PLANNING GUIDE:

FrigoPack®EC FU+/12

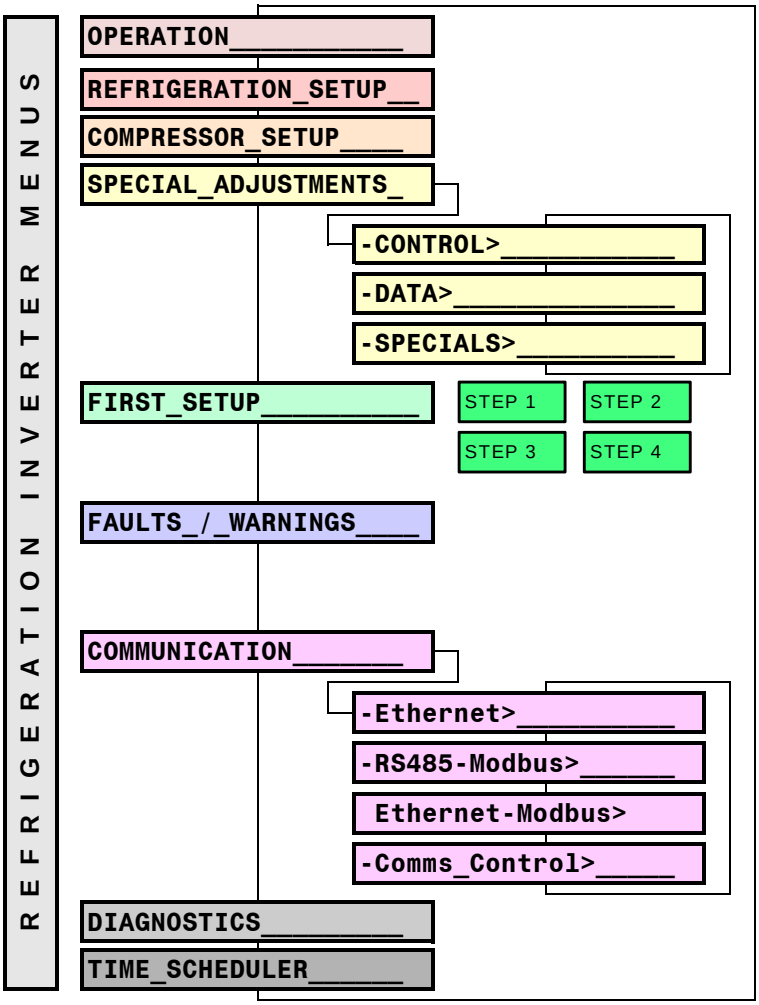
KIMO RHVAC Controls

28.02.2020

FrigoSoft 4.7 activated: **External Control with 0..10 V / 4..20 mA**

FrigoPack® FU+
A New Generation

Intelligent Refrigeration Control Systems for Compressors, Condensers, HVAC & Pumps



Manufacturer	Agent / Partner	Customer	Installation	Name, Date
KIMO RHVAC Controls GmbH Hüttendorfer Weg 60 D-90768 Fürth, Germany www.frigokimo.com				

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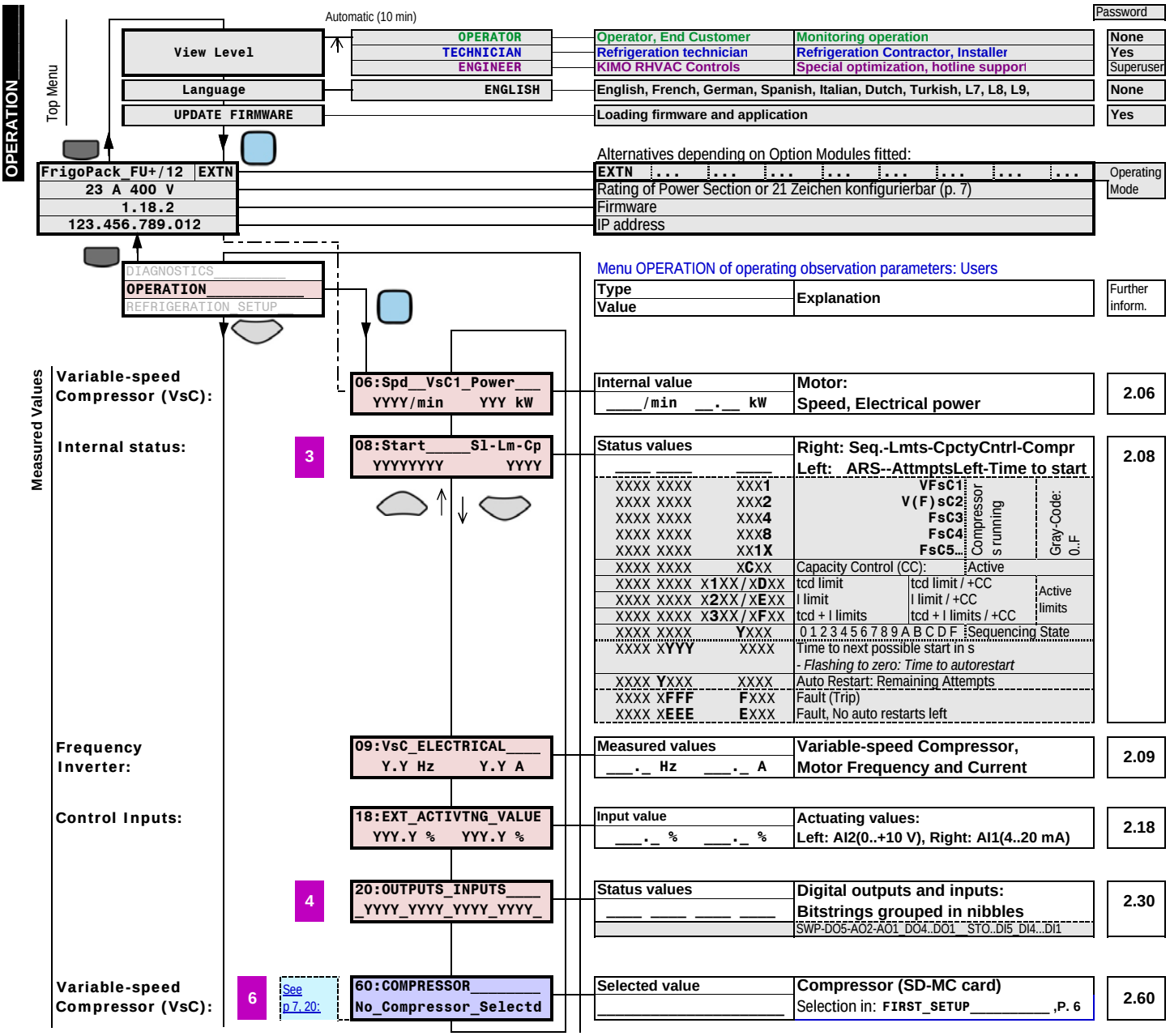

Optional information not required for operation

Abbreviations:	
VsC:	Variable-speed Compressor
FsC:	Fixed-speed Compressors
VFsC:	Variable- / Fixed-speed Compressor
VfG:	Variable-speed fan Group (Condenser / Dry cooler)

1 … 10 **Please report these values if there are any problems**

= YY.Y %	:	Measured value depending on operating point
→ FFF	:	Factory default value depending on frame size and rated power

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The following parameters have been masked out intentionally

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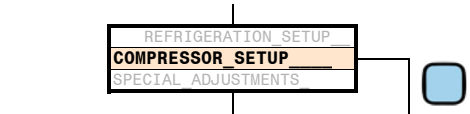

