

DC & VSC ELECTRONIC DRIVERS

Programming Manual



Programming the electronic drivers in DC and Variable Speed Compressors
Cubigel Compressors® Range



cubigel[®]
compressors
by
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1. Introduction

1.1 – Compressor models using electronic drivers

Huayi Compressor Barcelona range of DC and Variable Speed Compressors:

Compressor Model	Supply input	Electronic Driver	SP1 port
GD30FDC	12-42V DC	FDC1	RJ11
GD30FDCd	48-56V DC	FDC1b	RJ11
GD30FDCd (Dual)	12-42V DC & 100-240V AC	FDC2	RJ45
GLT80TDC 24-42V	24-42V DC	FDC3	RJ45
NPT12FSC	220-240V 50Hz	FAC1	RJ45
NLT60FSN	220-240V 50Hz	FAC1	RJ45
GLT99FSN	220-240V 50Hz	FAC1	RJ45

Table 1. DC and VSC models with their electronic driver type with the corresponding SP1 port.

The electronic drivers from above mentioned models can be programmed by means of the programming kit and the corresponding software package (FxC v.5).

1.2 – Software FxC v.5

The FxC v.5 software package can be downloaded from

www.huayicompressor.es

2. Programming kit types

Huayi Compressor Barcelona has released the programming kit type suitable to be used by means of the USB port from the Personal Computer.

This USB programming kit will replace the current Serial programming kit.

2.1 – Programming kit serial version

The programming kit (serial port version) is consisting of the next parts:

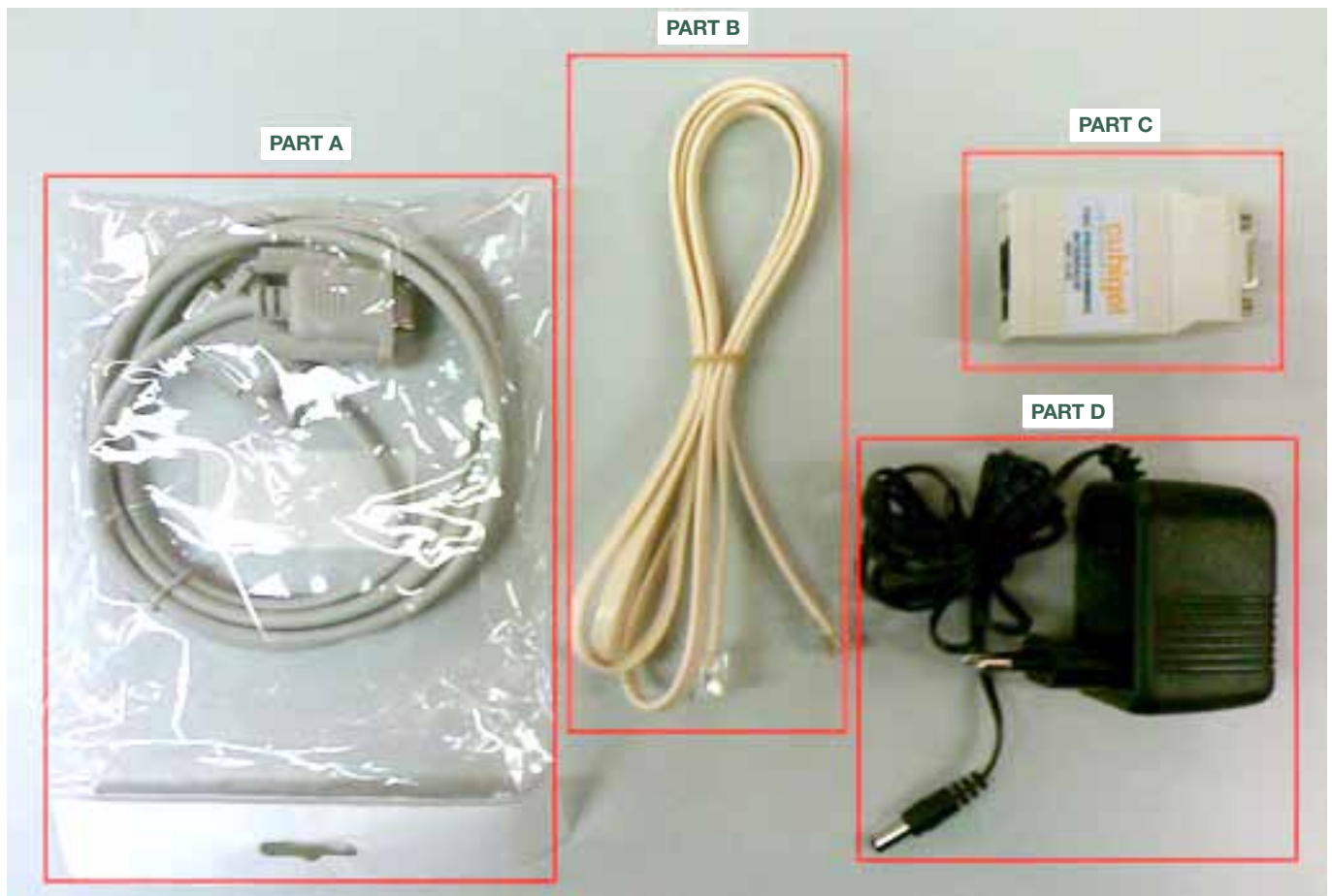


Figure 1. Parts consisting the programming kit (serial port version).

- **PART A.** Serial port cable to connect computer and serial port interface (PART C).
- **PART B.** Cable with RJ11 male connector to connect electronic driver by means of the SP1 port and the interface (PART C). The connector of this PART B is also compatible with the RJ45 female connector from the SP1 port in FDC2, FDC3, FDC4 and FAC1 electronic drivers.
- **PART C.** Serial port interface to connect all the cables from the programming kit.
- **PART D.** Power supply cable to be connected to the PART C and the supply input.

At the moment of programming the electronic driver by means of the programming kit (serial port), one has to take into account next points:

- Programming the FDC1 or FDC1b electronic drivers, you do not need to power the driver.
- Programming the FDC2, FDC3 and FDC4 drivers, you need to power the driver.
- Programming the FAC1 driver, you need to power the driver and connect/shortcircuit the terminals from the overload protector.

2.2 – Programming kit USB version

The programming kit (USB port version) is consisting of the next parts:

- **PART A.** USB port cable to connect computer and USB port interface (PART C).



- **PART B1.** Cable with RJ11 male connectors to connect electronic driver by means of the SP1 port and the interface (PART C). The connector of this PART B1 is compatible with the RJ11 female connector from the SP1 port in FDC1 and FDC1b.



- **PART B2.** Cable with RJ45 male connectors to connect electronic driver by means of the SP1 port and the interface (PART C). The connector of this PART B2 is compatible with the RJ45 female connector from the SP1 port in FDC2, FDC3, FDC4 and FAC1.



- **PART C.** Serial port interface to connect all the cables from the programming kit.



- **PART D.** CD-Rom with software FxC to program the electronic drivers. It also includes the driver for the USB interface (Part C). The most updated software/driver version will always be at www.huayicompressor.es.



At the moment of programming the electronic driver by means of the programming kit (USB port version), one has to take into account next points:

- Programming the FDC1 or FDC1b electronic drivers, you do not need to power the driver. If FDC1 version is lower than H15 (see label on electronic driver), you will have to power supply the electronic driver to program it by means of the USB programming kit.
- Programming the FDC2, FDC3 and FDC4 drivers, you need to power the driver. If FDC3 version is lower than H8 (see label on electronic driver), you will have to power supply the electronic driver to program it by means of the USB programming kit.
- Programming the FAC1 driver, you need to power the driver and connect/shortcircuit the terminals from the overload protector.

