iNoRéa
Automatismes & Industrie

FREQUENCY INVERTER VFR-091/092
QUICK START GUIDE

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1. PEOPLE SAFETY

⚠️ RISKS OF ELECTROCUTION OR EXPLOSION ⚠️

- Read carefully this installation guide before using the inverter.
- The user has to conform to all the requirements of the international and national regulations about the earthing of all the equipments.
- DO NOT touch the internal parts of the inverter : use only tools isolated electrically
- DO NOT touch the terminal blocks when the inverter is supplied.
- DO NOT put in short circuit borders DC+1 and DC+2 or condensers of the bus DC. A high tension which can cause electric shocks remains present in the device after cutting the supply.
- DO NOT try to fix the inverter; you should contact your retailer.
- Put back in place and close all the lids before putting back the inverter under tension.
- The inverter must be carefully fixed before switching it under tension.
- Before any intervention on the motor, power supply of the inverter must be turned off.

NON-RESPECT OF THESE RULES MAY BE FATAL: DEATH, SERIOUS INJURIES AND MATERIAL DAMAGES

2. MATERIAL SAFETY

- Verify that the inverter VFR-013 is not damaged
- Verify that the inverter corresponds to your order and to the delivery note.
- Verify that the tension of the electric network corresponds to the supply power of the inverter : 220V single phase or 400V three phase
- Never turn off the supply power if the inverter before the end of the motor operations.
- An armored cable must be used for the control circuit, and this one must be taken away as much as possible from the circuit of power to avoid the disturbances.
- When the frequency of hashing is lower than 3 KHz, the distance between the inverter and the motor must be at the maximum 50 meters.
- If the inverter has to start frequently, do not turn off it power supply, but use the starting up at the terminal blocks, to avoid some damages.
- Never connect a supply power on terminals U, V, W of the inverter; otherwise it would be immediately destroyed.
- The inverter capacity in KW and A should always be higher than the motor capacity.

⚠️ WARNING; IF THE INVERTER IS DAMAGED; DO NOT USE IT ⚠️

3. NAME PLATE

VFR-091T4B-4K0

- Motor power in kW
- T4 : three phase 400V - M2 : single phase 220V / Ø : standard - B : integrated braking
- 091 / 092
- Frequency inverter
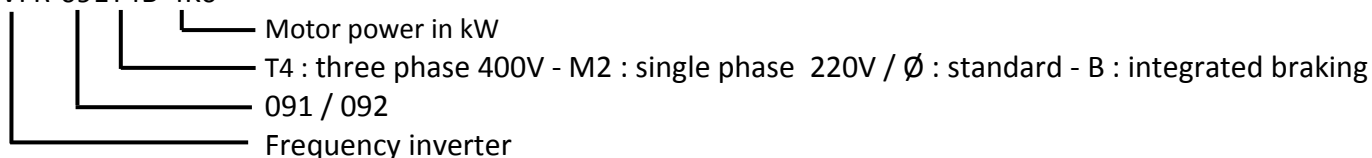
a. Single phase inverters

Reference	Nominal power	Input tension	Electrical current input	Protection caliber	Cable section input	Electrical current output	Cable section output	Size
	(KW)	(V)	(A)	(A)	(mm²)	(A)		H/L/P (mm)
VFR-091M2-0K75	0.75	220 ±10%	5.5	10	1.5	4	1,5	185/120/178,5
VFR-091M2-1K5	1.5	220 ±10%	11	16	2.5	7	1,5	
VFR-091M2-2K2	2.2	220 ±10%	16	20	2.5	10	2,5	220/150/185,5
VFR-091M2-4K0	4	220 ±10%	29	32	4	16	2,5	285/180/200
VFR-092M2-5K5	5.5	220 ±10%	40	40	6	25	4	360/220/210

From 0.75KW to 5.5KW
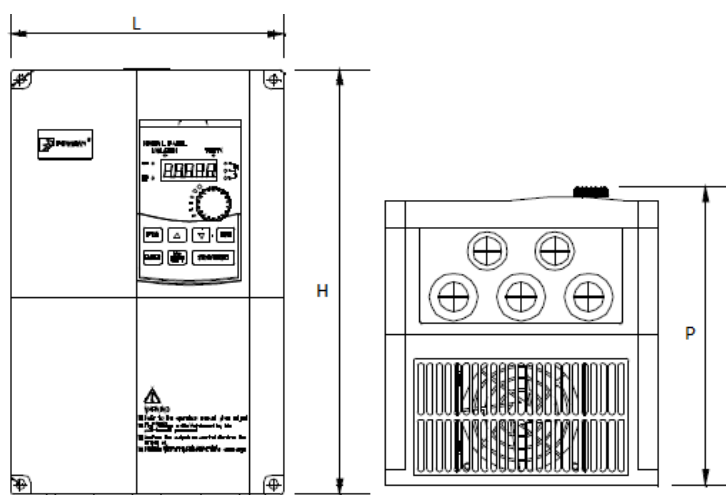
b. Three phase inverters