Menu COMPRESSOR SETUP for setting compressor operation:
View Level TECHNICIAN (for Refrigeration Personnel) only, see page 1

COMPRESSOR_SETUP

Settings

Variable-speed Compressor (VsC):

- Limits:
- Resonance avoidance:
- Time settings:
- Lubrication:

Modifying

Value	Type	Explanation	Further inform.
61:VsC_CURRENT____MAX 0.0 A	Configuration Setting ___._ A	**VsC Motor current max**	4.61
	CAN ONLY BE CHANGED IF FRIGOPACK FU+ STOPPED FIRST Preset to 1000 A until a compressor is selected, see page 7		
62:VsC_FREQUENCY__MAX 65.0 Hz	Setting ___._ Hz	**VsC Motor frequency max.:** **Max. settable value: Dt0, page 5**	4.62 **50.0 Hz**
64:VsC_FREQUENCY__MIN 25.0 Hz	Setting ___._ Hz	**VsC Motor frequency min.:** **Min. settable value: Dt1, page 5**	4.64 **>5.0 Hz**
65:VsC_MOTOR_NO_POLES 4	Setting __	VsC Motor: No. of poles: 2, 4, 6, 8	4.65
66:VsC_SKIP_FREQ1_MIN 0.0 Hz	Setting ___._ Hz	VsC Resonance Avoid., Skip freq 1 min: 10.0..65.0 Hz *	4.66
67:VsC_SKIP_FREQ1_MAX 0.0 Hz	Setting ___._ Hz	VsC Resonance Avoid., Skip freq 1 max: 10.0..65.0 Hz *	4.67
68:VsC_SKIP_FREQ2_MIN 0.0 Hz	Setting ___._ Hz	VsC Resonance Avoid., Skip freq 2 min: 10.0..65.0 Hz *	4.68
69:VsC_SKIP_FREQ2_MAX 0.0 Hz	Setting ___._ Hz	VsC Resonance Avoid., Skip freq 2 max: 10.0..65.0 Hz *	4.69
	* Limited to fmin..fmax and range of next band. Set to 0.0 Hz when not in use.		
70:VsC_tinhibit__TIME 300 s	Setting ___ s	**VsC Inhibit Time after VsC start:** **20..1200 s**	4.70
71:VsC_tlubrctn__TIME 4 s	Setting ___ s	VsC Oil Lubrication Pulse time: 0..100 s	4.71
72:VsC_thld_fmin_TIME 10 s	Setting ___ s	VsC Start Hold Time (at fmin): 0..120 s	4.72
	Password TECHNICIAN for Refrigeration Personnel: 8670		

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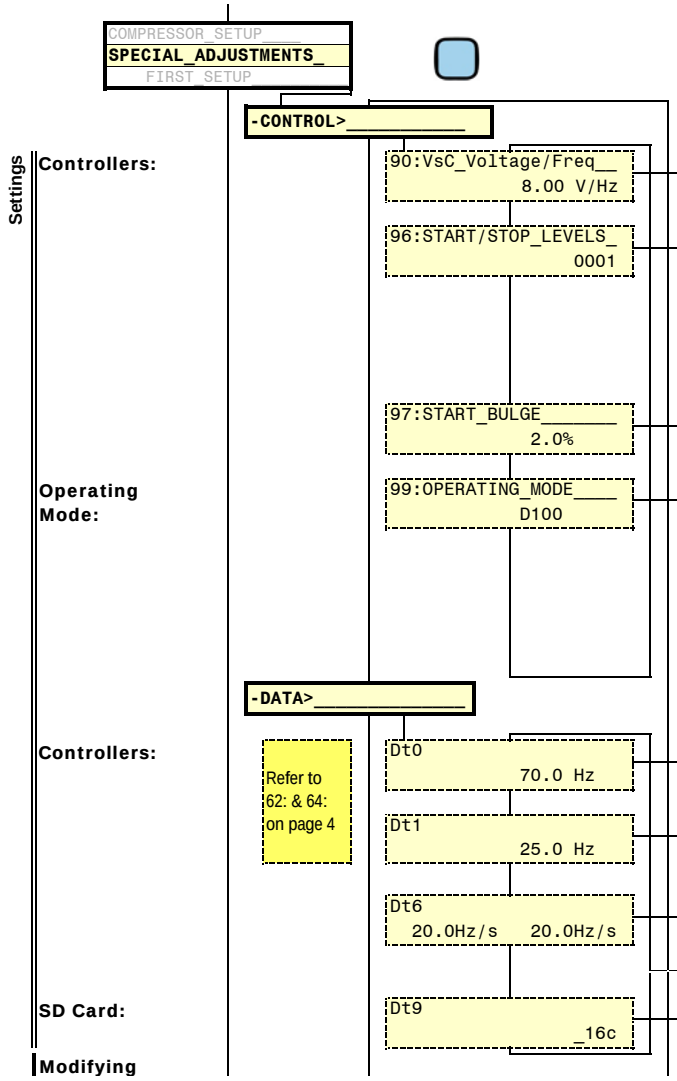

Menu SPECIAL ADJUSTMENTS of special parameters:
View Level TECHNICIAN (for Refrigeration Personnel) only, see page 1

Type / Value	Explanation	Further inform.
Sub-Menu <CONTROL of Optimizing Parameters		
Configuration Setting	Ratio of Voltage / Frequency, usually: 8.00: 400 V/50 Hz // 4.62: 400 V/87 Hz	56.90
Setting	Operation with an external controller: Start / Stop Pegel für special applications	56.96
0000	0...fmax continuous.	
>0000	fmin...fmax continuous	
XX**01**..XX**FF**	Start: 1.02..100.00%	
01XX..**FF**XX	Stop if >= 1.02; 1.02..100.00%	
Setting	Optimization of starting torque: 0.0 … 5.0 %	56.97
Only change after reference to our Applications Department		
Setting	Defines Operating Mode: Input as hexadecimal	56.99
Special funtionality X2XX	Activate GRAY Code	
X8XX	Activate delayed Oil Injection	
1XXX	Trip reset: DI1 (0->1) / 0XXX->1XXX	
2XXX	Allow slow stop ramp	
0XXX / 4XXX / 8XXX / CXXX	Relay Ready DO1: No Fault / No Fault & Enabled / & DI1 (Control Switch) / Delay OFF (15 min)	
Sub-Menu <DATA of Special Parameters		
Only change after reference to our Applications Department		
Configuration Setting	VsC: Motor Frequency max. settable 15.0 … 120.0 Hz	56.Dt0
Configuration Setting	VsC: Motor Frequency min. settable 15.0 … 120.0 Hz	56.Dt1
Dt0 and Dt1 change only when FrigoPack stopped. Reset by pressing the red 'O' key.		
Setting	Reduce ramp rates above fmin: Accceleration Decelleration	56.Dt6
Setting	SD Card (Secure Data Memory Card): Revision Designation	56.Dt9
Password TECHNICIAN for Refrigeration Personnel: 8670		

