FrigoPack® E FU+ Quick-Start Guide (abbr. Version)
Refrigeration Inverters with INTEGRATED PRESSURE CONTROL

Warning: This is an abbreviated and customized version with recommendations for a first setup of this product. Please refer to the document "Planning Guide *FrigoPack*® E FU+" for detailed information.

0. *FrigoPack*® E FU+ Connections
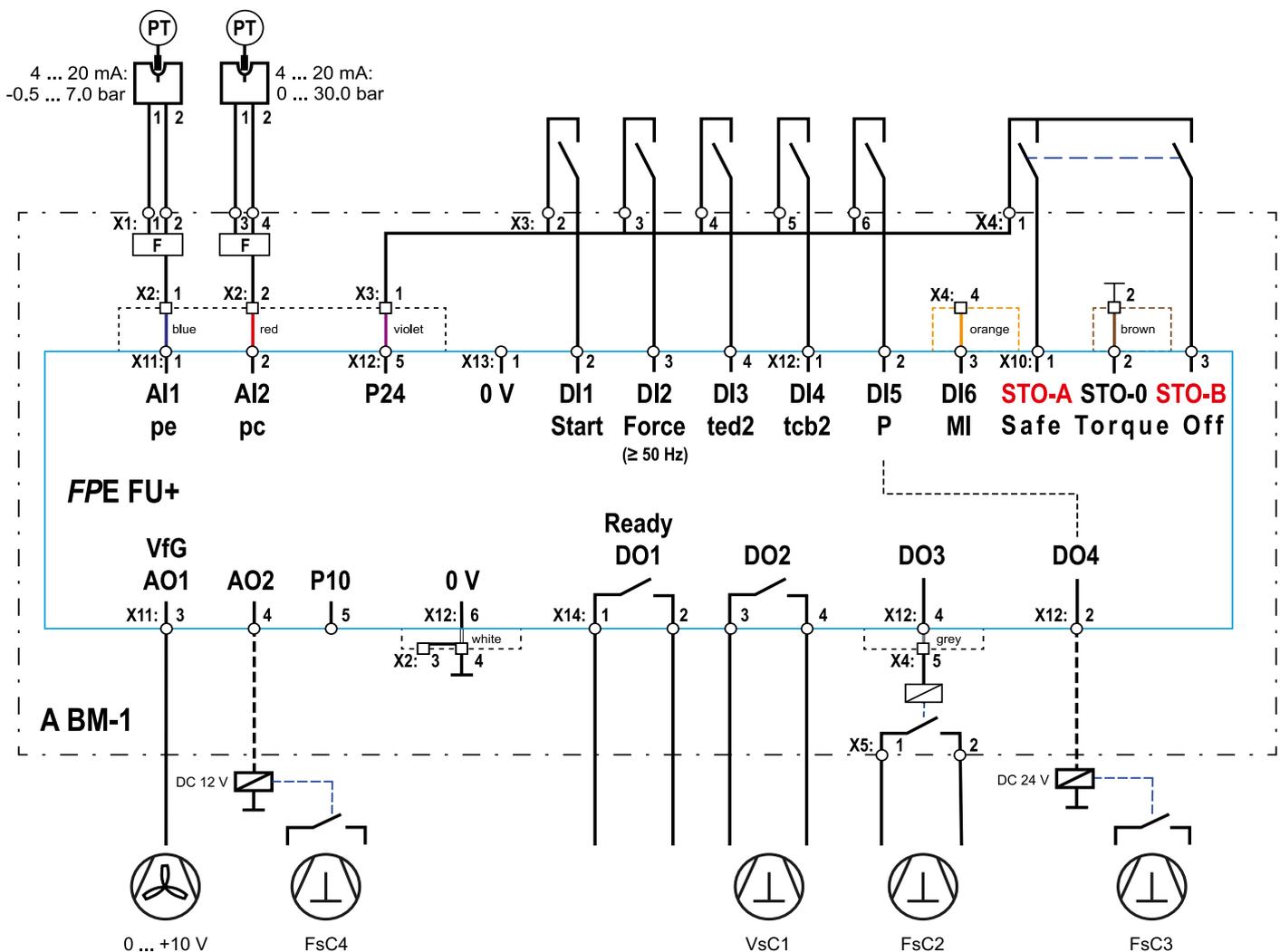
VsC1: Variable speed Compressor 1
FsC2: Fixed speed Compressor 2

Top:
Diagram of control connections of
FrigoPack® E FU+

Bottom:
Terminal designations of
FrigoPack® E FU+ *and*
base module BM-1
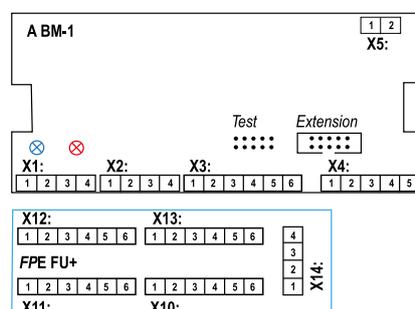
1. Basic information on first set-up

Ensure that all recommendations for compliance to mounting, electrical safety, EMC and UL regulations have been adhered to.