| Reference	Input tension	Nominal power	Input current	Output current	Size	Option
	(V)	(KW)	(A)	(A)	H/L/P (mm)	
VFR-091T4-0K75	400	0.75	3,4	2,1	185/120/178,5	
VFR-091T4B-0K75						Braking
VFR-091T4-1K5	400	1.5	5	3.8		
VFR-091T4B-1K5						Braking
VFR-091T4-2K2	400	2.2	5,8	5,1		
VFR-091T4B-2K2						Braking
VFR-091T4-4K0	400	4	10,5	9	220/150/185,5	
VFR-091T4B-4K0						Braking
VFR-091T4-5K5	400	5.5	14,6	13		
VFR-091T4B-5K5						Braking
VFR-091T4-7K5	400	7.5	20,5	17	285/180/200	
VFR-091T4B-7K5						Braking
VFR-092T4-11K0	400	11	26	25	360/220/210	
VFR-092T4B-11K0						Braking
VFR-091T4-15K0	400	15	35	32		
VFR-092T4B-15K0						Braking
VFR-092T4-18K0	400	18,5	38,5	37	432/225/242	
VFR-092T4B-18K0						Braking
VFR-092T4-22K0	400	22	46,5	45		
VFR-092T4B-22K0						Braking
VFR-092T4-30K0	400	30	62	60	480/296/246	
VFR-092T4B-30K0						Braking
VFR-092T4-37K0	400	37	76	75		
VFR-092T4B-37K0						Braking
VFR-092T4-45K0	400	45	91	93	660/364/280	
VFR-092T4B-45K0						Braking
VFR-092T4-55K0	400	55	112	110		
VFR-092T4B-55KO						Braking
VFR-092T4-75K0	400	75	157	150		
VFR-092T4B-75K0						Braking
VFR-092T4-90K0	400	90	180	176	710/453/280	
VFR-092T4B-90K0						Braking
VFR-092T4-110K0	400	110	214	210		
VFR-092T4B-110K0						Braking
VFR-092T4-132K0	400	132	256	253	910/480/323	
VFR-092T4B-132K0						Braking
VFR-092T4-160K0	400	160	307	304		
VFR-092T4B-160K0						Braking

From 11KW to 160KW
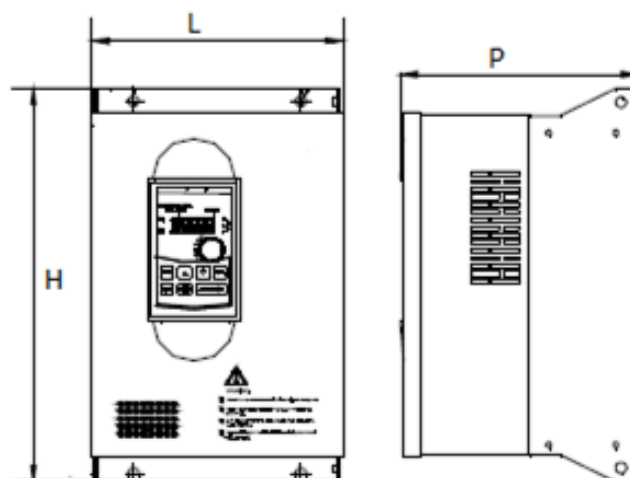
4. INVERTER ASSEMBLY IN AN ELECTRIC BOX
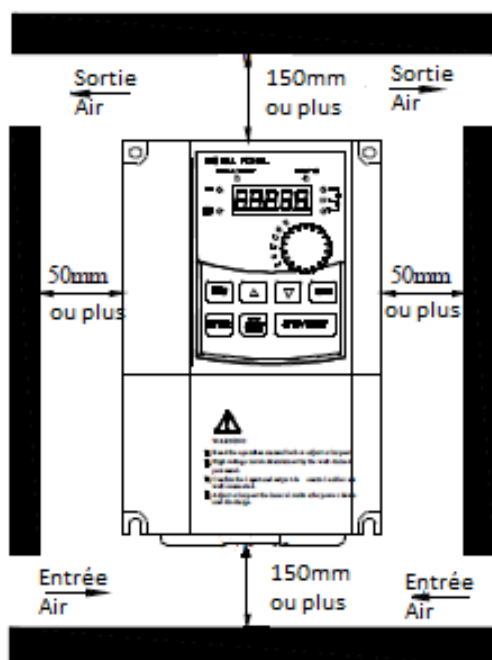
WORKING ENVIRONMENT

- Temperature: -10 ℃ à 40 ℃.
- Avoid the electromagnetic interferences, and take away sources of interferences.
- Avoid the penetration of droplets, water vapor, dust, dirt and metallic dust.
- Avoid the penetration of oils, salt and corrosive gas.
- Avoid the vibrations.
- Avoid high temperatures, moisture and exposition to the rain. Moisture should be lower than 90% (without condensation).
- Never use the inverter in a dangerous environment; flammable, combustible, corrosive and explosive gas.

