BEDFORD®

AC MOTOR SPEED CONTROLLER

B800 Series

Frequency Inverter

BEDFORD (QUANZHOU) ELECTRONIC CO., LTD

Category

1. Preface

Thanks for you choose BEDFORD B800 series high functional frequency inverter, please read this manual carefully before use.

2. Notes for safe operation

Frequency inverter is a latest product for electric and electronic; To guard your safety, there are signals both “danger” and “notice” in this manual to remind you safety precaution notices during movement, installation, operation and check.

! DANGER Misuse may cause casualty.

! NOTICE Misuse may cause damage to inverter or system.

☐! DANGER
•Please don’t take down, alter! Otherwise, it may cause electric shock, fire and injure. •Don’t open the cover during electrify •Don’t put or insert wire, stick and filament etc. into inverter to avoid short circuit or electric shock. •Please don’t splash water or other liquid onto inverter.

⚠ NOTICE
•Please don’t perform a withstand voltage testing to the components of inverter. •Absolutely don’t connect output terminal (U, V, W) with AC main circuit power supply. •Components CMOS IC on circuit board are easily affected and damaged by static electricity, please don’t touch it casually. •Electromotor and inverter should fit to the matched AC power; Otherwise, it may cause operate abnormality, even burn.

3. Inspection checkpoints

3.1 Check procedure

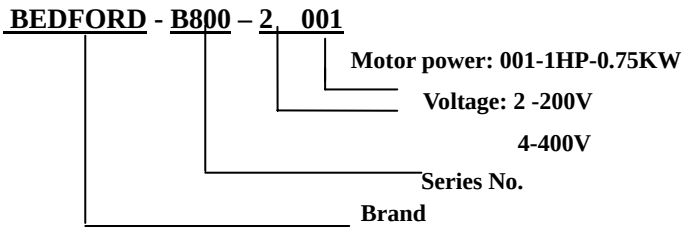
a) Make sure inverter is same as you purchase.

b) Make sure inverter is in good condition which don't get damaged during transportation; if damaged, please don't connect with AC main power.

c) Make sure the S/N on warranty is same as inverter.

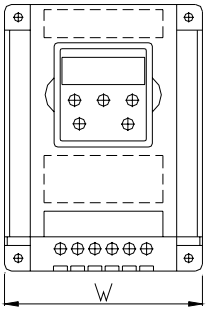
Please inform our salesperson ASAP if you find the above problems.

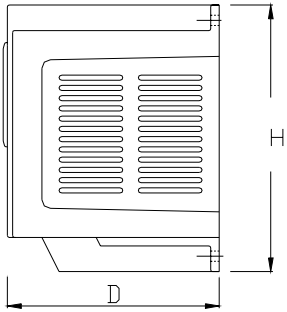
3.2 Model explanation



4. Installation

4.1 Exterior Size



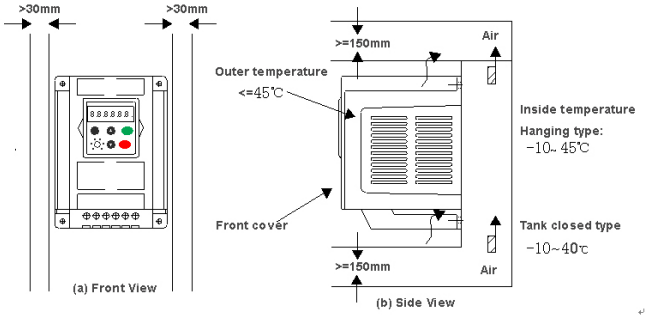


400V	1~2HP	3-5HP	7~10HP
200V	1~2HP	3-5HP	7~10HP
H	165mm	214	255
W	120mm	151	180
D	123mm	160	180

4.2 Operating environment

To ensure proper performance and long operation life, Follow the recommendations below when choosing a location for installing B800 series frequency inverter, Make sure the B800 series frequency inverter is protected from the following conditions

. Ambient temperature: hanging type, -10~45℃
Tank closed type, -10~40℃.
. Rain, Moisture (For enclosed wall-mounted type)
. Oil fog, salt spray
. Direct sunlight.(Avoid use outdoors)
. Corrosive gases or liquid
. Dust or metallic particles in the air.
. Physical shock, Vibration
. Magnetic noise (Example: welding machine,power devices etc)
. High humidity
. Radioactive materials
. Combustibles: thinners, solvents, etc.
. If few inverters are mounted into cabinet, Please kindly put them on ventilated position where the good ventilation is available. Further to mount the cooling fan inside the cabinet to make the ambient environment under 45℃
. Sufficient mounting space within below stipulation