1.1 Pressure transmitters

Warning: Only use approved pressure transmitters!

This refrigeration application is preset for use with the following **Huba Control** pressure transducers:

Low Pressure pe: -0.5 … 7.0 bar	**High Pressure** pe: 0 … 30 bar
A REFR-P-TRANSD-LP7+PL	A REFR-P-TRANSD-HP30+PL

For alternative pressure ranges refer to Parameter Sp0, p. 6 of Planning Guide.

1.2 Recommendations
- It is important to ensure that an interlocked safety contactor is fitted between the Refrigeration Inverter and the compressor if a parallel bypass connection is used.
- In particular ensure that two isolated contacts of a safety relay are connected to the Safe-Torque-Off inputs of *FrigoPack*® **FU+** Refrigeration Inverter: STO-A (Terminal X10:1) / STO-B (Terminal X10:3)
- Remove start command (cable to terminal X13:2)
- Connect main power supply
- Verify that the blue LED for suction pressure lights on module BM-1. If not, then check if the wiring of the pressure transmitter is correct.
- If a discharge pressure transmitter is used, then verify that the red LED lights on module BM-1. If not, then check if the wiring of the pressure transmitter is correct
- Measure the pressures with a refrigeration pressure gauge. Verify that the pressures indicated in menu OPERATION at parameter 03: pe_RACK_pc agree with these external measurements

1.3 Keypad functionality

Key "Back"
- Navigates to previous level
- Press multiple times to enter Operator Menu
- Aborts the edit mode

Key "OK"
- Displays the next menu level
- Changes to parameter entry mode
- Accepts value entered

"Green"- key
- Selects next set of parameters, compressor or refrigerant
Green light on
- Compressor running
- When flashing with "Red" key: Frequency Inverter in Configuration Mode

Keys "Up" and "Down"
- Moves up or down through selected menu level
- Increments/decrements the value of the displayed parameter by "1"

Keys "Left" and "Right"
- Displays previous menu level
- Selects the digit to be changed

Key "Red"
- Selection of previous set of parameters, compressor or refrigerant
- Resets any trip.
Red light on
- Compressor stopped
- When flashing with "Green" key: Frequency Inverter in Configuration Mode

1.4 Menus – Selection of user level for first set-up
After connection of the power supply the user level TECHNICIAN necessary for a first set-up is accessible for **10 minutes**. Please start setting-up now. After this period the inverter will automatically shift to user level OPERATOR. The steps shown below have to be followed for first set-up commissioning. Press key "Back" several times to access the menu "View Level". Password for user level TECHNICIAN: **8670**.
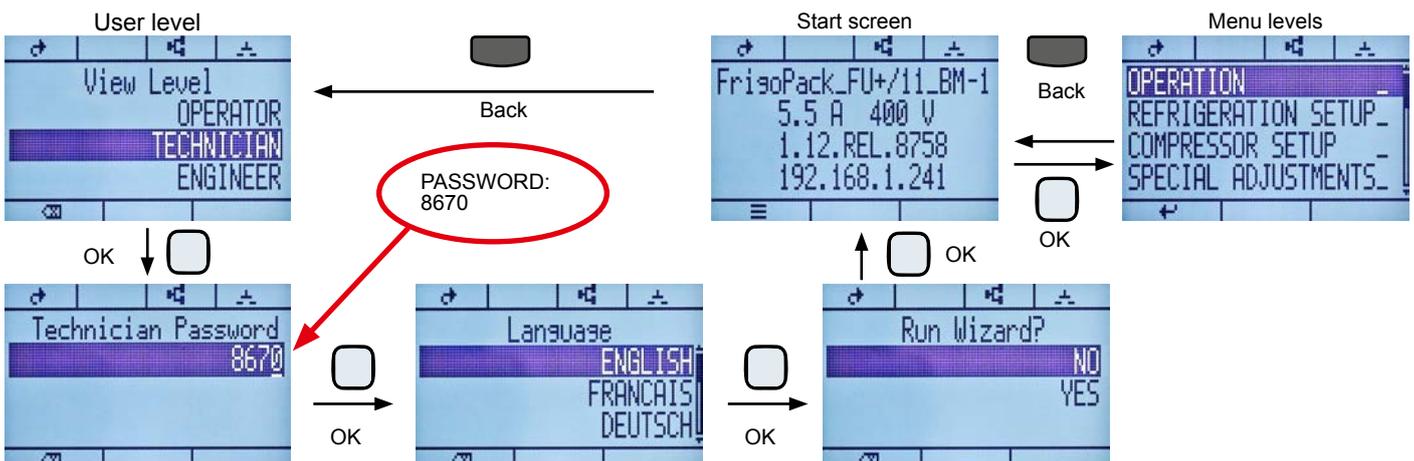
2. First set-up