5. TECHNICAL FEATURES

Input tension (depending on the model)	Three phase 400V (±10%)
Input frequency	50/60Hz (±5%)
Output frequency	0 to 300Hz in vectorial control, 0 to 3200Hz in V/F
Overload capabilities	150% during 1 min., 180% during 2 sec.
Start-up torque	150% to 0,5Hz
Control methods	V/F, vectorial control in open or closed torque
Inputs	6 ou 8 digitals (depending on the model) , 2 analogs
Outputs	2 analogs, 2 transistors, 1 ou 2 shift (depending on the model)
Communication	RS485/RS232 (additional card in option)
Protection	IP20

6. ELECTRICAL DIAGRAM

380V Three Phase

DC voltage filter   Braking resistor

Optional elements

Inverter
VFR-091

Motor

Ground input terminal

Power circuit

Ground output terminal

Terminal block inputs

Control circuit

J5   3 +24V
      2 PLC
      1 COM

2-3 utilisation of the COM on DI inputs terminal blocks
2-1 utilisation of the +24V on DI inputs terminal blocks

J13   PG Communication Interface

J12

Connector for communication card RS 485

The PLC can be connected to the +24V or to the COM or to an external power supply (9-30V)

Drain Drive

Source Drive

J2   2-3 DA1V 0~10V DC
      1-2 DA1C 0~20mA DC

DA1   Analog output DA1
GND   0-10V Max 5mA
E(PE) 0-20mA Impédence max 250ohm

J1   2-3 DA2V 0~10V DC
      1-2 DA2C 0~20mA DC

DA2   Analog output DA2
GND   0-10V Max 5mA
E(PE) 0-20mA Impédence max 250ohm

VR
1K
2W

J3   3 0-+10V DC
     2
     1 0-20mA DC

SPA
COM   Output signal 1

VR
1K
2W

J4   3 0-+10V DC
     2
     1 0-20mA DC

SPB
COM   Output signal 2

Output signal 3

TA1   5A / 250VAC
TB1   5A / 30VDC
TC1

220V Single Phase

DC voltage filter Braking resistor

Optional elements

Disjoncteur

R
T

R(L1)
T(L3)

P   P+   RB

Inverter
VFR-091

Circuit de Puissance

Borne de terre
alimentation

U(T1)
V(T2)
W(T3)

Moteur

M
3~

Borne de terre
moteur

Circuit de Commande

DI1 Bornier D'entrées
DI2
DI3
DI4
DI5
DI6

DI1
DI2
DI3
DI4
DI5
DI6

J5   3 +24V
     2 PLC
     1 COM

2-3 utilisation of the COM on DI inputs terminal blocks
2-1 utilisation of the +24V on DI inputs terminal blocks

J13   PG Communication
      Interface

J12

Connector for
communication
card RS 485

Drain Drive

+24V
PLC
COM
COM
PLC
+24V

Le PLC peut être
connecté au +24V ou
au COM ou à une
alimentation externe
(9-30V)

Source Drive

E(PE)

J2   3 2-3 DA1V 0~10V DC
     2
     1 1-2 DA1C 0~20mA DC

DA1
GND
E(PE)

Analog output DA1

0-10V Max 5mA
0-20mA Impédence max 250ohm

J1   3 2-3 DA2V 0~10V DC
     2
     1 1-2 DA2C 0~20mA DC

DA2
GND
E(PE)

Analog output DA2

0-10V Max 5mA
0-20mA Impédence max 250ohm

VR
1K
2W

+10V
AI1
GND

J3   3 0-+10V DC
     2
     1 0-20mA DC

E(PE)

SPA
COM

Output signal 1

SPB
COM

Output signal 2

VR
1K
2W

+10V
AI2
GND

J4   3 0-+10V DC
     2
     1 0-20mA DC

E(PE)

Output signal 3

TA1   5A / 250VAC
TB1   5A / 30VDC
TC1

Indicator light		Description
Status of the indicator light	RUN	Indicator ON/OFF * ON: operating motor (forward) * OFF: motor switched off
	LOCAL/REMOT	Pilotage mode indicator * ON: pilotage by terminal blocks * OFF: pilotage by keyboard *Blinker: pilotage by remote control
	FWD/REV	Forward / Reverse * ON: forward
	TUNE/TC	Indicator setting / Defect * ON: torque control mode * Slow blink: dans l'état de mise au point * Fast blink: dans l'état de défaut
Indicateur unités de combinaison	Hz/A/V	Unit indicator

Buttons	Name	Function
PRG	Parameters button / output	Change the parameter Back to the display menu or to the functions menu
≫≫ SHIFT	SHIFT	Select the different types of display of the unit ON or OFF Select the characters during the parameter modification
▲	UP	Data or code of the increasing function
▼	DOWN	Data or code of the decreasing function
RUN	RUN	Use to start the motor in mode keyboard piloting
STOP RESET	STOP / RESET	Use to stop the motor Use to reset a defect of the alarm Button in relation with the F6.00 parameter
ENTER	ENTER	Use to enter in a parameter Allows to confirm a parameter modification
Keyboard potentiometer	Keyboard potentiometer	If F0.02 is set on 3, the keyboard potentiometer is used to manage the frequency currently being implemented