3. External connectors

The speed of the compressor can also be modified by means of connecting in the SP1 port one of the 3 external connectors that are included in variable speed compressors which are supplied in single box or sampling packings.

The speed will depend on the maximum and minimum speed which are programmed by default in the electronic drivers or the maximum and minimum speeds which can be programmed by means of the FxC software and programming kit.

For instance, if minimum speed is 2000rpm and maximum speed is 3500rpm, the selected speed depending on the external connector connected in the RJ11 or RJ45 will be:

No external connector → Speed 2000 rpm
Black external connector → Speed 2500 rpm
Blue external connector → Speed 3000 rpm
Red external connector → Speed 3500 rpm



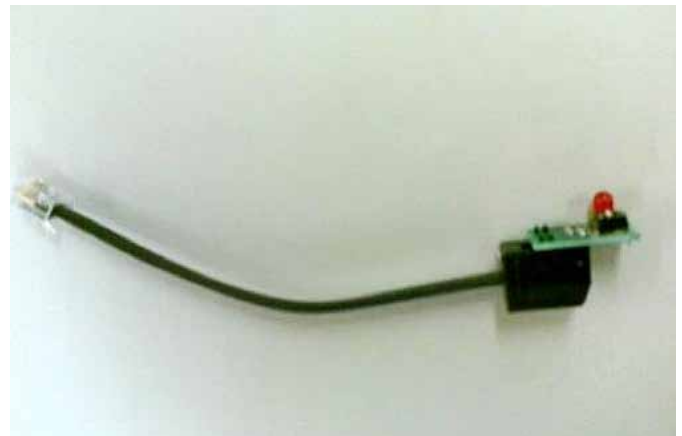
4. External cable – speed controller with LED

Another way to select a different speed in Variable Speed Compressors is using the External cable – speed controller with LED from below pictures by means of connecting it to SP1 port (RJ11 or RJ45).

The speed will depend on the maximum and minimum speed which are programmed by default in the electronic driver or the maximum and minimum speeds which can be programmed by means of the FxC software and programming kit. From the 2 switches (IN1 and IN2) this speed controller has, the speed would be as follows:

Connection to COM		Speed of the motors (rpm)
IN1	IN2	
0	0	S_{min}
1	0	$S_{min} + 1/3(S_{max} - S_{min})$
0	1	$S_{min} + 2/3(S_{max} - S_{min})$
1	1	S_{max}

Table 4. External selection of the velocity
0=Open connection; 1=Shortened

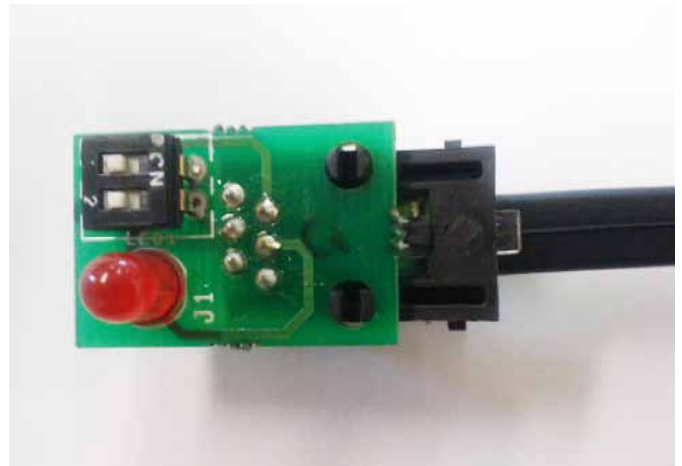


An additional function this speed controller has is the indication of a possible alarm in compressor by means of the number of flashes in the red LED:

No. of flashes	Type of fallure
1	battery protection
2	fan overcurrent
3	starting failure
4	compressor overload
5	electronic driver overheat
6	internal error

Table 5. Alarm codification

For any other question you may have about programming the electronics drivers from Huayi Compressor Barcelona please do not hesitate to contact our Applications Engineering department.





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