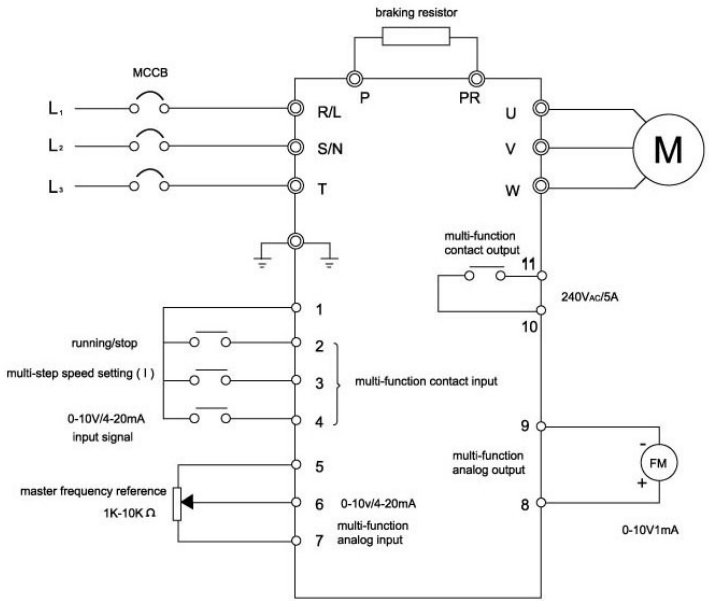


4.3 Notice

⚠ Notice
•Please don't hold the front cover when move, the right way is to hold the heatsink of inverter so as to avoid falling down which could injury person or damage inverter itself. •Please mount inverter onto nonflammable materials like metal and other else; please don't mount it nearby nonflammable materials to avoid fire. •If few inverters are mounted into a controlling cabinet, cooling fan must be mounted inside cabinet to ensure temperature of cabinet inside is lower than 45℃ to avoid overheat. • Please cut off AC main power prior to remove keyboard.

5. Wire

5.1 Connection diagram



Note: 1. three phases 380V use R/L, S/N, T as AC main power input terminal, Single phase 220V only uses R/L and S/N.

2. Braking resistors of single phase 220V/1hp-2hp & three phase 400V/1hp – 2hp are all inbuilt.

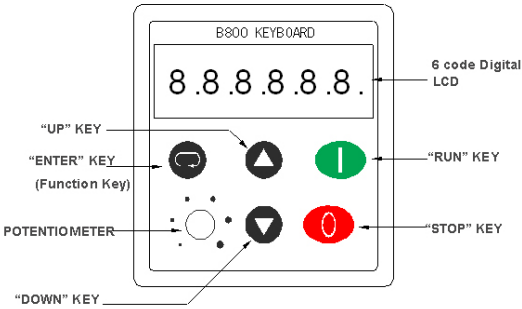
3. B800 Series inverter default as keyboard control (F-12=1), it will work after AC main power input

5.2 Notes for operation

- Parameter F-01 can be set as Max.30000 rpm/Min. of motor rotary, please use this parameter with care.
- If user wants to operate the RPM of motor higher (F-09/F-10 parameter) than the rated speed of motor, please confirm the allowable range both motor and machinery.
- The cooling fan of inverter would automatically start to work once the temperature reach 40℃, Also, it would stop working when its temperature is under indoor.
- Please attention other relevant parameter settings once braking resistor used.
- Please don't check the signal on PCB when inverter is running.
- Parameters have already been set when ex-work, please don't adjust it casually.

6. Keyboard Operation

6.1 LCD and operation Key (B800 Series without potentiometer)
(B800-1 Series with potentiometer)



6.2 Utility for operation key

- When inverter ex-work, standard parameters are set as default.
- Press "Enter" key one second, then enter into check/modify standard parameter group.
- Press or key to check the parameter group from F-01 to F-14
- Press "Enter" key again, which can read parameter value.
- Press or key, modify parameter value.
- Press "Enter" key again, Back to parameter group.
- If press "Enter" key more one second or standby more20 seconds, Back to initial status prior to standard parameter group modification
- If want to enter into extended menu access(F-15-F-40)，set F-14 to "10"，and press "Enter" key.

