JNBR-4R8KW6R8	4800W/6.8Ω	2	535×50×110 (8 pcs)	124%, 10%ED
	75	JNTBU-230	3	JNBR-4R8KW8	4800W/8Ω	3	535×50×110 (12 pcs)	124%, 10%ED
	100	JNTBU-230	3	JNBR-4R8KW6R8	4800W/6.8Ω	3	535×50×110 (12 pcs)	116%, 10%ED
	125	JNTBU-230	4	JNBR-4R8KW6R8	4800W/6.8Ω	4	535×50×110 (16 pcs)	119%,10%ED
	150	JNTBU-230	5	JNBR-4R8KW8	4800W/8Ω	5	535×50×110 (20 pcs)	108%, 10%ED
	175	JNTBU-230	6	JNBR-4R8KW8	4800W/8Ω	6	535×50×110 (24 pcs)	113%, 10%ED
IP00 / IP20 3φ 440V	5	-	-	JNBR-400W150	400W/150Ω	1	395×34×78	133%, 10%ED
	7.5	-	-	JNBR-600W130	600W/130Ω	1	400×40×100	107% ,10%ED
	10	-	-	JNBR-800W100	800W/100Ω	1	535×50×110	105%,10%ED
	15	-	-	JNBR-1R6KW50	1600W/50Ω	1	615×50×110	133%, 10%ED
	20	-	-	JNBR-1R5KW40	1500W/40Ω	1	615×50×110	126%, 10%ED
	25	-	-	JNBR-4R8KW32	4800W/32Ω	1	535×50×110 (4 pcs)	126%, 10%ED
	30	-	-	JNBR-4R8KW27R2	4800W/27.2Ω	1	535×50×110 (4 pcs)	124%, 10%ED
	40	-	-	JNBR-6KW20	6000W/20Ω	1	615×50×110 (4 pcs)	124%, 10%ED
	50	JNTBU-430	2	JNBR-4R8KW32	4800W/32Ω	2	535×50×110 (8 pcs)	126%, 10%ED
	60	JNTBU-430	2	JNBR-4R8KW27R2	4800W/27.2Ω	2	535×50×110 (8 pcs)	124%, 10%ED
	75	JNTBU-430	2	JNBR-6KW20	6000W/20Ω	2	615×50×110 (8 pcs)	133%, 10%ED
	100	JNTBU-430	3	JNBR-4R8KW27R2	4800W/27.2Ω	3	535×50×110 (12 pcs)	113%, 10%ED
	125	JNTBU-430	3	JNBR-6KW20	6000W/20Ω	3	615×50×110 (12 pcs)	121%, 10%ED
	150	JNTBU-430	3	JNBR-6KW20	6000W/20Ω	3	615×50×110 (12 pcs)	104%, 10%ED
	175	JNTBU-430	5	JNBR-4R8KW27R2	4800W/27.2Ω	5	535×50×110 (20 pcs)	109%, 10%ED
	215	JNTBU-430	6	JNBR-4R8KW27R2	4800W/27.2Ω	6	535×50×110 (24 pcs)	107%, 10%ED
	250	JNTBU-430	5	JNBR-6KW20	6000W/20Ω	5	615×50×110 (20 pcs)	105%,10%ED
	300	JNTBU-430	6	JNBR-6KW20	6000W/20Ω	6	615×50×110 (24 pcs)	105%,10%ED
	375	JNTBU-430	7	JNBR-6KW20	6000W/20Ω	7	615×50×110 (28 pcs)	100%,10%ED
	425	JNTBU-430	8	JNBR-6KW20	6000W/20Ω	8	615×50×110 (32 pcs)	100%,10%ED
	535	JNTBU-430	10	JNBR-6KW20	6000W/20Ω	10	615×50×110 (40 pcs)	99%,10%ED
	670	JNTBU-430	11	JNBR-6KW20	6000W/20Ω	11	615×50×110 (44 pcs)	90%,10%ED
	800	JNTBU-430	13	JNBR-6KW20	6000W/20Ω	13	615×50×110 (52 pcs)	90%,10%ED