8. INVERTER PARAMETERS

Code	Parameter name	Description
d0	Display of values surveillance of measures	Display of: frequency, voltage, electric current etc...
F0	Basic functions	Setting of frequency, control mode, acceleration and deceleration
F1	Group of input terminals	Analogue functions and digital input
F2	Group of output terminals	Analogue functions and digital output
F3	On and off states control parameters	Choice of on and off states
F4	Control parameters V / F	Control parameters V / F
F5	Vector control parameters	Vector control parameters
F6	Keypad and screen	To define the keypad and screen parameters
F7	Group of auxiliary functions	To define the auxiliary functions parameters
F8	Failure and protection	To define the failure and protection parameters
F9	Communication parameters	To adjust the communication parameters Modbus
FA	Torque control parameters	To define the parameters in mode torque control
FB	Optimization control parameters	To define the parameters of the optimization of the performances of control
E0	Rebalancing of length and the counting	To define the parameters of rebalancing, length and the counting
E1	Multi-speed	Multi-speed
E2	Function PID	To define and integrate the parameters PID
E3	DI virtual, DO virtual	Settings of the virtual parameters I/O
b0	Motor parameters	Settings of the motor features
y0	Function codes management	To define a password, installation of the parameters
y1	Error messages	Error messages

a. Paramters: system y0

Code	Designation	Range		Factory value	Modification when the motor is ON
y0.00	Factory settings	No reset	0	0	No
		Reset of the basic parameters except parameters motor	1		
		Historic disappearance	2		
		Reset of the users parameters with parameters motor	3		
		Saving of the actual users parameters	4		

b. Parameters: motor b0

Code	Designation	Range	Factory value	Modification when the motor is ON
b0.01	Nominal power	0,1Kw to 1000,0kW	Depending on the model	No
b0.02	Nominal voltage	1V to 2000V	Depending on the model	No
b0.03	Nominal current electric	0,01A to 655,35A for inverter ≤55kW	Depending on the model	No
b0.04	Nominal frequency	0,01Hz to F0.19 (max. frequency)	Depending on the model	No
b0.05	Nominal speed	1rpm to 3600rpm	Depending on the model	No

c. Standard parameters

Code	Designation	Range		Factory value	Modification when the motor is ON
F0.00	Control mode	Vector control without return coder	0	2	No
		Control V/F	1		
		Torque control	2		
F0.01	High limit of frequency instruction	0.00Hz to F0.19 (maximum frequency)		50.00 Hz	No
F0.03	Main piloting of the frequency	Analog input AI1	2	0	Yes
		Analogue input AI2	3		
		Screen potentiometer	4		
		Multi-speed	6		
F0.11	Start-up mode	RUN/STOP keyboard (LED Local/Remot Off)	0	0	Yes
		Control terminal block (LED Local/Remote On)	1		
		Modbus communication (LED Local/remote)	2		
F0.13		0.00s to 6500s		-	Yes
F0.14	Acceleration time	0.00s to 6500s		-	
F0.19	Deceleration time	50.00Hz 320.00Hz		50.00Hz	No
F0.21	Maximum limit output frequency	De F0.23(min) F0.19(max)		50.00Hz	Yes
F0.23	Minimum limit output frequency	De 0.00Hz F0.21 (max)		0.00Hz	Yes

d. Input settings

Code	Designation	Range	Factory value	Modification when the motor is ON
F1.00	Input terminal block DI1	0 to 50	1	No
F1.01	Input terminal block DI2	0 to 50	2	
F1.02	Input terminal block DI3	0 to 50	8	
F1.03	Input terminal block DI4	0 to 50	9	
F1.04	Input terminal block DI5	0 to 50	12	
F1.05	Input terminal block DI6	0 to 50	13	
F1.06	Input terminal block DI7	0 to 50	0	
F1.07	Input terminal block DI8	0 to 50		

Setting value	Function	Description
0	No function	No action of the inverter
1	Direction of rotation forward(FWD)	Choice of direction of rotation
2	Direction of rotation reverse(REV)	
3	Control mode 3 electric wires	For more details look at the instructions of the functions code F1.10
4	Mode : JOG Forward	Control in JOG mode
5	Mode: JOG Reverse	
6	Frequency increase	Change the frequency of the increment/decrement control when the digital setting is selected as the frequency control (F0.03=0 or 1)
7	Frequency decrease	
8	Stop "Freewheel"	The motor stops on his own.
9	Reset of a defect	To restore an inverter defect
10	Break is functionning	The inverter stops but all the parameters are stored, as the acceleration/deceleration and instruction frequency. When the break is over, the inverter restarts.
11	External defect : input open	When the signal is sent to the inverter, it refers to the Err.15, and it makes the repair according to the chosen protection action on F8.17
12	Multi-speed : terminal 1	The speed setting can be done by 16 settings predefined and controlled through 4 input terminals. For more details, look at the **table 1.**
13	Multi-speed : terminal 2	
14	Multi-speed : terminal 3	
15	Multi-speed : terminal 4	