7. Test operation

7.1 Master some relevant functions which may help you acquire more ideal use effects

- Maximum and minimum output frequency F-01&F-02.
  The maximum and minimum speed limitations are set according to actual individual requirements.
- Accelerate and decelerate parameter F-03&F-04.
  If linear acceleration time and linear deceleration time too short on some occasions, which may cause inverter overcurrent and let inverter trip, which cause motor stop working.
- ••Stop mode F-05.
  When F-05=0, inverter would diminish motor's speed according to linear deceleration time.
  If F-02≠0, when inverter start, motor would accelerate from mini frequency we set (F-02), when inverter stops work, the motor linear decelerate to '0' and then stop work.

If user want the motor stops work automatically (inertia stopping), please sets F-05 to 1.

•V/F curve select F-06.

General loading F-06=0.

Such as fan, water pump etc. which are belonging to variable torque loading, Pls set F-06=1, which will reduce the energy wastage when motor run at low speed.

• Motor rated current, rated frequency and rated RPM(F-08, F-09, F-10).

Parameters should be set according to the nameplate on the motor.

When F-10 = 0, The Speed value appears with HZ.

If we set F-10 as motor rated RPM, which will help to improve slip compensation function under different loading conditions

• Low speed voltage compensation (F-11).

Favorable to start motor smoothly, Maximum value of voltage compensation up to 25%.

• Controlling methods select (F-12).

Terminal controlling method is for long distance control use.

Keyboard controlling method is for trial operation or handle manually.

• “Extended menu access” select(F-15~F-40)

“Extended menu access” is designed for inverter application experts, engineers or technicians. General users don’t need to use it.

7.2 Keyboard operation mode(Default F-13=1 when ex-work)

- Put terminal 1, 2 open, the inverter appear to Stop
- Press "Run" Key ①， LCD appear to H0.0.
- Press "UP" Key ▲， frequency output increase.
- Press "DOWN" Key ▼,frequency output descends.
- Press "STOP" Key ⓪, Inverter stop frequency output, LCD appears to stop.

7.3 Forward/Reverse operation on Keyboard

- Set F-12=2.
- Press "RUN" Key①, LCD appears to H0.0.
- Press ▲ key，Speed increase.
- Press "RUN" Key① again，Change motor rotary direction.

7.4 Terminal controlling operation mode

- Parameter F-12=0.
- Connect the start/stop switcher between terminal 1 and 2.
- Connect one potentiometer (1KΩ~10KΩ) among terminal 5, 6 and 7
- When "Start/Off" switcher ON, Turn potentiometer to change output frequency (HZ) making the motor rotary
- When "Start/Off" switcher OFF or turn potentiometer to "0", Inverter stop work

7.5 Parameters resume default (Parameters reset)

•When inverter stop and appear “Stop” on LCD, simultaneity press ▲, ▼ and “Enter” Key ⓪ 1 second

•LCD appears P-SET, which means all parameters have resumed to default (ex-work value).

•Press “Enter” Key ⓪ again, LCD appears “Stop”.

•Parameter F-37 would restore to 10, but F-39 and F-40 not change.

7.6 The saving condition after parameter modification

•As F-38=0 (Default), all parameters could be modified, they would be saved in EEPROM when AC main power is cut off.

•As F-38=1, all parameters could also be modified, but they would not be saved in EEPROM when AC main power is cut off.

•As F-38=2, all parameters couldn’t be modified, read only.

Notice

To prevent other persons modify parameters causally, please select any number between 0 and 9999 for parameters F-37 (enter into “Extended menu access” password).

•Under status of “Extended menu access” （expect F-00）,LCD would return to initial status if without any operation within 20 seconds.

•when set as F-00, LCD would return to initial status if without any operation over 60 seconds.