2.1 Selection of refrigerant and Variable-speed Compressor (VsC)

For setting up this inverter it is first of all necessary to select the refrigerant and Variable-speed Compressor (VsC1) used. Compressor selection is made in several steps (manufacturer, type (e.g. semihermetic piston comp.), number of cylinders, supply voltage, compressor ID).

Warning: Please use keys **I** and/or **O** for selection of refrigerant and compressor data from SD card.

Screen	Description	Key	Screen	Description
FrigoPack_FU+/11_BM-1 5.5 A 400 V 1.12.REL.8758 192.168.1.241	Start screen Line 1: FU+ Features Line 2: INenn, UNenn Line 3: Firmware version Line 4: IP address (optional)	OK	OPERATION REFRIGERATION SETUP_ COMPRESSOR SETUP _ SPECIAL ADJUSTMENTS_	Menu level: Selection of submenus Select submenu FIRST SETUP
Go to "FIRST SETUP"	COMPRESSOR SETUP _ SPECIAL ADJUSTMENTS_ FIRST SETUP _ FAULTS / WARNINGS _	Menu First Setup: Selection of refrigerant and Variable-speed Compressor (VsC)	OK	SD-MC:Data Select <0:Selection_disabld SD-MC:Data Read _	Menu levels of SD memory card Currently active: "Selection disabled"
Confirm "SD-MC Data Select"	SD-MC:Data Select <0:Selection_disabld <1:Refrigerant _ <2:VFsC Manufacturer	Selection of refrigerant: Choose submenu "1:Refrigerant" for selection	Select "1:Refrigerant"	SD-MC:Data Select <0:Selection_disabld <1:Refrigerant _ <2:VFsC Manufacturer	Submenu of 44 refrigerants for selection
OK	SD-MC:Data Select <1:Refrigerant _ SD-MC:Data Read _ <<14:R134a HFC	WARNING: Do not use arrow keys from here. Use "green" or "red" key for refrigerant selection	Select refrigerant I O	SD-MC:Data Select <1:Refrigerant _ SD-MC:Data Read _ <<14:R134a HFC	e.g. R134a Selection of refrigerant completed. Use key "OK " to return to next higher level
OK	SD-MC:Data Select <0:Selection_disabld <1:Refrigerant _ <2:VFsC Manufacturer	Selection of Variable-speed Compressor Follow sub-menus 2 to 6 for all compressor settings	Select "2:VFsC Manufacturer"	SD-MC:Data Select <1:Refrigerant _ <2:VFsC Manufacturer <3:VFsC Type _	Choose compressor manufacturer

Data selection for setting the Variable-speed compressor (VsC) is also via sub-menus:

<2:VFsC_Manufacturer
<3:VFsC_Type
<4:VFsC_Cylinders
<5:Supply_Voltage
<6:VFsC_Compressor

use keys analog to selection of refrigerant

Warning: When all selections are done, sub-menu "0:Selection_disabled" has to be activated.
Now you can leave menu "FIRST SETUP" with softkey "Back".

2.2 Setting of number of fixed-speed compressors (FsC) in the rack system

The number of fixed-speed compressors (FsCs) has to be set in the next step. (If there is only one compressor, please skip to 2.3). Go to menu COMPRESSOR SETUP (You may also check VsC settings in this menu.)
Go to parameter **80:FsC PRIORITY CNTRL** for setting the number of fixed-speed compressors.