16	Acceleration / deceleration time: terminal 1	The selection of the 4 acceleration/deceleration can be chosen by ON/OFF.
17	Acceleration / deceleration time: terminal 2	For more details, look at the **table 2**
18	Tilt of the frequency pilotage	Allows switching between different pilotage modes of the frequency. The terminal is used to commute between two frequency mode, depening on the selection of the frequency source parameter (F0.07)
19	Up/Down setting	When the reference frequency is digital, this terminal is used to erase the frequency value modified by the terminal UP/DOWN, in such a way that reference frequency can recover the instruction value (F0.01)
20	Terminal block control communication	When the control is set on the terminal block (F0.11=1), the terminal can be used to commute between the terminal block control and the keyboard control. When the control is set on the control communication (F0.11=2), the terminal can be used to switch between the control by Modbus communication and keyboard control
21	Acceleration / deceleration prohibited	Make sure that the inverter is free of internal signals. This function maintain the current output frequency
22	Break of the PID regulation	The PID regulation is temporally desactivated, the inverter maintain the actual output frequency.
23	Reset of the controller	When the controller stops and starts again, this terminal is used to reset the inverter.
24	Rebalancing break	When the inverter will give in output the half of the frequency, the rebalancing will be in break.
25	Counter input	Impulsion input terminal of counting
26	Reset of the meter	Erase the actual value of the counter
27	Counting input of the length	Input terminal of the length of counting
28	Reset length	Erase the actual value of the length
29	Torque control prohibited	When the torque control is prohibited, the inverter switch in speed control mode.
30	High speed pulse input (only for DI5)	DI5 is used as pulse inputs terminals.
31	Reserve	
32	Immediate release of the DC brake	If the input is activated, the inerverter switch to braking stage DC.
33	External defect, input closed	When the external defect signal is put in the inverter, the inverter reports this signal and stops.
34	Validation of the frequency switch	If the input is activated, and if the frequency instructiong changes, the inverter doesn't react to these frequency modifications until the input is no longer activated.

35	Reverse effect of the PID action	If the input is validated,the opposite effect of the PID action will be opposed to the direction set by E2.03
36	External stationing input 1	In mode keyboard control, a terminal block input can be used to stop the inverter, such as the STOP touch on the keyboard.
37	Commutator of the terminal 2 control	Allows commuting between the terminal block control and the Modbus communication. If the control source is selected by the terminal block, the system will be on mode control by Modbus communication when the terminal block input is activated and vice versa.
38	Break of the PID integral	When the input is activated, the integral function of the PID is on break, but the proportional and differential changes of the PID are still valuable.
39	Commute between the main frequency and the preset frequency	When the input is activated, the frequency source A is replaced by the preset frequency F0.01
40	Commute between the source frequency and the preset frequency	When the input is activated, the frequency source B is replaced by the preset frequency F0.01
41	Reserve	
42	Reserve	
43	Communication of the PID parameters	The DI terminal (E2.19 = 1) is used to commute the PID parameters. If the terminal is not valid, the PID uses the the parameters E2.13 to E2.15, and if the terminal is valid, the PID uses the parameters E2.16 to E2.18
44	Preset defect 1	When the preset defect 1 or 2 is assets, the inverter performs the alarm defect Err.27 and Err.28. And depending on the selected mode by the protection action F8.19
45	Preset defect 2	
46	Communication of the speed control / torque	Commute between the speed control mode and the torque control mode in mode vectorial control. If the input is not valid, the inverter works in preset mode by E0.00, if the input is valid, the inverter will work on an other mode.
47	Energency stationing	If the input is validated, the inverter is setting at the maximum speed, and the electric current is maintained at the upper limit during the stationing time. This function is used to answer at the requirements that the inverter have to stops when the system is in emergency state.
48	Terminal stationing 2	In any control mode, the terminal can be used to slow down the inverter until the stop, the deceleration time is set on: time 4 (F7.13)
49	Deceleration with injection of the direct current	When the input is valid, the inverter decelerates at the initial frequency of braking, and truns automatically on DC braking.
50	Erasing of the running time	If the inverter input is active, the running time is erased, this mode have to perform with (F7.42=1) and the the running time (F7.45)

e. Table 1: Multi-speed

K4	K3	K2	K1	Control setting	Parameters
OFF	OFF	OFF	OFF	Speed 0 Setting 0X	E1.00
OFF	OFF	OFF	ON	Speed 1 Setting 1X	E1.01
OFF	OFF	ON	OFF	Speed 2 Setting 2X	E1.02
OFF	OFF	ON	ON	Speed 3 Setting 3X	E1.03
OFF	ON	OFF	OFF	Speed 4 Setting 4X	E1.04
OFF	ON	OFF	ON	Speed 5 Setting 5X	E1.05
OFF	ON	ON	OFF	Speed 6 Setting 6X	E1.06
OFF	ON	ON	ON	Speed 7 Setting 7X	E1.07
ON	OFF	OFF	OFF	Speed 8 Setting 8X	E1.08
ON	OFF	OFF	ON	Speed 9 Setting 9X	E1.09
ON	OFF	ON	OFF	Speed 10 Setting 10X	E1.10
ON	OFF	ON	ON	Speed 11 Setting 11X	E1.11
ON	ON	OFF	OFF	Speed 12 Setting 12X	E1.12
ON	ON	OFF	ON	Speed 13 Setting 13X	E1.13
ON	ON	ON	OFF	Speed 14 Setting 14X	E1.14
ON	ON	ON	ON	Speed 15 Setting 15X	E1.15