SPECIAL_ADJUSTMENTS

SPECIAL_

-SPECIALS>_____

Sub-Menu <SPECIALS of Expert Parameters

Only change after reference to our Applications Department

Pressure transmitters	SpO **XX22**	Setting	Pressure transmitters, measurement ranges: pc, pe (4…20 mA)	56.Sp0
Speed Setpoint Conditioning	Sp1 **0064**	Setting	Demo tcb ted || Lub.- Force Freq: 7764 = tcb | ted || 50.0 Hz	56.Sp1
		0..F: XXXX	Demo operation deviation ted: 0..F	
Further Resonance Avoidance	Sp7 **FFFF**	Setting	Further Skip Frequency 3: (fmax: 127.5 Hz | fmin: 127.5 Hz)	56.Sp7
	Sp8 **FFFF**	Setting	Further Skip Frequency 4: (fmax: 127.5 Hz | fmin: 127.5 Hz)	56.Sp8
Capacity Controller	SpC **F897**	Setting	Capacity Control (solenoid valve): ton (<=302 s), toff (>=19,95 s)	56.SpC
Other settings Low-ambient	SpE **0000**	Setting	tc, te Controllers, I time constants: Reserve	56.SpE 56.SpF
External Energy Meter	SpG **0000**	Setting	External Energy Meter: Pulses each kWh	56.SpG
External input Harmonic Filter	SpH **0000**	Setting	Ext. supply filter | Nibbles 1,0 (below): Release trap < value | Nibbles 1,0	56.SpH
Other settings		XXX**0**	Normal:	Enable
		FFX1	Rack: Incrs fmin after time (envlp):	Enable
		FFX2	Scroll: Incrs fmin after time (envlp):	Enable
		FFX4	Expansion always:	Enable
		FFX8	Shaft-seal monitoring:	Enable
Other settings		XX**0**X	**Frequency = Force Frequency**	**Select**
		XX1X	Frequency >= Force Frequency	Select
		XX2X	Frequency <= Force Frequency	Select
		XX4X	Sump heater with FrigoPack FU+	Soon
		XX8X	Reserve	Enable
		00XX	External input harmonic filter:	Release trap
Other settings	SpI **3FFA**	Setting	LOCAL Energy Saving Flux reduction Flux characteristic	56.SpI
		Base Voltage: XXX**A**	F..A..0: Max(110 %)..Normal(100%)..Min(80%)	
		Energy Saving, -Max Reduction: XX**F**X	F..0: None(100%)..Min(70%)	
		-Min. acting freq.: X**F**XX	0..F: fmin +(0..15 Hz)	
		LOCAL Automatic, Sweep rate: 0XXX	0.1 Hz / s	4XXX 2 Hz / s
		1XXX	0.2 Hz / s	5XXX 5 Hz / s
		2XXX	0.5 Hz / s	6XXX 10 Hz / s
		3XXX	**1 Hz / s**	
Resetting values	SpJ **0000**	Setting	Reset of various settings	56.SpJ
	1 year 5 years PPP: Contact KIMO RHVACC for password. Action:'1+0': >5 s	Present Values are shown in Menu DIAGNOSTICS: **0000**	**No reset**	
		116D	VsC Compr equiv. 50 Hz	Shaftseal rem. time (days)
		2721	Fan equiv 40 °C time	FP fan remng. time (days)
		4PPP	Reset Installation Name	
		5PPP	Reset no. of compressor starts	
		APPP	Set special fieldbus type	
		CPPP	Set RS485 Modbus RTU to 9600 Baud	
		DPPP	Release Extension Module lock	
		EPPP	Reset webserver password to initial value	
		FPPP	Reset to factory defaults	
Factory settings				
Limiting Ranges (night operation)	SpK **C8C8**	Setting	Ext. Module EM 2.. Active, limits: ----VfG(links)---- ----VsC(rechts)----	56.SpK
Special Purpose	SpL **X101**	Setting	Special purpose L: Erw. Mod., Basic Mod., Weekday, Tlog	56.SpL
	SpM **2800**	Setting	Special purpose M: ---RTC Trim---, Motor type, Motor fluxing	56.SpM
	SpN **0100**	Setting	Special purpose N: Drive, specials, Specials, Fluxing	56.SpN
		SpN, Nibble 2:	B0: EV EM Enable; B1: Not stop; B2: Force WURM operation	

L Nibbles 3..0: 0: Tlog: 1..7: in s; 1: Weekday

M Nibble 0: 0: Const. Flux; 4: Stabilization

N Nibble 3: 0: Recip. 1..3: Screw 8: Scroll

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Menu FIRST SET-UP for settings with a SD card with valid data:
View Level TECHNICIAN (for Refrigeration Personnel) only, see page 1

SPECIAL_ADJUSTMENTS_
FIRST_SETUP_____
FAULTS_/_WARNINGS___

Selections

Type / Value	Explanation	Further inform.
SD-Card:Data_Select__ <0:Selection_disbld	Settings: / One of the following must be activated	7.01
	<0:Selection_disbld: Selection not activated (normal)	
	<1:Refrigerant_____: Refrigerant	
	PRESS SOFTKEY ABOVE LEFT ON KEYPAD TO EXIT ==>DO NOT CONTINUE WITH FOLLOWING UNLESS NEW COMPRESSOR DATA REQUIRED	
	<2:VFsC_Manufacturr: Compressor: Manufacturer	
	<3:VFsC_Type_____: Compressor: Type	
	<4:VFsC_Cylinders__: Compressor: Number of cylinders	
	<5:Motor_Voltage___: Electrical Supply Voltage	
	<6:VFsC_Compressor_: Compressor selection	
	<<<TO_ENTER_DATA>>>: <PRESS GREEN KEY '|'>	
	Selection: Tip 'DOWN' arrow key	

Read data from the SD card

<1:Refrigerant_____ __<14:R134aHFC	Settings: / Selection: Tip 'DOWN' arrow key / Choice: Tip 'LEFT'/'RIGHT' arrow keys	
KEYS FOR SELECTION:	Next data set / Previous data set	
IMPORTANT:	Requirement for Selection: - SD memory card with valid authorized data plugged into slot of the FU+ Refrigeration Inverter - The selection parameter SD Data_Selection must be set to: <0:Selection_disbld to return to normal operation	
REFER TO BACK PAGE FOR DETAILS		

Selectable data from the SD card

SD-MC: Secure Digital - Memory Card

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REFRIGERANT selection: STEP 1 → 2

R134a, R14, R22, R23, R32, R134a, R152a, R170, R227ea, R236fa, R245fa, R290, R404A, R407A, R407C, R407F, R410A, R417A, R417B, R422A, R422D, R427A, R434A, R437A, R438A, R442A, R448A, R449A, R450A, R452A, R452B, R454B, R507A, R508A, R508B, R513A, R600, R600a, R717, R723, R744 sbcrt/trcrt, R1150, R1234yf, R1234ze, R1270

Compressor pre-select

_<20:no_name_____	_<24:DORIN_____	_<28:GEA-Bock_____	_<2C:LGE_____
_<21:BITZER_____	_<25:EMERSON_____	_<29:HANBELL_____	_<2D:SANYO_____
_<22:CARLYLE_____	_<26:FRASCOLD_____	_<2A:HITACHI_____	_<2E:TECUMSEH_____
_<23:DANFOSS_____	_<27:FRIGOPOL_____	_<2B:J&EHALL_____	_<2F:other
_<30:no_type_____	_<34:Recip_open_____	_<38:Screw_Open_____	
_<31:Recip_Hermetic__	_<35:Screw_Hermetic__	_<39:Scroll_____	
_<32:Recip_Semihermtc	_<36:Screw_semihermtc	_<3A:Reserve_____	
_<33:Recip_2-stage___	_<37:Screw_Compact___		
_<40:No_cylinders____	_<44:4_cylinders_____	_<48:8_cylinders_____	_<4C:12_cylinders____
_<41:1_cylinder_____	-	-	-
_<42:2_cylinders_____	_<46:6_cylinders_____	_<4A:10_cylinders____	-
_<43:3_cylinders	-	-	<4F:(15+ cylinders)

Supply Voltage at 50/60 Hz:

_<50:notdefined_____	_<54:50_Hz_420_V_____	_<58:60_Hz_200_V_____	_<5C:60_Hz_460_V_____
_<51:50_Hz_200_V_____	_<55:50_Hz_500_V_____	_<59:60_Hz_208_V_____	_<5D:60_Hz_575_V_____
_<52:50_Hz_230_V_____	_<56:50_Hz_690_V_____	_<5A:60_Hz_230_V_____	_<5E:60_Hz_660_V_____
_<53:50_Hz_400_V_____	_<57:50_Hz_tbd_V_____	_<5B:60_Hz_380_V_____	_<5F:other

VsC COMPRESSOR selection: STUFE 2 → 3 _<No_Data_selected___

Selections

Real Time Clock:	Time and Date 2015/07/04 16:08:51	Setting: Time and Date of RTC (if module A FU+ CM-1 fittted)	7.05
Language:	Language ENGLISH	Setting: Set Language (If FrigoPack stopped first)	7.03
Installation ID:	Installation_Name____ FrigoPack_FU+___	Setting: Welcome text in Control Menu: 21 settable characters	7.02

FIRST_SETUP

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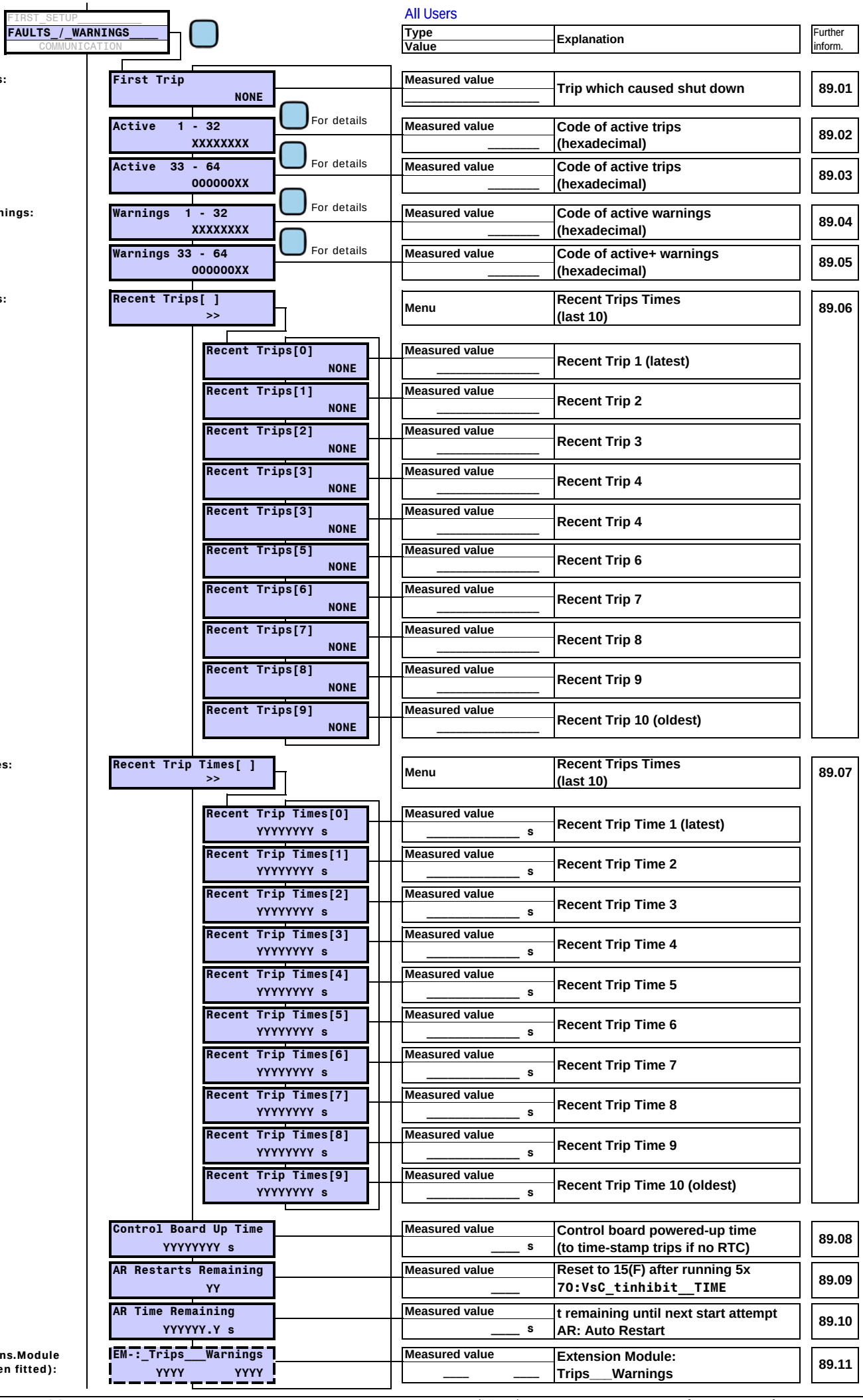


Trips, Diagnosis, Fault Finding

Trip Message	Possible Cause	Hints for Fault Finding	Remedies
01 OVER VOLTAGE	• Voltage of supply too high	- Measure and document three input voltages	- Rectify cause of any high voltage
	• Compressor motor defect	- Test Compressor motor. Disconnect cables from the Refrigeration Inverter. Connect direct to the input supply through a suitable motor circuit breaker. Monitor if compressor runs normally by verifying current taken agrees with compressor manufacturer's data.	- Replace compressor motor
		- Measure resistance of motor winding and compare with manufacturer's data	
		- Disconnect Refrigeration Inverter and check winding insulation between phases and to earth	
	• Isolating contactor not controlled correctly	- Check wiring of control circuit and compare function with recommendations	- Modify wiring
02 UNDER VOLTAGE	• Voltage of supply too low	- Measure and document three input voltages	- Rectify cause of any low voltage
	• Phase of supply voltage missing		
03 OVER CURRENT	• Isolating contactor not controlled correctly	- Check wiring of control circuit and compare function with recommendations	- Modify wiring
04 STACK FAULT	• Compressor motor defect	- Test Compressor motor. Disconnect cables from the Refrigeration Inverter. Connect direct to the input supply through a suitable motor circuit breaker. Monitor if compressor runs normally by verifying current taken agrees with compressor software data.	- Replace compressor motor
05 STACK OVER CRRNT			
21 PHASE FAIL		- Measure resistance of motor winding and compare with manufacturer's data	
22 VDC RIPPLE		- Disconnect Refrigeration Inverter and check winding insulation between phases and to earth	
	• Refrigeration Inverter faulty	- Remove motor cable connections to Refrigeration Inverter	- Replace Refrigeration Inverter
		- Check if operation of Refrigeration Inverter without a motor connected is possible	
		- Test operation with a small test motor	
	• Incorrect motor connection	- Check wiring to motor terminals (choice of star/delta, part winding etc.)	- Modify wiring
08 INVERSE TIME	• Compressor start aborted	- Liquid refrigerant in compressor?	- Contact Supplier for advice
09 MOTOR I2T		- Defect compressor	
14 START FAILED		- Incorrect size of Refrigeration Inverter or motor connected in delta instead of star	
27 STO ACTIVE	• Safety circuit tripped. Problem with ext Safety Module	- Check safety circuits. Possibly missing supply voltage at a monitoring device.	- Reset if necessary
	• Safety relay or contactor not controlled correctly	- Check wiring of control circuit and compare function with recommendations	- Verify wiring
	• Wiring fault in safety circuit		- Modify wiring
	• DC 24 V control voltage missing	- Check DC 24 V control voltage at Refrigeration Inverter	- Verify wiring
		- Short circuit with DC 24 V control voltage ?	
33 PRESSURE TRANSMITT	• Suction-pressure transmitter not connected or connections swopped	- Check if blue LED at the input of the Basic Module lights	- Verify correct connection of suction pressure transmitter. Exchange leads if necessary
	• Transmitter suction pressure faulty Verify setting Sp0 (p. 6)	- Check if blue LED at the input of the Basic Module lights	- Replace faulty pressure transmitter
		- Ratiometric Types: Check connections	
34 PRESS RANGE EXCEED	• Pressure outside range or unsuitable pressure transmitter fitted	- Verify Pressure Transmitter	- Exchange Pressure Transmitter or correct wiring
35 DISCH TEMP TOO HGH	• Discharge-gas temperature too high	- Suction-gas superheat too high	- Investigate refrigeration components
		- Damaged compressor valves or leaking gasket	
		- Unsuitable refrigerant	
36 SUPERHEATS TOO LOW	• Suction and Discharge-Gas superheats too low	- Problem with an expansion valve	- Investigate refrigeration components
		- Liquid in suction line	
37 LUBRC TEMP TOO LOW	• Lubricant Overtemperature too low	- Suction-gas superheat too low	- Investigate refrigeration components
		- Liquid in suction line	
		- Sump heater not used, not connected correctly or faulty	
38 LUBRC PRES TOO LOW	• Low lubricant pressure	- Lubricant migration	- Investigate refrigeration circuit
		- Problem with refrigeration piping	
39 EXT MODULE FAULT	• External Module or cable fault	- Verify wiring	- Correct wiring
40 MAINTENANCE NECESS	• Proactive Maintenance due	- Investigate Maintenance parameters in the menu DIAGNOSTICS	- Organize parts required and plan maintenance
?? OTHER TRIP	• Other	-	- Contact supplier for advice

