FREQUENCY INVERTER VFR-050

EXTERNAL BUTTONS PILOTAGE

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POUR INFORMATION

Normally Open contact (NO) maintained.

Pushed button Normally Open (NO) not maintained.
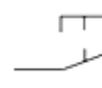
Pushed button Normally Closed (NC).

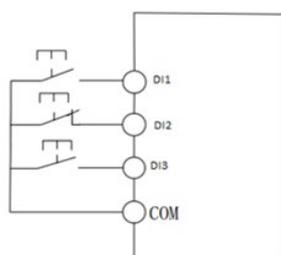Rising edge

Input terminals DI1 to DI6 are multi-functions inputs terminals of the frequency inverter.
The COM terminal is the power supply terminal linked with DI1 to DI6

Connection example of the inverter inputs

Connection by pushed buttons

1. DESCRIPTION

The inverter has 4 control modes of the motor by the terminal blocks

Code	Designation	Mode	Range	Factory value	Modification when motor is on ON
F1.10	Control by terminal blocks	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		

2. DESCRIPTION: TWO ELECTRIC WIRES TYPE 1 (F1.06=0)

The mode « Two electric wires type 1 », is the most used.

The rotation forward or reverse of the motor is determined by the terminal block input DI1 or DI2 while they are closed.

Terminal block input	Value	Description
DI1	1	Forward (FWD)
DI2	2	Reverse (REV)

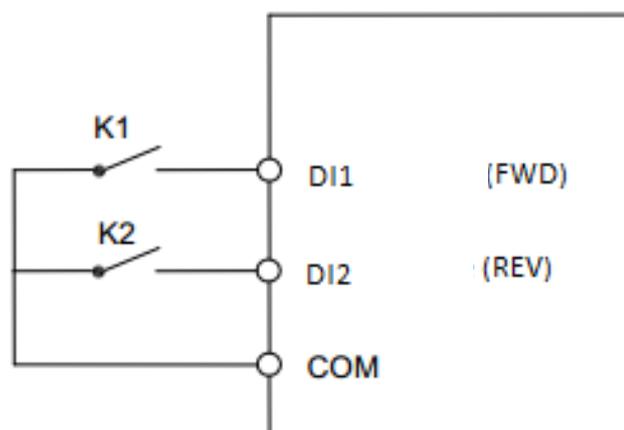| K1	K2	Pilotage
0	0	Stop
0	1	Forward (FWD)
1	0	Reverse (REV)
1	1	Stop

Setting:
F0.011=4 (Inverter pilotage by terminal blocks)
F1.10=0 (Two electric wires type 1)
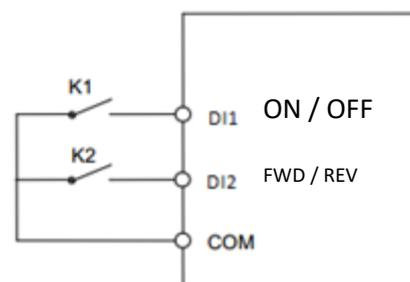F1.00=1 (Terminal DI1: FWD)
F1.01=2 (Terminal DI2: REV)

3. DESCRIPTION: TWO ELECTRIC WIRES TYPE 2 (F1.061)

In this case, DI1 allows the rotation and the direction forward, while DI2 is used only to activate the other way.

Terminal blocks inputs	Value	Description
DI1	1	ON
DI2	2	(FWD) OR (REV)

K1	K2	Pilotage
0	0	Stop
0	1	Stop
1	0	(FWD)
1	1	(REV)

Setting:

F0.04=1 (Inverter pilotage by terminal blocks + keyboard)
F1.06= 1(Two electric wires type 2)
F1.00=1 (DI1 rotation FWD)
F1.01=2 (DI2 rotation REV)

4. DESCRIPTION: THREE WIRES TYPE 1 (F1.10=2)
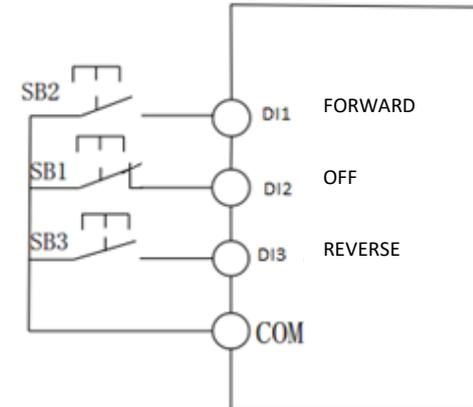In this case, DI2 is used to allow the control per pulse with DI1 or DI3.

