



Venture

Industries

Sp. z o.o.

Configuration of basic parameters of inverters LS S100/G100
on fan example KEF/4-225/104-110T IE3



These guidelines are an addition to the operating instructions for the fan and the inverter itself, which should perform the connection activities qualified personnel. Other inverter models have different codes, and this material is based on the knowledge and configuration of the mentioned device types. Venture Industries Sp. z o. o. is not responsible for the consequences of incorrect configuration. In case of doubt, the user should contact the inverter manufacturer.

Inverter is used to regulate the motors. In order to control the fan operation, the motor data must be entered in the inverter and set the speed setting method and start/stop method. In this manual you will see an example for set speed setting method and start, stop method from inverter panel.



G100



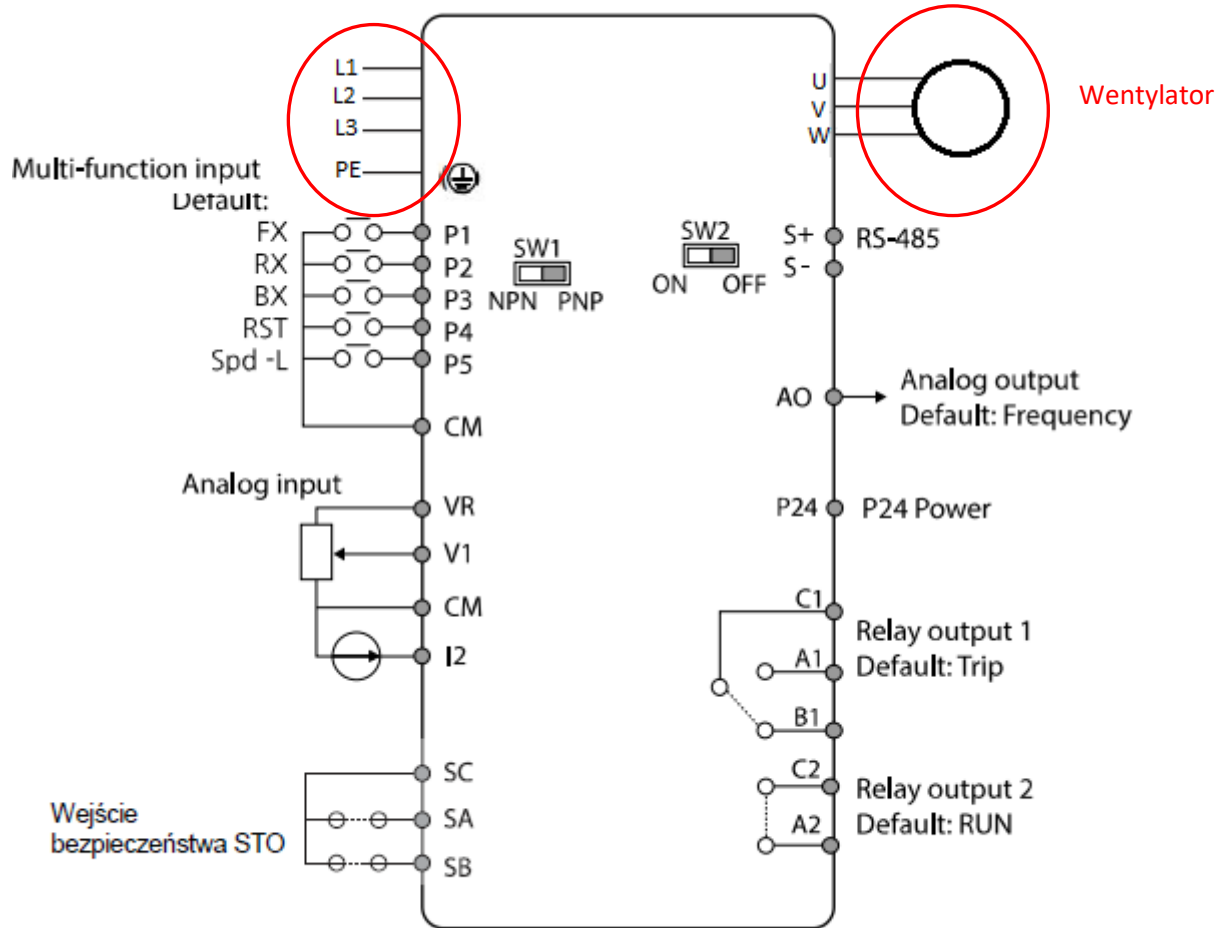
S100

[Rys. 1] Inverter Panel

**ATTENTION!**

For safety reasons, the requirements in the original instructions must be observed for the S100/G100 frequency inverter.