FrigoSoft 4.7 activated: External Control with 0..10 V / 4..20 mA

COMMUNICATION

FAULTS_/_WARNINGS
COMMUNICATION
DIAGNOSTICS

Menu COMMUNICATION for setting up Communications:
View Level TECHNICIAN (for Refrigeration Personnel) only, see page 1

Type / Value	Explanation	Further inform.

-Ethernet>

Ethernet local area network

Settings — Ethernet:

	Type / Value	Explanation	Further inform.
DHCP	Setting _____ TRUE	Ethernet local area network	10.1.01
IP Auto	Setting _____ TRUE	Automatic IP generation	10.1.02
User_IP_Address FFF.FFF.FFF.FFF	Setting ___.___.___.___	User set IP address	10.1.03
User_Subnet_Mask FFF.FFF.FFF.FFF	Setting ___.___.___.___	User set Subnet Mask	10.1.04
User_Gateway_Address FFF.FFF.FFF.FFF	Setting ___.___.___.___	User set Gateway Address	10.1.05

Previous three parmeters only visible if DHCP or IP Auto are both set to FALSE

-RS485-Modbus>

RS485 Modbus Local area network with Option Module A FU+ CM-1

RS485 Modbus RTU:

	Type / Value	Explanation	Further inform.
Modbus Device Address	Setting ___ 1	Address 1..247	10.2.01
Modbus RTU Baud Rate	Setting _____ BPS 9600 BPS	Baud Rate 1200..115200 BPS	10.2.02
Parity And Stop Bits	Setting _____ EVEN, 1 STOP	Parity and Stop Bits	10.2.03
High Word First RTU	Setting _____ FALSE	16-Bit High-word first for 32-Bit interrogations	10.2.04
Modbus RTU Timeout	Setting __._ s 3.0 s	No activity Timeout (Watchdog) 0.0 .. 65.0 s	10.2.05

Ethernet-Modbus>

Modbus over ETHERNET

Ethernet Modbus:

	Type / Value	Explanation	Further inform.
Maximum Connections	Setting _ 2	Maximum number of connections	10.3.01
High Word First	Setting _____ FALSE	16-Bit high-word first for 32-Bit interrogations	10.3.02
Modbus Timeout	Setting __._ s 3.0 s	No Modbus RTU activity Timeout 0.0 .. 65.0 s	10.3.03
Modbus Conn Timeout	Setting _____ s 66 s	No Ethernet Fieldbus activity 0 .. 100000 s	10.3.04

-Comms_Control>

Comms remote control

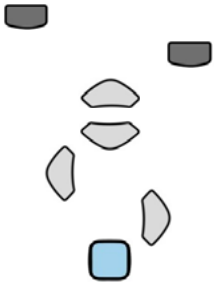
Ethernet Modbus:

	Type / Value	Explanation	Further inform.
Refrig_Control_Word	Setting ____ 0000	Refrigeration Comms Control Word	10.4.01
LODAM_Control_Word	Setting ____ 0000	LODAM Comms Control Word	10.4.02
Refrig_Status_Word	Setting ____ YYYY	Refrigeration Status Word	10.4.03
Comms_Reference	Setting ____ 0.00 %	Comms Reference (Setpoint)	10.4.04
EM_Control_Word	Setting ____ 0.00 %	Extension Module Control Word	10.4.05

Modifying

Password TECHNICIAN for Refrigeration Personnel: 8670

Keypad FU+ PROG:



Key	Navigation Mode	Edit Mode
Softkey 1	Select level menu	-
Softkey 2	Select Data (p7), Select Information (p19)	-
UP	Moves up list of parameters, see also p19	Increments displayed parameter
DOWN	Moves down list of parameters, see also p19	Increments displayed parameter
LEFT	Prev. menu or parameter, see also p7 and p19	Selects the digit to be changed
RIGHT	Next menu or parameter, see also p7 and p19	Selects the digit to be changed
OK	Next level menu or parameter	Edit mode when a parameter is selected
'1' 'O'	Refer to pages 7, 19	Refer to pages 7, 19

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Menu, Diagnostics:
Diagnostics and other Monitoring Data