Terminal blocks inputs	Value	Description
DI1	1	(FWD)
DI2	3	Stop
DI3	2	(REV)

To start, DI2 must be closed / Forward and reverse are controlled by impulsion on DI1 or DI2 / To stop, disconnect DI2 with a pulse.

SB1	SB2	SB3	Pilotage
0	0	0	Stop
0	1	0	Stop
0	0	1	Stop
1	0	↑	(REV)
1	↑	0	(FWD)
1	↑	↑	NB: it is the rising edge of the last input (DI1 or DI3) which will give the direction of the rotation

Setting:

F0.11=4 (Inverter pilotage by terminal blocks + keyboard)
F1.10= 2 (Three electric wires type 1)
F1.00=1 (DI1 forward)
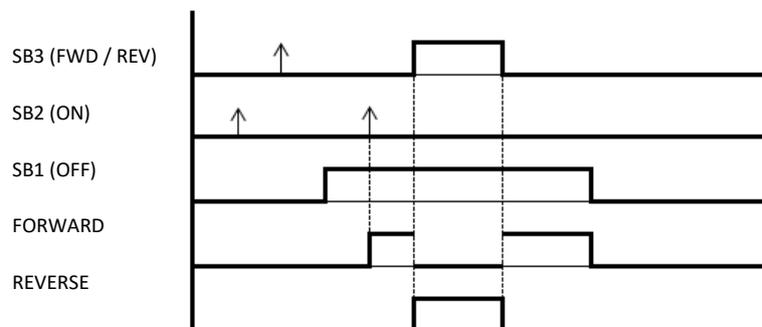F1.01=3 (DI2 control by impulsion)
F1.02=2 (DI3 reverse)

5. DESCRIPTION: THREE ELECTRIC WIRES TYPE 2 (F1.10=3)

In this case, DI2 is used to allow the control per pulse with DI1 or DI1+DI3

Terminal blocks inputs	Value	Description
DI1	1	ON
DI2	3	Control by impulsion 3 electric wires type 2
DI3	2	(FWD) & (REV)

To start, DI2 must be closed. The motor start is controlled per pulse on DI1. To change the direction of rotation, the contacts DI2 and DI3 must be maintained with a pulse on DI1.
To stop, disconnect DI2 per pulse.

SB1	SB2	SB3	Pilotage
0	0	0	Stop
0	1	0	Stop
0	0	1	Stop
1	↑	0	(FWD)
1	↑	1	(REV)
1	0	1	Stop

CHRONOGRAPH : 3 ELECTRIC WIRES TYPE2

Setting:

F0.11=4 (Inverter pilotage by terminal blocks + keyboard)
F1.10= 3(Three electric wires type 2)
F1.00=1 (DI1 forward)
F1.01=3 (DI2 DI2 control by impulsion)
F1.02=2 (DI3 reverse)

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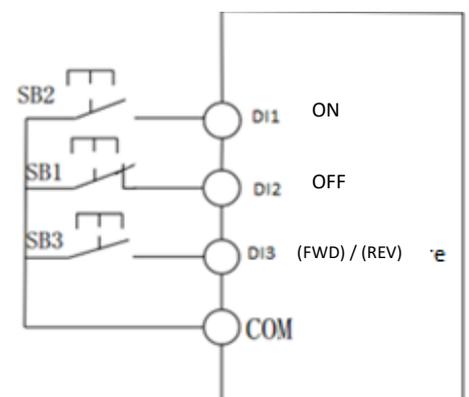
## 6. PILOTAGE WITH THE INORéA ROMOTE CONTROLLER (TEL_VAR_BG3)

The INORéA remote control allows to pilot the inverter for most of the standard applications

It is composed by:

- 1 rotating button with 3 positions (forward/stop/reverse)
- 1 stop emergency button to unlock with 1
- 1 potentiometer which allows to control the frequency