EXTERNAL BRAKING RESISTOR AND DETECTION MODULE

Drive		Braking Detection Module*1		Braking Resistor				Braking Torque
Series	Capacity (HP)	Models	Parallel Number	Models	Specification*2	Used Model Number	Dimensions(mm) (Total Number)*3	
IP55 3φ 440V	5	-	-	JNBR-400W150	400W/150Ω	1	395×34×78	133%, 10%ED
	7.5	-	-	JNBR-600W130	600W/130Ω	1	400×40×100	107% ,10%ED
	10	-	-	JNBR-800W100	800W/100Ω	1	535×50×110	105% ,10%ED
	15	-	-	JNBR-1R6KW50	1600W/50Ω	1	615×50×110	133% ,10%ED
	20	-	-	JNBR-1R5KW40	1500W/40Ω	1	615*50*110	126% ,10%ED
	25	-	-	JNBR-4R8KW32	4800W/32Ω	1	535×50×110 (4 pcs)	126% ,10%ED
	30	JNTBU-430	1	JNBR-4R8KW27R2	4800W/27.2Ω	1	535×50×110 (4 pcs)	124% ,10%ED
	40	JNTBU-430	1	JNBR-6KW20	6000W/20Ω	1	615×50×110 (4 pcs)	126% ,10%ED
	50	JNTBU-430	2	JNBR-4R8KW32	4800W/32Ω	2	535×50×110 (8 pcs)	126%, 10%ED
	60	JNTBU-430	2	JNBR-4R8KW27R2	4800W/27.2Ω	2	535×50×110 (8 pcs)	124%, 10%ED
	75	JNTBU-430	2	JNBR-6KW20	6000W/20Ω	2	615×50×110 (8 pcs)	133%, 10%ED
	100	JNTBU-430	3	JNBR-4R8KW27R2	4800W/27.2Ω	3	535×50×110 (12 pcs)	113%, 10%ED

BRAKING DETECTION MODULE (TBU-230/430)

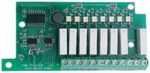
MODEL	Dimensions(mm)					Diagram
	W	H	D	W1	H1	
TBU-230 TBU-430	149	184	146	138	174	

Remarks :

1. If you have any requirements of braking module, please contact your local TECO Sales Representative for additional details.
2. For the minimum suggestion value of braking resistor, please refer to the F510 manual and the attached user manual of braking module.
3. It shows the total numers of resistrors. The IP00/20 2075 model is suggested to use 3pcs JNBR-4R8KW8, each JNBR-4R8KW8 includes 4pcs of resistors. Thus, it needs 12pcs of resistors. (each resistor size: 535×50×110 mm)
4. Other option braking module for IP55 4050 model : JUVPHV-0060+JNBR-9R6KW16.
   Other option braking module for IP55 4060 model : JUVPHV-0060+JNBR-9R6KW13R6.
5. The external braking resistors and detection modules do not have IP55 enclosure.

ACCESSORIES

Accessories	Description	Model	Note
Cables	IP20 Digital operator extention cable	JN5-CB-01M	1 meter
		JN5-CB-02M	2 meter
		JN5-CB-03M	3 meter
		JN5-CB-04M	4 meter
		JN5-CB-05M	5 meter
	RJ45 to USB connecting cable	JN5-CM-USB	1.8 meter
		JN5-CM-USB-3	3 meter
Communication Card	Profibus option card	JN5-CM-PBUS	
Communication Moduels (Gateways)	Profibus DP module	JN5-CM-PDP	
	TCP-IP module	JN5-CM-TCPIP	Under development
	DeviceNet module	JN5-CM-DNET	Under development
	CANopen module	JN5-CM-CAN	Under development
NEMA1 Kits	Mechanical device consisting of anti-dust cover on the upper part and wiring box on the bottom to meet NEMA1	JN5-NK-A06	Frame6
		JN5-NK-A07	Frame7
		JN5-NK-A08	Frame8
Digital Operators	IP20 LED Type	JN5-OP-F01	
	IP20 LCD Type	JN5-OP-F02	
	IP20 LCD HOA Type	JN5-OP-F03	With HAND/OFF/AUTO function
	IP20 Blank type	JN5-OP-A03	
	IP55 LCD Type	JN5-OP-F04	
Others	1 to 8 Pump card	JN5-IO-8DO	
	F510 remote control box	JNEP-16-F	
	Copy Module for 510 series	JN5-CU	



1 to 8 Pump Card

Profibus card

HOA LCD Keypad

MEMO

F510
TECO
F510
TECO