8. The symbol explanation on LCD

Symbol on LCD	Explanation		Symbol on LCD	Explanation
H50.0	Frequency output 50HZ		A4.5	Output current 4.5A
1480	RPM 1480r/ min		Stop	Inverter stop work
F01	Parameter F-01		L	Parameter lock (F-38)
E	Parameter Error, Modified only when inverter stop		Radix point twinkling	Inverter over-load
Stndby	Standby			

9. Parameter and datasheet

9.1 Parameter list

STANDARD PARAMETER

Par	Description	Range	Default
F-01	Maximum speed	F-02 to 5*F-09 (max 545Hz)	50Hz
F-02	Minimum speed	0 to F-01 (max 545Hz)	0Hz
F-03	Linear Accel time(s)	0.1 to 3,000s	5s
F-04	Linear Decel time(s)	0.1 to 3,000s	5s
F-05	Stop mode select	0, 2: linear stop (ramp stop) 1: inertia stop (coast to stop)	0
F-06	V/F characteristic	0: Constant torque, INDUSTRIAL 1: Pump/fan, HVAC	0
F-07	Rapid linear Decel time (s) when power cut	0.0 to 25s. (Disabled when 0.0s)	0.0s
F-08	Motor rated current	25% -100% of drive current rating	Drive rating
F-09	Motor rated frequency	25Hz to 545Hz	50 Hz
F-10	Motor rated speed	0, F-09*12 to F-09*60	0

F-11	Voltage boost	0 to 25% of max output voltage	8%
F-12	Terminal or Keypad control	0: Terminal control 1: Keypad control –fwd only 2: Keypad control. fwd and rev	1
F-13	Trip log	Last four trips stored	Read only
F-14	Extended menu access	Code 0 to 9999	0
EXTENDED PARAMETER SET			
F-15	Motor rated voltage	220V product:80V to 250V 400V products:150V to 500V	0
F-16	Analog input format (V/mA)	Voltage: 0-10V, 10-0V,-10V-10V Current:4-20mA,0-20mA,20-4mA	0-10V
F-17	Effective power stage switching frequency (Carrier wave frequency selection)	4,8, 16kHz	16 kHz
F-18	Relay output function	0: Drive enabled 1: Drive healthy 2: At set speed 3: Speed >zero 4: Motor at max speed (F-01)	1(Drive healthy)
F-19	Multi-function contact input selection	0 to 11	0
F-20	Preset /Jog speed 1	-F-01 (reverse) to F-01	50Hz
F-21	Preset /Jog speed 2	-F-01 (reverse) to F-01	0Hz
F-22	Preset /Jog speed 3	-F-01 (reverse) to F-01	0Hz
F-23	Preset /Jog speed 4	-F-01 (reverse) to F-01	0Hz
F-24	Slip compensation	20% to 250%	100%
F-25	Analog output function	(A) 0:Motor Speed 1:Motor current (D) 2:Drive enabled 3: Set speed	0
F-26	V/F characteristic adjustment factor	20% to 250%	100%

F-27	Skip freq / speed	0 to F-01 (max)	0Hz
F-28	Skip freq / speed band	0 to100% of rated speed/freq. F-09	0Hz
F-29	V/F characteristic adjustment frequency	0 to base frequency (F-09) (Function disabled when set to 0)	0Hz
F-30	Drive start mode	**Edge-r:** Close Digital input 1 after power up to start drive **Auto-0:** drive runs whenever digital input 1 closed. **Auto-1-4:** as Auto-0, except 1..4 Attempts to restart after a trip.	Auto-0
F-31	DC injection voltage	0.1 to 20% of max voltage	10%
F-32	DC injection braking time	0 to 250s	0s
F-33	DC injection on enable	0: Inactive 1: Enabled	0
F-34	External Brake Resistor	0: No brake resistor fitted 1: Optidrive braking resistor 2: Customer specified resistor	1
F-35	Speed reference scaling factor (analog or digital)	F09 * (1% to 500%)	100%
F-36	Drive address(s-comms)	0 to 63	1
F-37	Access code definition	0 to 9999	10
F-38	Parameter access lock	0: Parameters can be changed, auto-saved on power down 1: Parameter changes not saved on power down 2: Read-only. No changes allowed.	0
F-39	Hours run meter	0 to 99999 hours	Read only
F-40	Drive identifier	Drive rating /Software version	Read only

Parameter explanation to only-read window				
Parameter No.	Explanation to surveillance content		Range of setting	Factory setting value
F-00	1:Original analog input	%	0~9	1
	2:Original analog input (F-35)	Hz		
	3:Setting frequency	Hz		
	4: Output frequency	Hz		
	5: Slip frequency	Hz		
	6:Stator frequency	Hz		
	7: Motor voltage	VAC		
	8: DC bus voltage	VDC		
	9: Inside thermistor (NTC)	0~255		