f. Table 2: Piloted acceleration and deceleration

Input 2	Input 1	Acceleration and deceleration time	Parameters
OFF	OFF	Time 1	F0.13 and F0.14
OFF	ON	Time 2	F7.08 and F7.09
ON	OFF	Time 3	F7.10 and F7.11
ON	ON	Time 4	F7.12 and F7.13

g. Control modes

Code	Designation	Mode	Range	Factory value	Changing : motor ON
F1.10	Control by terminal block	Two electric wires type 1	0	0	No
		Two electric wires type 2	1		
		Three electric wires type 1	2		
		Three electric wires type 2	3		

This parameter defines 4 different modes to control the inverter functioning by input terminal blocks.

0: Two electric wires type 1
This mode is the most used. The function FWD / REV of the motor is determined by DI1, DI2.
The terminal function is set like that:

Terminal block input	Value to be chosen	Description
DI1	1	(FWD)
DI2	2	(REV)

DI1 and DI2 are the multifunction input from DI1 to DI6.

K1	K2	Control
0	0	Stop
0	1	(FWD)
1	0	(REV)
1	1	Stop
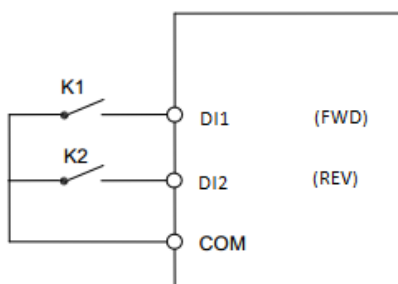
Setting:

F0.11=4 (Inverter control by terminal block + keyboard)
F1.10=0 (Two electric wires type 1)
F1.00=1 (DI1 FWR)
F1.01=2 (DI2 REV)

1: Two electric wires type 2
In this case, DI1 allows the rotation and the forward direction, while DI2 is used to activate the reverse direction.
The terminal function is set like that:

Terminal block input	Value to be chosen	Description
DI1	1	(FWD)
DI2	2	(REV)

DI1 and DI2 are the multifunction input from DI1 to DI6.

K1	K2	Control
0	0	Stop
0	1	Stop
1	0	(FWD)
1	1	(REV)
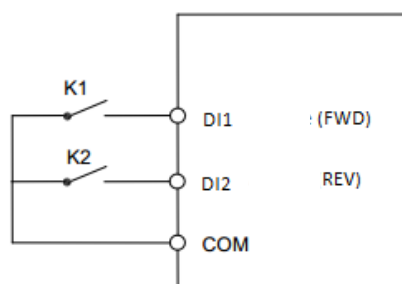
Setting:

F0.11=4 (Inverter control by terminal block + keyboard)
F1.10=0 (Two electric wires type 2)
F1.00=1 (DI1 FWR)
F1.01=2 (DI2 REV)

2: Three electric wires type 1

In this case, DI2 is used to allow the pilotage by impulsion with DI1 or DI2.

The terminal function is set like that:

Terminal block input	Value to be chosen	Description
DI1	1	(FWD)
DI2	3	authorization of the pilotage by impulsion 3 electric wires type 1
DI3	2	(REV)

To start DI2 must be closed. The forward or reverse rotation is controlled by per pulse on DI1 or DI3.
To stop, you need disconnect DI2 with a pulse.
DI2 and DI3 are the multifunction inputs terminals from DI1 to DI6.

So:
SB1: Stop button
SB2: Forward button
SB3: reverse button

Setting:

F0.11=4 (Inverter control by terminal block + keyboard)
F1.10= 2(Three wires electric type 1)
F1.00=1 (DI1 FWD)
F1.01=3 (DI2 authorization of the pilotage by impulsion)
F1.02=2 (DI3 REV)
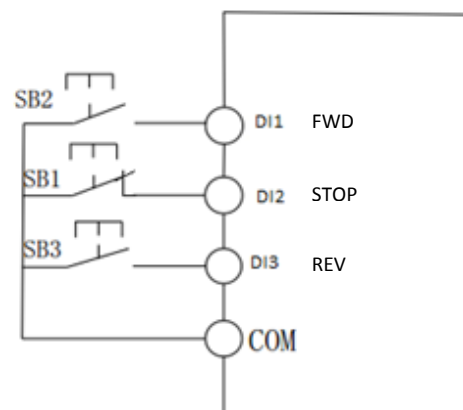
3: Three electric wires type 2

In this mode, DI2 is used to allow the pilotage by impulsion with DI1 or DI2.

The terminal function is set like that:

Terminal input	Value to be chosen	Description
DI1	1	Forward rotation (FWD)
DI2	3	Authorization of the pilotage by impulsion 3 wires type 2
DI3	2	Reverse rotation (REV)

To start, DI2 must be closed. The starting up of the motor is controlled by impulsion on DI1 and the DI3 input reverse the direction of rotation while the contact is maintained and that DI2 is still closed.
To stop, you have to disconnect DI2 by impulsion.
DI1, DI2 and DI3 are the multifunction inputs terminals from DI1 to DI6.