Press key "OK" to enter the parameter input window. Skip to next digit with arrow keys "Left" and "Right". Change value of digit with arrow keys "Up" and "Down" . Every digit "1" corresponds to a FsC in the rack system, as shown below. The value of parameter 80 entered has to be confirmed with key "OK".
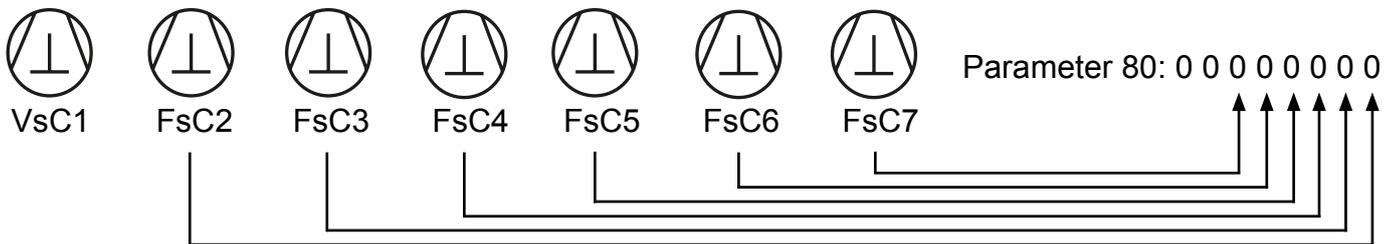
Example: In a rack system with one Variable-speed Compressor (VsC1) and two Fixed-speed Compressors (FsC2 & FsC3) parameter 80 has to be set to: 00000011

Warning: When setting parameter 80, keys "Green" and "Red" are flashing (configuration mode).
Please confirm with key "OK" and then press key "Red" shortly to leave configuration mode!

2.3 Entering Setpoints

Select menu "REFRIGERATION SETUP" for entering setpoints.
Use keys as described in 2.2 for setting the relevant parameters.
Most important parameters are:
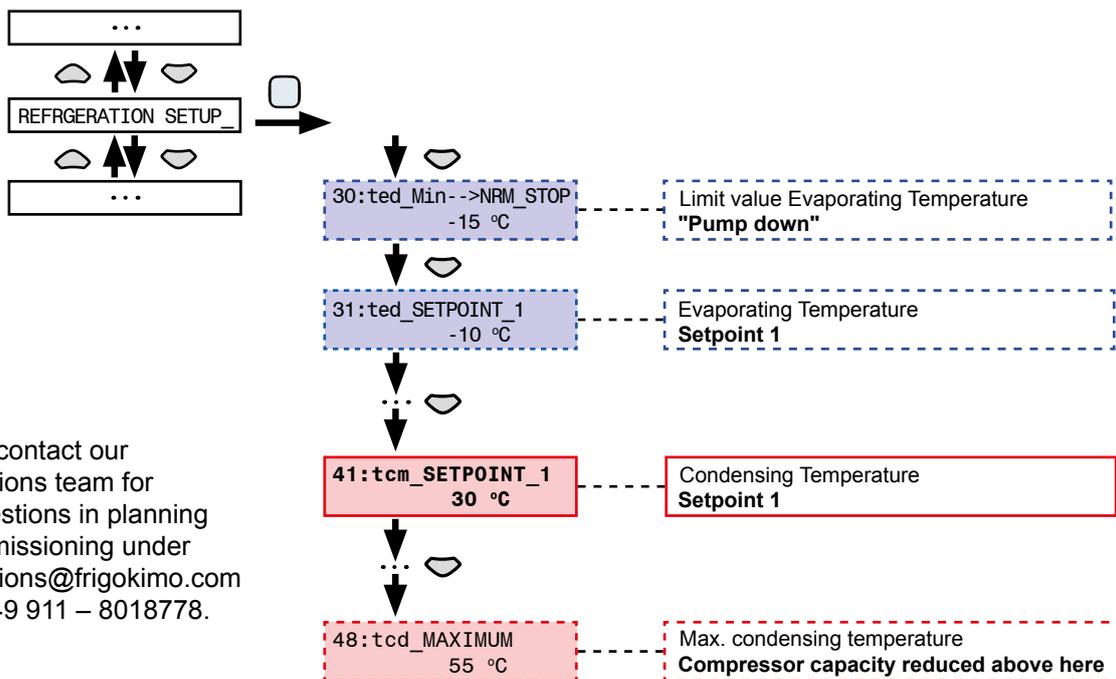
Please contact our applications team for any questions in planning or commissioning under applications@frigokimo.com or tel +49 911 – 8018778.

30:ted_Min-->NRM_STOP -15 ℃	Limit value Evaporating Temperature **"Pump down"**
31:ted_SETPOINT_1 -10 ℃	Evaporating Temperature **Setpoint 1**
41:tcm_SETPOINT_1 **30 ℃**	Condensing Temperature **Setpoint 1**
48:tcd_MAXIMUM 55 ℃	Max. condensing temperature **Compressor capacity reduced above here**

**Connect start command (cable to terminal X13:2)
to start the system!**

KIMO RHVAC Controls Ltd. | German Branch | Hüttendorfer Weg 60 | D‑90768 Fürth, Germany
info@frigokimo.com | **www.frigokimo.com**