Multi-function contact input (Digital input)			
F-19	**Multi-function Contact 2**	**Multi-function Contact 3**	**Multi-function Contact 4**
0	*Open:* Stop (disable) *Closed:* Run (enable)	*Open:* Analog speed reference *Closed:* Preset /Jog Speed 1	*Open:* Voltage analog input *Closed:* Current analog input
1	*Open:* Stop (disable) *Closed:* Run (enable)	*Open:* Analog speed reference *Closed:* Preset /Jog Speed 1or 2, selected by Digital input 4	*Open:* Preset / Jog Speed 1 *Closed:* Preset / Jog Speed 2
2	*Open:* Stop (disable) *Closed:* Run (enable)	Digital Input 3 *Open* +Digital Input 4 *Open* = Preset /Jog Speed 1 Digital Input 3 *Closed* +Digital Input 4 *Open* = Preset /Jog Speed 2 Digital Input 3 *Open* +Digital Input 4 *Closed* = Preset /Jog Speed 3 Digital Input 3 *Closed* +Digital Input 4 *Closed* = Preset /Jog Speed 4	
3	*Open:* Stop (disable) *Closed:* Run (enable)	External trip input: *Open:* TRIP; *Closed:* no trip.	*Open:* Analog speed reference *Closed:* Preset / Jog Speed 1
4	*Open:* Stop (disable) *Closed:* Run (enable)	*Open:* Run forward *Closed:* Run reverse	*Open:* Analog speed reference *Closed:* Preset / Jog Speed 1
5	*Open:* Fwd Stop (disable) *Closed:* Fwd Run (enable)	*Open:* Reverse Stop (disable) *Closed:* Reverse Run (enable)	*Open:* Analog speed reference *Closed:* Preset / Jog Speed 1
6	*Open:* Stop (disable) *Closed:* Run (enable)	*Open:* Run forward *Closed:* Run reverse	External trip input: *Open:* TRIP; *Closed:* no trip.

7	*Open:* Fwd Stop (disable) *Closed:* Fwd Run (enable)	*Open:* Reverse Stop (disable) *Closed:* Reverse Run (enable)	External trip input: *Open:* TRIP; *Closed:* no trip.
8	*Open:* Stop (disable) *Closed:* Run (enable)	*Open:* Run forward *Closed:* Run reverse	*Open:* Preset / Jog Speed 1 *Closed:* Preset / Jog Speed 2
9	*Open:* Fwd Stop (disable) *Closed:* Fwd Run (enable)	*Open:* Reverse Stop (disable) *Closed:* Reverse Run (enable)	*Open:* Preset / Jog Speed 1 *Closed:* Preset / Jog Speed 2
10	Normally Open (N.O.) Momentary close to run fwd	Normally Closed (N.C.) Momentary open to Stop (disable)	*Open:* Analog speed reference *Closed:* Preset / Jog Speed 1
11	Normally Open (N.O.) Momentary close to run fwd	Normally Closed (N.C.) Momentary open to Stop (disable)	Normally Open (N.O.) Momentary close to run reverse

• Forward means motor rotary along clockwise direction

• Multi-functions contact input selection “F-19” set to “0”

When multi-function contact 4 “OFF”, Analog input is voltage signal,

When multi-function contact 4 “ON”, Analog input is current signal,

The type of analog input signal can be set through parameter F-16.

If parameter F-19 set to 5 or 7 or 9, when use machine braking, multi-function contact 2 or 3 “OFF” or multi-function contact 3 or 4 “OFF”, Inverter not output, the motor would be inertia stop.

•As F-19=6 or 7 and choose keyboard operating mode (F-12=1 or 2)，External trip function will be activated, when function contact is OFF, the inverter appear fault.

•Under keyboard operating mode, as F-12=1 or 2 and F-19=6, the rotary direction is controlled by multi-functions contact 3, which means the inverter can be started in reverse direction under the mode of keyboard operation.

•Under keyboard operating mode, as F-12=1 or 2 and F-19=7, multi-function contact 2 and 3 “ON” simultaneously which would activate the function of “Rapid linear deceleration function (F-07).

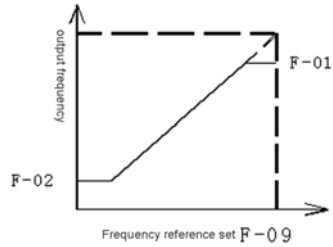
9.2 Parameter explanation

Standard parameter group

•F-01 max output frequency

Maximum frequency limitation

(Speed, refer to F-10)



•F-02 min output frequency

Minimum frequency limitation

(Speed, refer to F-10)

•F-03 linear Accel time(S).