SB3	Control
0	Forward (FWD)
1	Reverse (REV)

Setting:
F0.11=4 (Inverter control by terminal block + keyboard)
F1.10= 3(Three wires electric type 2)
F1.00=1 (DI1 FWD)
F1.01=3 (DI2 authorization of the pilotage by impulsion)
F1.02=2 (DI3 REV)
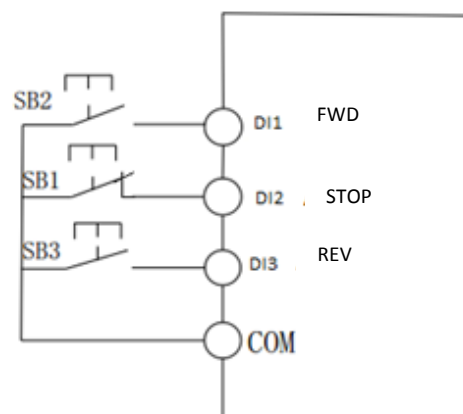
Code	Designation	Range				Factory value	Modification when motor is ON
F1.35	Polarities reversal of the DI1 to DI5 inputs (contacts NO or NC)	Bit 1	Input DI1	High signal	0	00000	No
				Low signal	1		
		Bit 10	Input DI2	High signal	0		
				Low signal	1		
		Bit 100	Input DI3	High signal	0		
				Low signal	1		
		Bit 1 000	Input DI4	High signal	0		
				Low signal	1		
		Bit 10 000	Input DI5	High signal	0		
				Low signal	1		
F1.36	Polarities reversal of the DI6 to DI10 inputs (contacts NO or NC)	Bit 1	Input DI6	High signal	0	00000	No
				Low signal	1		
		Bit 10	Input DI7	High signal	0		
				Low signal	1		
		Bit 100	Input DI8	High signal	0		
				Low signal	1		
		Bit 1 000	Input DI9	High signal	0		
				Low signal	1		
		Bit 10 000	Input DI10	High signal	0		
				Low signal	1		

h. Output settings

Code	Parameter	Setting range	Factory value
F2.02	Shift output signal 3 (TA1,TB1,TC1)	0 à 40	2
F2.04	Static output signal 1 (SPA)	0 à 40	1

Setting value	Function	Description
0	No output pilotage	No output pilotage
1	Inverter is ON	The output is active when the out put frequency is different than zero.
2	Defect in inverter output	The output is active when the inverter stops due to a defect

i. Error messages

Error messages	Defect type	Possible causes	Solutions
Err.01	Protection unit of the inverter	1. Short circuit in output inverter 2. The cable to power the motor is too long 3.Inverter overheating 4. Déconnection of a wiring on the power terminal of the inverter	1. Eliminate peripheral faults 2. Additionally install the reactor or the output filter 3. Check the air duct is blocked or not and the fan is working normally or not, and eliminate problems 4. Corectly plug all cables
Err.02	Overintensity during the acceleration	1. Acceleration time is too short 2. Increase of the torque or the V/F curve is not well adaptated 3.the voltage is weak 4.Short circuit or output grounding 5. The motor is started in an unexpected way 6. Sudden increase of the load during the acceleration 7. The inverter model is to weak for the motor power	1. increase acceleration time 2. Adjust manual torque boost or V/F curve 3. Set the voltage to the normal range 4. Eliminate periphereal defects 5. Perform indication for the motor parameters 6. Select speed tracking start or restart after stopping the motor 7. Cancel the sudden load
Err.03	Overintensity during the deceleration	1. Short circuit or output grounding 2. Deceleration time is too short 3. The voltage is weak 4. Sudden increase of the load during the deceleration 5. No presence of braking unit and braking resistors	1. Check and verify the wiring 2. Increase deceleration time 3. Set output voltage equal to the motor voltage 4. Eliminate the sudden load 5. Install a braking unit and braking resistors
Err.04	Overintensity in steady speed	1. Court-circuit or output grounding 2. The voltage is weak 3. Sudden increase of the load 4. The inverter model is too weak for the motor power	1. Eliminate periphereal defects 2. Set output voltage equal to the motor voltage 3. Eliminate the sudden load 4.Chose an inverter model more powerful
Err.05	High voltage during the acceleration	1. No presence of braking unit and braking resistors 2. Input tension is to high 3. An external force prevents the motor rotation during the acceleration time 4. Acceleration time is too short	1. Install a braking unit and braking resistors 2. Set the input voltage to the great value 3. Eliminate the force which prevents the motor rotation 4.Increase acceleration time