| N° wire remote control	Terminal VFR-013	Parameter to modify
1	COM	F0.03=2 (frequency AI1)
3	DI1	F0.11=1 (pilotage by terminal block)
4	DI2	F1.00=1 (terminal DI1 FWD)
6	+10V	F1.01=2 (Terminal DI2 REV)
7	AI1	F1.02=33 (Terminal DI3 Stop emergency)
8	GND	F1.10=0 (2 electric wires type 1)
9	DI3	
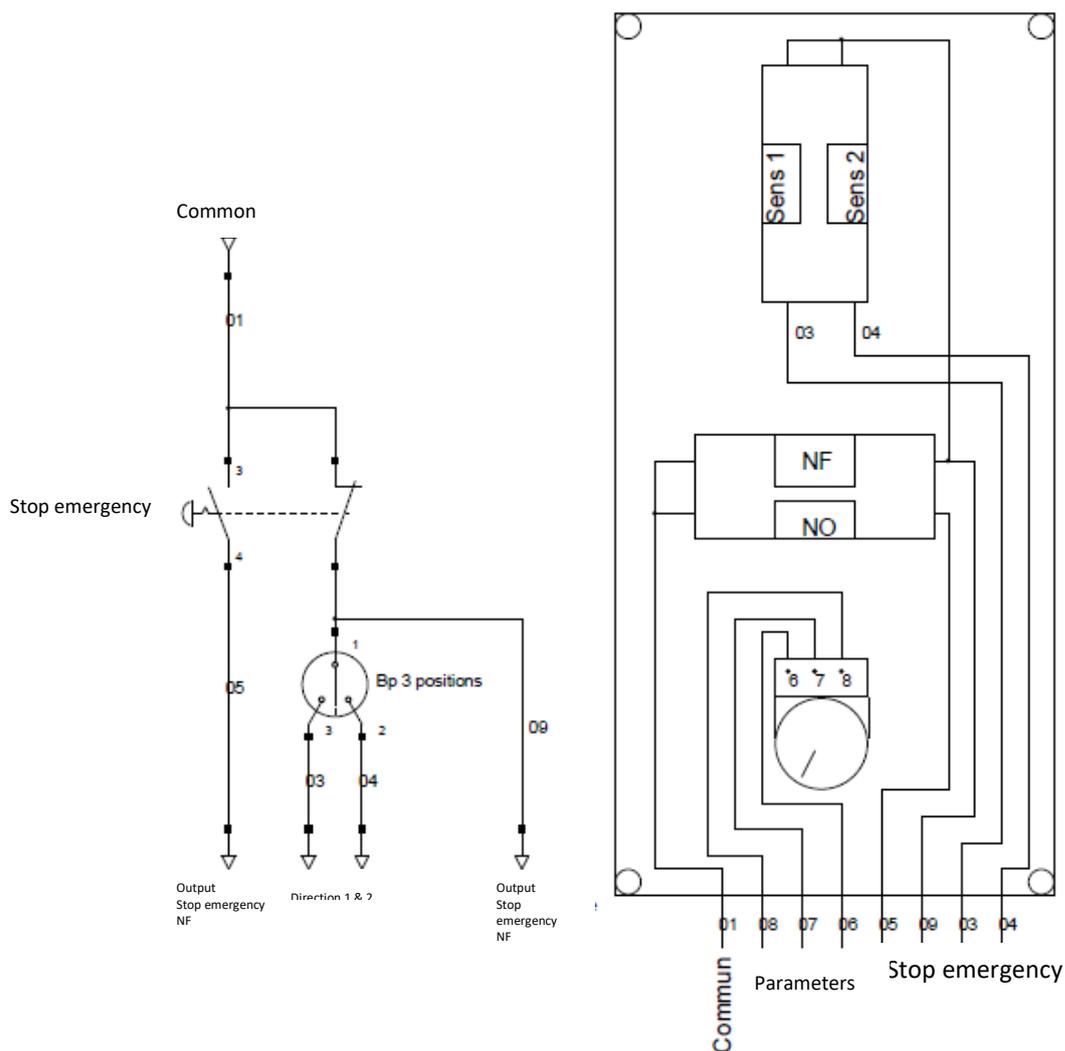
7. CONNECTION WITH A STOP EMERGENCY BUTTON

<u>Setting:</u>

F0.11=4 (inverter pilotage by terminals blocks + keyboard)
F1.00=33 (Terminal DI1 stop emergency)

<u>Note:</u> After press on Stop Emergency, you need to reset the defect pressing on the red button "STOP/RESET" on the inverter keyboard.

Stop Emergency
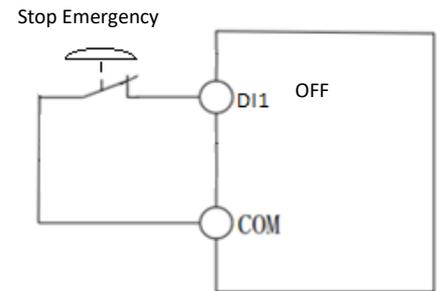
8. INVERSION OF THE TYPE OF SIGNAL ON THE INPUTS TERMINALS

Polarity inversion of an input allows to obtain the inverse effect which that emitted by the electric contact.

Code	Designation	Range				Factory Value	Modification when the motor is ON
F1.35	Polarities inversion from DI1 to DI5 (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 inversion from DI6 to DI10 (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 1000	Input DI9	High signal	0		
				Low signal	1		
		Bit 10 000	Input DI10	High signal	0		
				Low signal	1		

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