The required time accelerate from 0 to max speed.

•F-04 linear Decel time(S).

The required time decelerate from max speed to 0

•F-05 stop mode select

0: Decelerate and stop according to parameter F-04;

2: Decelerate and stop according to parameter F-07;

1: Input “Stop” instruction, motor coast to stop (inertially).

•F-06 V/F characteristic curve select.

Either V=kf (linear) or $V=kf^2$ (pumps/fans with HVAC rating).

Note when F-06 is set to 1, the ramps are automatically set to 60s.

(A) Relation between voltage and frequency.

Pls. refer to picture: 0 curve is constant torque,

1 curve is variable torque.

(B) Through adjust parameter F-26 & F-29, V/F curve can be further changed.

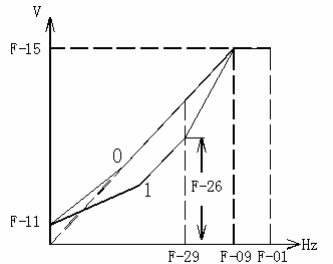
For example:

Set F-26=80% & F-29=40Hz, which would cause voltage (V) at 40HZ reduce 20 percent.

(C)The fluctuant range of voltage,

(1) For frequency increase, Frequency is straight upward from parameter F-29 to basic frequency.

(2) For frequency descend, Frequency is straight downward from parameter F-29 to "0"



V/F characteristic curve picture

• F-07 Rapid linear decelerate time when power cut off.(Fast stop)

Deceleration ramp time after mains loss (F-05 =0 or 2) or when fast stop activated (see F-19).

When F-05 =2 and F-07 =0, activation the fast stop disables the drive without braking (effectively coasting to stop)

• F-08 motor rated current

Rated (nameplate) current of the motor (Amps). In HVAC (F-06=1) mode, the rated motor current limit is increased, allowing F-08 to be set to a higher level.

• F-09 motor rated rotate speed.

Rated (nameplate) frequency of the motor.

Changing F-09, resets F-02, F-10, F-26 & F-28 to 0, & F-01= F-09

• F-10 motor output rated voltage

When non-zero, Speed is displayed in RPM in parameters F-01, F-02, F-20 ….F-23, F-27 and F-28

Example, Motor rated frequency is 50Hz, Speed can be set from 600-3000RPM/min; when motor speed is non-zero, rotary speed should be shown on the unit of RPM

• F-11 Low speed voltage compensation (Voltage boost).

Applies an adjustable boost to the drive voltage output at low speed to assist with starting ‘sticky’ loads, for continuous applications at low speed use a forced ventilated motor

• F-12 Terminal or keyboard control select (controlling mode)

Select “Start/Stop” through terminal controlling or keyboard controlling

When F-12 =2, the keypad START key toggles between forward and reverse. When stopped, target speed can be accessed/changed using the STOP, ▲ & ▼ buttons.

• F-13 Trip log record.

Most recent 4 trips stored in order of occurrence,.
I.e. on entry, display shows most recent first.
Press ▲ or ▼ to step through all four.

• F-14 Enter "extended menu access" menu.

Set to "10" (default) for extended menu access.
Change code in F-37 to prevent unauthorized access to the extended parameter set

Extended Parameter Set

• F-15 Motor rated RPM.

When F-15 is non-zero, the applied motor voltage is controlled and scaled so that the specified voltage is achieved at rated frequency (F-09)

• F-16 Input analog signal format

Analog input format (on terminal 6). If a current input format is set & F-19=0, Multi function contact input 3 must be closed for the current input to be configured.

Connect terminal 6 to input the analog voltage signal or analog current signal, which regard as external frequency given signal.

Set bipolar signal as -10~10V.

•F-17 Carrier wave frequency selection.

Effective power stage switching frequency inverter. Improvements in acoustic noise and output current waveform occur with increasing switching frequency at the expense of increased losses within the drive

•F-18 Multi-function contact output selection.(Relay output function)

Contacts closed if selected condition is true.

When F-18=3 (zero speed), the relay contacts close when the output frequency is greater than 5% of base frequency

The drive is in overload when the motor current exceeds F-08

•F-19 Multi-functions contact input selection.

Multi-functions contact 2, 3 and 4 correspondence with common contact 1 to effect ON/OFF functions.

Defines function of digital inputs (See also F-16 and Multi-functions contact input table)

• F-20~F-23 multi-stages speed 1~4.