COMMUNICATION
DIAGNOSTICS
TIME_SCHEDULER

Diagnostics

		Type / Value	Explanation		Further inform.
Sequencing and Limits:	SEQUENCR_Refr VSD YY Y	Internal value __ __	Left: RHVAC sequencer 0 .. 13, Right: Internal sequencer 0 .. 7		11.1
		Left:	**Right:**		
		0:Stppd_Rdy_to_Start_ 1:Start_Delay 2:Autotuning 3:Aligning 4:Prefluxing 5:Starting 6:Lubricating 7:Hold_at_fmin **8:Normal_operation** 9:Stopping 10:Stopped,_Inhibited 11:Compressor_Heating 12:Local_operation	0:NOT_READY_TO_SWTCH_ON 1:SWITCH_ON_DISABLED 2:READY_TO_SWITCH_ON 3:SWITCHED_ON 4:OPERATION_ENABLED 5:QUICKSTOP_ACTIVE 6:FAULT_REACTION_ACTIVE 7:FAULTED 13:Serial_communictns 15:Fault_not_cleared		
	_STARTS---_ENABLES--_ YYYY_YYYY_YYYY_YYYY	Internal value _...._...._...._....	Logical conditions: Starting, Limiting		
		XXXX_XXXX_XXXX_XXX**1**	Safety Circuit (STO)	Not active (OK)	
		XXXX_XXXX_XXXX_XX**1**X	Refrigeration Inverter	Enabled (fault free)	
		XXXX_XXXX_XXXX_X**1**XX	Ext. Module EM1..3,6..8	Enable or not present	
		XXXX_XXXX_XXXX_**1**XXX	ISESCO	Enable or not present	
		XXXX_XXXX_XXX**1**_XXXX	pe >> pe min limit	Suction pressure	
		XXXX_XXXX_XX**1**X_XXXX	ted > ted min	Evaporating temperature	
		XXXX_XXXX_X**1**XX_XXXX	tcd < tcd max	Discharge temp	
		XXXX_XXXX_**1**XXX_XXXX	pc << pc max limit	Exhaust gas pressure	
		XXXX_XXX**1**_XXXX_XXXX	DI1	Start input	
		XXXX_XX**1**X_XXXX_XXXX	ted > ted setpoint/ Force	Controller start / DI2	
		XXXX_X**1**XX_XXXX_XXXX	External Module EM1..3	Module start	
		XXXX_**1**XXX_XXXX_XXXX	ISESCO	ISESCO start	
		XXX**1**_XXXX_XXXX_XXXX	External Start Signal	AI1 or AI2 > 0.0 V	
		XX**1**X_XXXX_XXXX_XXXX	Compr. Swop active	Swop time >= 0 s	
		X**1**XX_XXXX_XXXX_XXXX	Compressor VFsC1	Available	
		1XXX_XXXX_XXXX_XXXX	Compressor VFsC2	Available	
	_LIMITING_CONDITIONS_ YYYY_YYYY_YYYY_YYYY	Internal value ____ ____	Logical conditions: Limiting conditions		
		XXXX_XXXX_XXXX_XXX**1**	tcd >= tcd max	Condensing Temperature	
		XXXX_XXXX_XXXX_XX**1**X	Suction Gas	Superheat too low	
		XXXX_XXXX_XXXX_X**1**XX	Discharge gas	Superheat too low	
		XXXX_XXXX_XXXX_**1**XXX	Lubrication	Overheat too low	
		XXXX_XXXX_XXX**1**_XXXX	pl Lubrication	Differential pressure	
		XXXX_XXXX_**1**XXX_XXXX	tenc Enclosure	Too warm	
		XXXX_XXX**1**_XXXX_XXXX	Envel. current limiting	Active	
		XXXX_XX**1**X_XXXX_XXXX	ted > tedmax	Starting	
		XXXX_X**1**XX_XXXX_XXXX	Rack increase fmin	Too long at min capacity	
		XXX**1**_XXXX_XXXX_XXXX	Icmp >= Icmp max	Current	
		XX**1**X_XXXX_XXXX_XXXX	LAS Low Ambient Start	Active	
		X**1**XX_XXXX_XXXX_XXXX	RAS	Active	
Relative Rack Capacity (volume flow):	Avr_Rack-POWR_Actual_ YYY.Y % Y.YYY %	Measured value _ __._ % ___._ %	Compressor Rack power: Average__Actual:		11.2
Electrical Values:	DC-LINK MOTOR YYY V YYVY V	Calculated values ____ V ____ V	DC Link and motor voltages		
	BASE-FRQ POWER YY.Y Hz YYY.Y kW	Calculated value ___._ Hz ___._ kW	Base Frequency Motor power		
Temperatures:	Cntrl_Modl Heat_Sink YY.Y °C YY.Y °C	Measured value ___.__ °C ___.__ °C	Heatsink and Control Module Temperatures		11.3
Power Module:	**Power Stack Fitted** **YYYYYYYYYYYYYY**	Measured value _____	Power Size Code		11.4
	Stack Serial No YYYYYYYYYYYYYY	Measured value _____	Stack Serial Number		
	HV SMPS Up Time YYYYYYYYY s	Measured value _____ s	Switched-Mode Power Supply ON time		
	HV Power On Count YYYYYYYYYYYYYY	Measured values _____	Number of times the supply has been connected		
Control Module:	Control Module Serial YYYYYYYYYYYYY	Measured value _____	Control Board Serial Number		11.4
	Control Board Up Time YYYYYYYYY s	Measured value _____ s	Control board powered-up time in s		
Compressor:	**VsC_Serial_Number** **YYYYYYYYYYYYY**	**Measured values** **_____ s**	**VsC Compressor Serial Number**		11.6
	Motor Run Time YYYYYYYYY s	Measured values _____ s	Compressor ON time		
	VFsC-numbr_Starts_nmb YYYYYYYYY	Measured values _____	Number of compressor and number of starts		
Maintenance :	VsC_equiv_50_Hz_time_ YYYYYYYYY s	Measured values _____ s	VsC Compr equiv. 50 Hz		11.7
	Fan_equiv_40_°C_time_ YYYYYYYYY s	Measured values _____ s	Fan equiv 40 °C time		

Password TECHNICIAN for Refrigeration Personnel with training

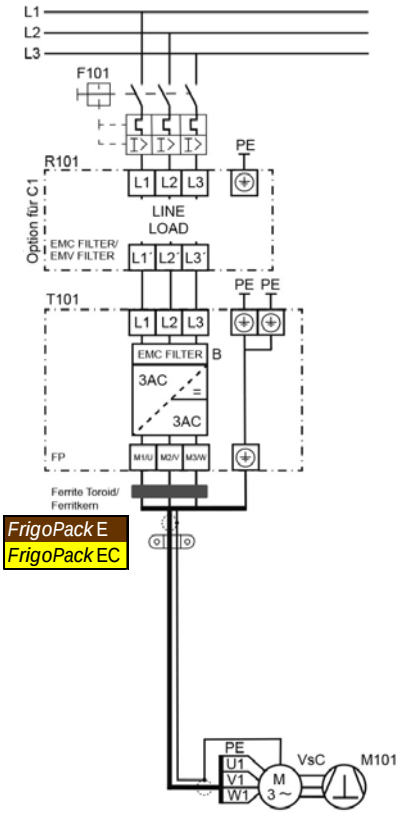
Keypad FU+ PROG:
Diagnosis:

I	O	Explanation
OFF	Fast Flashing	**Stopping**
OFF	ON	**Stopped, no Start input**
ON	OFF	**Stopped, no refrigeration requirement**
ON	OFF	**Running**
Fast Flashing	OFF	**Auto Start pending, Starting**
Slow Flashing	OFF	**Started, Inhibit Time running**
Green then Red Flashing		**Tripped / Fault**

DIAGNOSTICS

POWER SECTION

Power connections

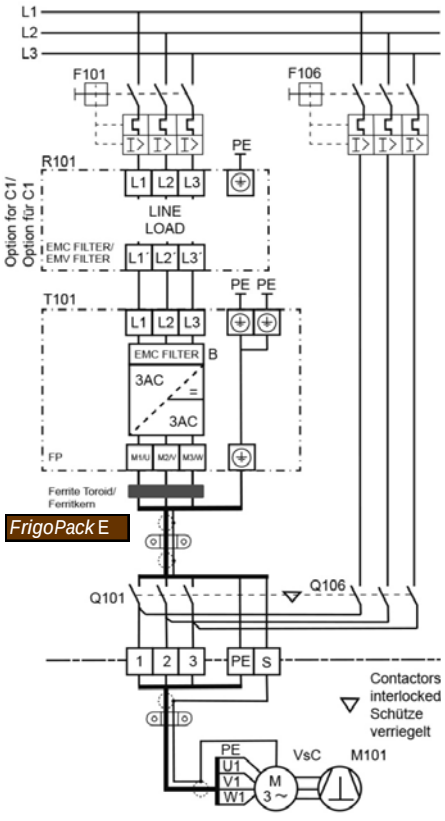


1V

Single compressor

Settings:

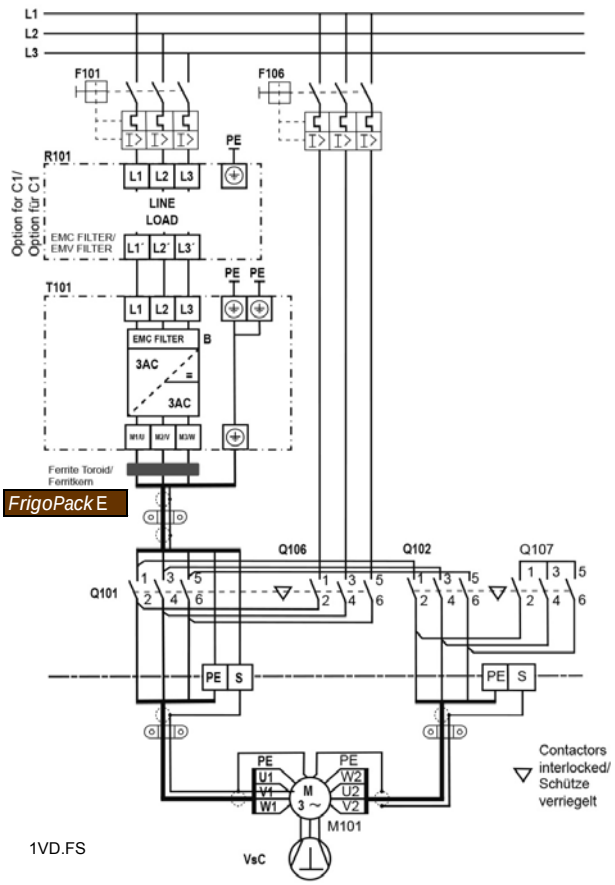
```
80:FsC_______PRIORITY
Dt8:
```



1VB

Single compressor with bypass (for emergency operation)

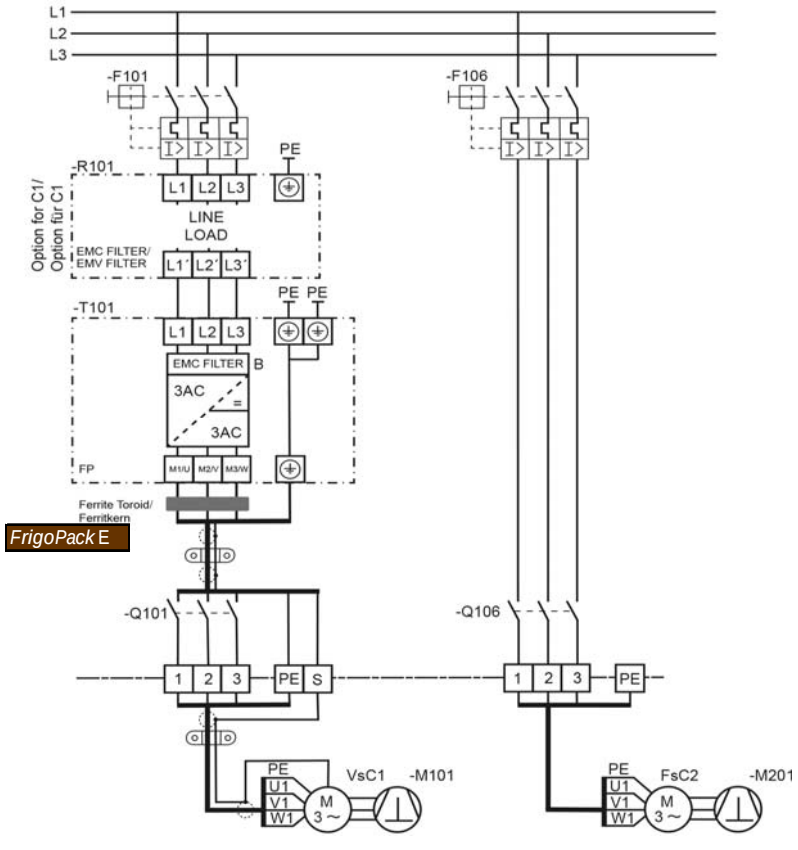
00000000 (See page 4)
DCFA8008 (See page 5)



1VD.FS

Single compressor in DELTA with bypass in STAR (for emergency operation)

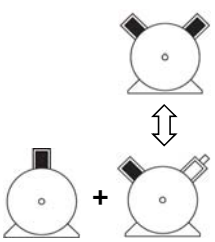
Digital Control Outputs			Place/Part
Relay DO1	Ready:	*FrigoPack*	*FrigoPack*
Relay DO2	Operation:	VsC	*FrigoPack*
Relay DO3	Expansion (recommended)		*FrigoPack*



1V-2FC

Digital Control Outputs			Place/Part
Relay DO1	Ready:	*FrigoPack*	*FrigoPack*
Relay DO2	Operation:	VsC1	*FrigoPack*
Relay DO3	Operation:	FsC2	*FrigoPack*
Relay DO4	Capacity Control		Extern.P24 V
Relay AO2	Expansion (recommended)		Ext. P12 V *

FsC2/CC:



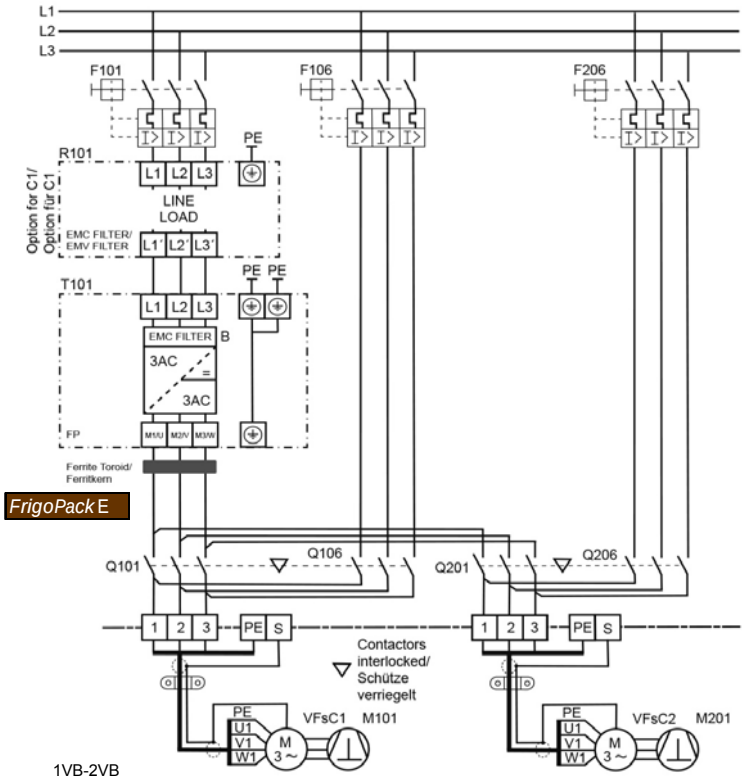
Variable-speed compressor + second larger compressor with Capacity Control

Settings:

```
80:FsC_______PRIORITY
Dt8:
```

00000001 (See page 4)
08A9F008 (See page 5)

* **Accessory required:** **A FU+ DC12V RL/11** (Special low coil-current relay module)