1. Wiring diagram of connection inverter to electrical network and the fan to inverter



[Rys. 2] Wiring diagram of connection to regulate from inverter panel (S100)

2. Introduction of inverter parameters

All parameters which we need, we can find in motor rating plate or commute in easy way (if the manufacturer did not supply them).

a) Rated power

dr-14	Oh110E	Rated power of motor	0.2-22	Rated power o motor form rating plate. The power is assigned rated power of inverter.	
				0.2	0.2 kW
				~	~
				18.5	18.5 kW
				22	22 kW



In this case the power of motor is 1.1 kW so the parameter dr-14 should be set on 1.1.

b) Number of poles

bA-11	Oh120B	Number of poles	2-12	Number of poles written from motor rating plate. This value inverter converts to display rotation speed.
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If the number of poles is not specified by manufacturer on rating plate it can easily be counted according to the formula:

$$n_1 = \frac{60 \cdot f_1}{p}$$

p — number of poles

n_1 - synchronous speed

f_1 - current frequency

If we have rotation speed 1425 rpm, we have to take 1500 rpm because this is synchronous speed (without slip) according to the table below:

Number of poles P	1	2	3	4	5	6	8	10	12
Rotation speed (rpm)	3000	1500	1000	750	600	500	375	300	250

Transforming the formula to calculate p you can see that motor has 2 pairs of poles so 4 poles. This is the value of parameter bA-11 we set on 4.

a) Rated current

bA-13	Oh120D	Rated current	1.0-150 [A]	Rated current from motor rating plate
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For this motor with star connection, the rated current will be 2,5 A, so parameter bA-13 will be 2.5.

b) Motor current without load

bA-14	Oh120E	Motor current without load	0.1-50 [A]	Motor current at rated speeds without load. In absence of data you should write 50% of bA-13 parameter.
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In this case parameter bA-14 we set on 1,25 (2,5 A / 2).

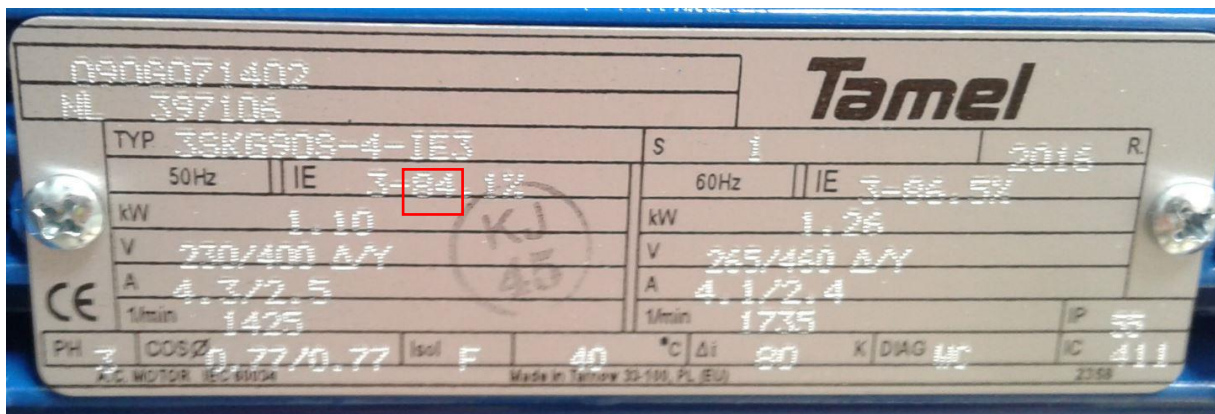
a) Setting characteristics.

bA-07	0h1207	Characteristic U/f	0:3	0	Linear
				1	Square
				2	Stworzona przez użytkownika
				3	Square 2

For fans we use square characteristic.

b) Efficiency

bA-16	0h1210	Efficiency	70 – 100[%]	Rated efficiency of motor written from motor rating plate.
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Moto efficiency is 84% so parameter bA-16 we set on 84.