Refer to multi-functions contact input selection (F-19), Preset multi-speed 1~4 according to actual running requirement

•F-24 Slip compensation

Slip modification factor, whose numerical definition is applied as interior calculation for slip compensation percentage. Refer to F-10

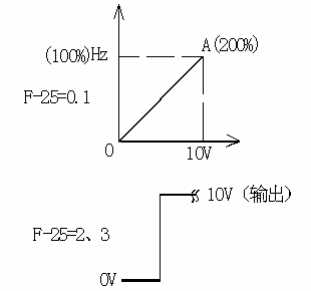
•F-25 Analog output functions.

Analog output select.

When F-25=0 then 10V = 100% of F-01.

When F-25 =1 then 10V =200% of F-08

F-25 =2 or 3 gives a 10V digital output which is step-jumping digital



•F-26 V/F Characteristic adjustment factor

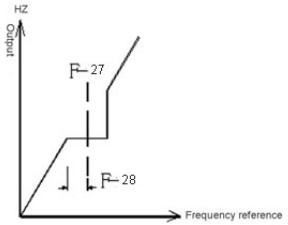
Used with F-29 to adjust the V/F characteristic.

When F-26 >100%, motor voltage is increased.

When F-26 <100%, motor Voltage is reduced

•F-27 Skip frequency/speed.

Centre point for skip frequency band. The skip frequency band defined by F-27,F-28 is mirrored around zero for negative speeds.



•F-28 skip frequency/speed band.
Width of skip frequency band, the centre of which is defined by F-27

•F-29 V/F Characteristic adjustment frequency
Set the frequency at which the V/F adjustment factor in F-26 has full effect. This allows the motor voltage applied at the frequency in F-29 to be increased or decreased by the factor set in F-26

•F-30 Drive Start mode
When set to Edge-r, if drive is powered up with digital input 1 closed (enabled), drive will not run. The switch must be opened & closed after power up or after a clearing a trip for the drive to run.

When set to Auto-0, drive will run whenever digital input 1 is closed (if not tripped).

Auto-1..4 makes 1..4 attempts to automatically restart after a trip (25s between attempts). If fault has cleared, drive will restart. Drive must be powered down, reset on the keypad or reset by re-enabling the drive to reset auto-reset counter.

When F-12 is set to 1 or 2, F-30 changes automatically to Edge-r

•F-31 DC injection voltage
If F-05 selection is “ramp to stop”, F-32 sets the level of DC braking applied when the ramp reach zero

•F-32 DC injection braking time
If F-05 selection is “ramp to stop”, F-32 sets the duration of DC braking applied when the ramp reaches zero

•F-33 DC injection braking on enable

When F-33 to “1”, DC injection is applied whenever the drive is enabled

•F-34 External brake resistor

Activate interior brake resistor.

When F-42=1, Brake resistor functions enable.

When F-42=2, Overload protection is required to avoid damages of both resistor and drive

•F-35 Speed reference scaling factor

Scales the analog input at control terminal 6 up or down, or the digital reference in keypad (or Slave) mode up or down (see F-12)

•F-36 Communication address(Drive address).

0 means order invalid

•F-37 Access code definition

Defines Extended Parameter Set access code F-14

•F-38 Parameter access lock

Controls user access to parameters.

When F-38=0, all parameters can be changed and these changes will be stored automatically.

When F-38=1, changes may be made, but these will not be stored when the drive power cut off.

When P-38=2, Parameters are locked and cannot be changed thus preventing unauthorized access

•F-39 Accumulation running time (Hours run meter)

Not affected by Reset to default command

Read only.

•F-40 Drive Identifier

Drive rating, drive type and software version codes

Read only

10. Fault diagnosis and corrective actions

10.1 Notes for remedy once fault detects.

- If want to eliminate abnormity, clean up the abnormity conditions first, then press ⓪("stop" key)to restore, drive would start automatically, (re-start automatically according to the set mode of F-30.)
- If motor stop and inverter LCD appear "Stop", which means the inverter is non-abnormity, it's under standby.
- Notice: if terminal 1, 2 always close chronically during service use, "F-30" should be set to Auto-0"