Err.06	High voltage during the deceleration	1. The tension is too high 2. An external force prevents the motor rotation during the deceleration time 3. Deceleration time is too short 4. No presence of braking unit and braking resistors	1. Set the great voltage 2. Eliminate the force which prevents the motor rotation 3. Increase the deceleration time 4. Install a braking unit and braking resistors
Err.07	High voltage in steady speed	1. An external force prevents the motor rotation during the deceleration time 2. Input tension is too high	1. Eliminate the force which prevents the motor rotation. 2. Set the great voltage
Err.09	Under tension defect	1. Momentary power outage in input tension of the inverter 2. Input tension of the inverter does not correspond to the required tension for this model 3. Bus tension is not normal 4. Defect of the bridge rectifier	1. Defect reset 2. Set the great voltage 3. Contact the technical support
Err.10	Inverter overload	1. The inverter model is too weak 2. The load is too big or a motor blocking happened	1. Chose an inverter model more powerful 2. Reduce the load to run and check if there is no mechanicals blocking
Err.11	Motor overload	1. The inverter model is too weak 2. The protection parameter setting of the motor (F8.03) is not appropriate 3. The load is too significant	1. Chose an inverter model more powerful 2. Correct parameters 3. Reduce the load to run and check if there is no mechanical blocking
Err.12	Loss of an power supply phase	Power supply wire is disconnected	Control and reconnect power supply alimentation of the inverter
Err.13	Loss of an output phase	1. Failure or defect of a conductor going to the engine 2. Dizziness of the 3 phases of the motor 3. Inverter defect	1. Check the power supply conductors going to the motor 2. Check the motor rolling round 3. Contact the technical suppport
Err.14	Inverter overheating	1. The air circulation is stuck 2. The fan is damaged 3. The temperature is too high 4. The termistor unit is damaged 5. The inverter is damaged	1. Make the circulation air better 2. Replace the fan 3. Lower the temperature 4. Replace the thermistor 5. Replace the fan
Err.15	External defect of the equipment	External signal defect on the terminal DI input	Defect reset

		1. Wiring defect 2. Communication parameters (F9.07) are incorrects 3. The communication settings of F9 parameters group are incorrects 4.The other communicating device is not working correctly	1. Check the wiring 2. Set the good choice of communication 3.Set correctly the parameters of communication 4. Check the functioning of the other device
Err.16	Communication defect		
Err.17	Contact defect	1. Loss of a phase at the input 2.Defect on the power supply card	1. Check 2. Replace the fan or the power supply card
Err.18	Current detection defect	Control the effect Hall device	Replace the effect Hall dispositif
Err.19	Auto tunning setting motor defect	1. The motor parameters were not set according to the nameplate 2. The waiting time for the auto tunning configuration is out of date	1. Set correctly the values according to the nameplate 2. Check the power wires from the inverter to the motor
Err.20	Disk code defect	1. The coder is damaged 2. The PG card is unormal 3. The coder model does not correspond 4. Connection error with the coder	1. Replace the coder 2. Replace PG card 3. Define correctly the coder model according to the real conditions 4. Eliminate the connection defect
Err.21	Defect of reading and writing of the EEPROM memory	EEPROM chip is damaged	Replace the main control panel screen
Err.22	Material defect	1. Overvoltage 2. Overcurrent	1. Eliminate the overvoltage 2.Eliminate the ivercurrent
Err.23	Grounding short circuit	Motor short to ground	Replace the power supply cable of the motor or the motor
Err.26	Accrued defect during the functioning time	Accrued defects during the functioning time	Erase informations archive using the initialization parameters
Err.27	Parameter 1 defect	Activation of the multi function DI input causing the personalized defect 1	Reset run
Err.28	Parameter 2 defect	Activation of the multi function DI input causing the personalized defect 2	Reset run
Err.29	Defect during the switching on	Defect during the switching on	Clear the informations archive using initialization parameters
Err.30	Loss of the load on the motor defect	The motor current in functioning is lower than F8.31	Check if the motor load is removed or not, or if the parameters (F8.31 and F8.32) are correctly set with the real functioning conditions

Err.31	Loss of the PID reversal signal	The PID signal reversal is lower than the instruction value E2.11	Check the PID return signal or set E2.11 with an appropriate value
Err.40	Defect of the current limit cycle by cycle	1. The load is too high or a motor blocking happens 2.The model inverter is too weak	1. Reduce the load and check the motor 2. Chose an inverter model more powerful
Err.41	Defect of the change of the direction rotation during the functioning	Request to change the direction of rotation too fast for the terminal block	Change the direction of rotation before the motor stops
Err.42	Speed difference defect	1. The setting of a too large deviation of speed parameters (F8.15, F8.16) is unreasonable. 2. The setting of the coder parameters is incorrect 3. Parameters were not identified	Set the detection parameters of the coder on correct values
Err.43	Overspeed of the motor	1. The setting is not done 2. The setting of the coder parameters is incorrect 3. Parameter to detect the motor speed (F8.13, F8.14) is extreme	1. Configure the motor 2. Configure correctly the coder 3. Set the detection parameters on an appropriate range.
Err.45	Overheating of the motor	1. The temperature sensor cable is disconnected 2. The motor temperature is too high	1. Check the probe cable 2. Reduce the running time cool the motor down in an other way to
Err.51	Error of initial position	The difference between the motor parameters and the actual parameters is to big	Check if the motor parameters set are correct