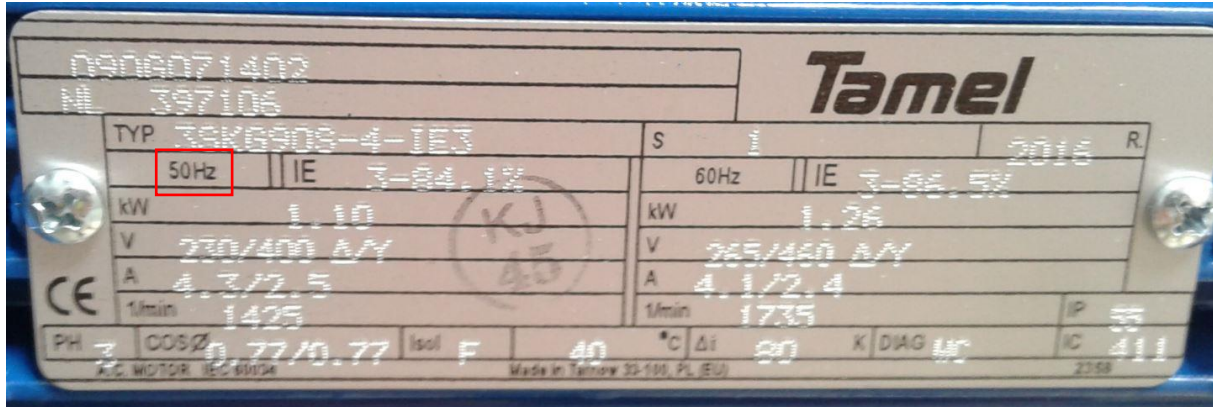
a) Frequency

dr-20	0h1114	Maximum frequency	40-400[Hz]	Maximum frequency which can be obtained at the output of inverter. To this frequency are referred acceleration and braking times.
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Maximum frequency of work during engine control is 50Hz.

b) Rated frequency

dr-18	Oh1112	Base frequency	30-400[Hz]	Rated frequency of motor
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Rated frequency of this motor is 50Hz so parameter dr-18 we set on 50.

c) Minimum frequency

dr-19	Oh1113	Initial frequency	0-400[Hz]	Frequency from which inverter starts working.
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Usually it is 25Hz so we should set this value.

d) Motor protection

Pr-17	Oh1B11	Choice of electronic thermal protection	0-1	Choice of thermal motor protection.	
				0	No
				1	Yes

3. Engine control

1) Engine start/stop

Drv	Motor START/STOP Control mode	0-3	0	Start/Stop which i realized through buttons on inverter panel.	
			1	Terminals control mode	FX – Switching forward work RX – Switching backward work
			2		FX – Inverter work RX – Choice of work forw./back.
			3	RS 485 communication	

The value of parameter drv we set on 0 for inverter panel control.

2) Frequency setting method

Frq	Frequency setting method	0-7	0	Digital	Keyboard 1 After pressing the enter button you should set desired frequency and after next pressing the enter button, the inverter will has a new frequency
			1		Keyboard 2 After pressing the enter button you can smoothly adjust the frequency of the inverter with the up/down buttons.
			2	Analog	V1(1) Voltage control of terminal V1 in terms of -10[V]-10[V]
			3		V1(2) Voltage control of terminal V1 in terms of 0-10[V]
			4		I Current control of terminal I in terms of 4-20[mA]
			5		V1(1) + I Simultaneous control of terminal V1 i I
			6		V1(2) + I Simultaneous control of terminal V1 i I
			7		RS 485
			8		Up/down control

The frq parameter we set on 1 for the regulation from inverter panel.

4. Conclusions

Correct reading and write the motor parameters to inverter memory will allow the fan of function properly. The above settings will allow for the user start and stop the fan by pressing the button on inverter panel. On the same panel you can set the desired frequency of work. The above settings will also allow to set the inverter parameters so that the speed, start and stop can be remotely.

If there is ambiguity or need for another control of fan, please contact with technical department Venture Industries.