10.2 *TROUBLESHOOTING*

Fault Code	What has happened	What to do
P-SET	Default parameters loaded	Press STOP key to confirm and enter parameter values.
O-C	Over current on drive output. Excess load on the motor.	1.Motor at constant speed: investigate overload or malfunction. 2.Motor starting: Load stalled or jammed. 3. Motor accelerating/decelerating: The accel/decel time too short. 4. Check for star-delta motor wiring error.
O-Volt	Over voltage on DC bus	1. increase decel ramp time(F-04). 2. mount braking units and resistor 3. check the input voltage

U-Volt	Under voltage on DC bus	1. This occurs routinely when power is switched off. 2. If it occurs during running, check power supply voltage.
OC-brt	Brake resistor short circuit.	Check cable first. If ok, Check if resistor bum out.
OL-trp	Overload,150% current >1 min.	Check driven machine; drive may be too small for the load.
TH-FIt	Faulty thermostat on heat sink.	Refer to your **BEDFORD** Authorized Distributor.
PS-FIt	Internal power module fault.	1. Check wiring to motor, look for if ph-ph or ph-Earth short circuit. 2. Check drive ambient temp, Added space or cooling needed? 3. Check drive is not forced into overload.
OH-trp	Heatsink over temperature	Check drive ambient temp. Additional space or cooling needed?
Hd-FIt	Hardware fault.	Refer to your **BEDFORD** Authorized Distributor.
Ai-Err	Current analog input out of range.	Check input current in range defined by F-16.
OL-brt	Braking Resistor Overload	Increase decel. time, F-04 or reduce braking resistor value.
EE-FIt	EEPROM fault. Parameters not saved, defaults reloaded.	Try again. If problem recurs, refer to your **BEDFORD** Authorized Distributor.

10.3

Acceleration/deceleration: Very short ramp time may require>150%, this may result in the accel/ decel rate not being achieved, and/ or O-C fault.

Overload protection: When the drive is delivering>100% full load current, an I,t integral will result in the drive tripping, should the I,t limit be exceeded, This occurs after 1 minute at 150%,When overloaded, the drive display will flash. Being driven like this repeatedly can cause a power-stage trip (PS-Trp).

11. BEDFORD-B800-200V series standard size

BEDFORD- B800	2001	2002	2003	2005	2007	2010
Voltage	1or 3φ200V-240V			3φ200V-240V		
Capacity (KW)	0.75	1.5	2.2	3.7	5.5	7.5
Rated output voltage (V)	3φ220V-240V					
Rated output current A	4.3	7.0	10.5	14	19.6	26.6
Control mode	Sine wave PWM control					
Output frequency range	Maximum 545Hz					
Frequency resolution	Analog input volume: 0.1Hz					
Overloading capacity	Rated output 150%-1 minute; 175% -2 seconds.					
Frequency setting signal	0~10V， 10~0V， -10~10V， 4~20mA，0~20mA，20~4mA 6 types of standard signals.					
No. of V/F Patterns	Random V/F curve.					
Location	Indoor (protected from corrosive gases and dust)					
Ambient temperature	-10~40℃(if beyond the allowable degree, one degree will derogate 5% of output current).					
Storage temperature	-40~60℃					
Environmental temperature	95%（without dew gather）					
Vibration	2M/S^2（0.2G）					
Protection rate	IP20					
B800-200-05/0.5HP/0.37KW is available **B800-200-07/0.7HP/0.55KW is available**						

BEDFORD-B800-380V series standard size

BEDFORD- B800	4001	4002	4003	4005	4007	4010
Voltage	3φ 380V-440V					
Capacity (KW)	0.75	1.5	2.2	3.7	5.5	7.5
Rated output voltage (V)	3φ 380V-440V					
Rated output current A	2.2	4.1	5.8	9.5	13	16
Control mode	Sine wave PWM control					
Output frequency range	Maximum 545Hz					
Frequency resolution	Analog input volume: 0.1Hz					
Overloading capacity	Rated output 150%-1 minute; 175% -2 seconds.					
Frequency setting signal	0~10V， 10~0V， -10~10V， 4~20mA，0~20mA，20~4mA 6 types of standard signals.					
No. of V/F Patterns	Random V/F curve.					
Location	Indoor (protected from corrosive gases and dust)					
Ambient temperature	-10~40℃(if beyond the allowable degree, one degree will derogate 5% of output current).					
Storage temperature	-40~60℃					
Environmental temperature	95%（without dew gather）					
Vibration	$2M/S^2$（0.2G）					
Protection rate	IP20					

BEDFORD®

AC MOTOR SPEED CONTROLLER

AGENT：