1VB-2VB

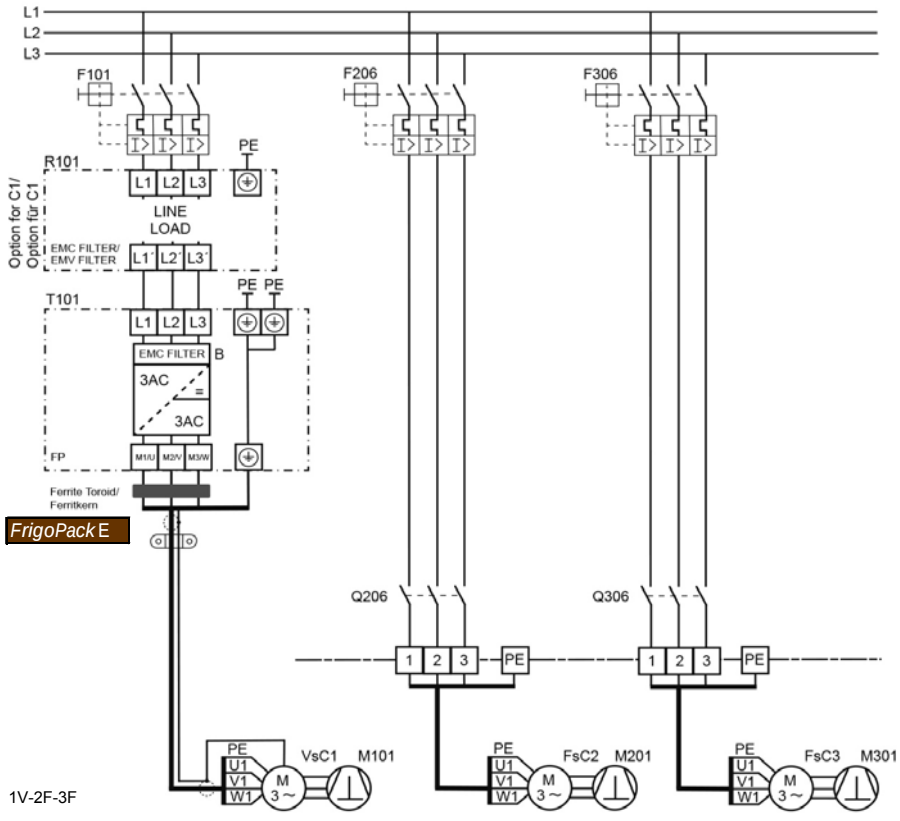
Two compressors, each with bypass and rotation

Digital Control Outputs			Place/Part
Relay DO1	Ready:	*FrigoPack*	FrigoPack
Relay DO2	Operation:	VFsC1	FrigoPack
Relay DO3	Operation:	VFsC2	FrigoPack
Relay AO2	Expansion (recommended)		Extern.P24 V

Note:
This connection requires a special arrangement of auxiliary contacts on the contactors.
Alternatively a special control module from KIMO RHVAC Controls may be used.

Settings:

8O:FsC_____PRIORITY	000000**EE** / 000000**FF**	(See page 4)
Dt8:	D**FCB**8008	(See page 5)



1V-2F-3F

Three compressors, two Fixed-speed Compressors with rotation

Digital Control Outputs			Place/Part
Relay DO1	Ready:	*FrigoPack*	FrigoPack
Relay DO2	Operation:	VsC1	FrigoPack
Relay DO3	Operation:	FsC2	FrigoPack
Relay DO4	Operation:	FsC3	Ext. P24 V
Relay AO2	Expansion (recommended)		Ext. P12 V *

Settings:

8O:FsC_____PRIORITY	00000011	(See page 4)
Dt8:	DCBA**F**008	(See page 5)

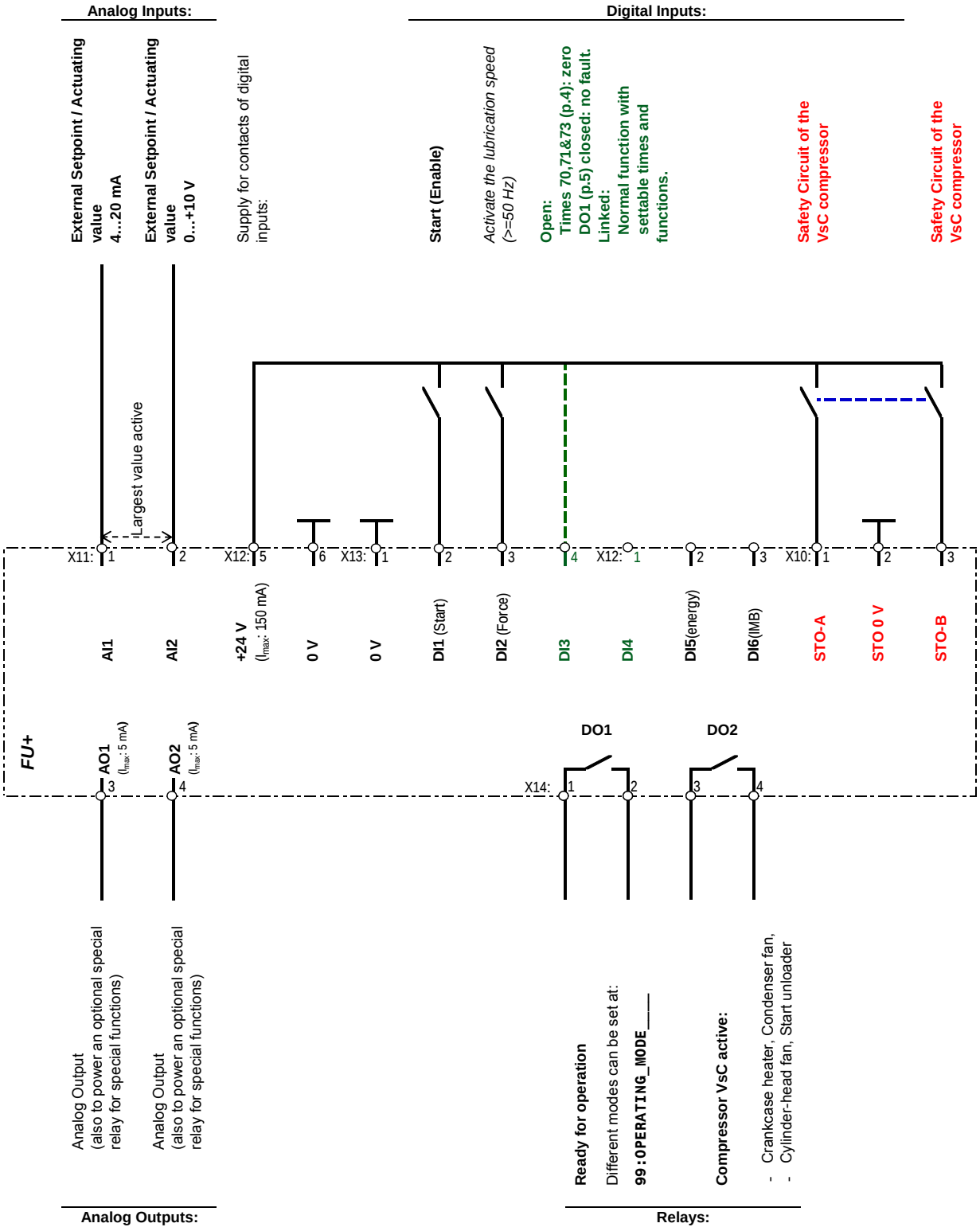
*** Accessory required:** **A FU+ DC12V RL/11** (Special low coil-current relay module)

Various other configurations are possible (e.g. up to 6 compressors), please enquire.

Power terminals

Terminal / Designation	Signal / Function	Explanation	Further information
PE	**Protective Earth connection 1 to supply**	- Observe all safety and EMC requirements	**7.7.1**
L1	**Three phases of voltage supply**	- Ensure that supply voltage agrees with data on name plate	**7.7.1**
L2			
L3			
PE	**Protective Earth connection 2 to supply**	- Observe all safety and EMC requirements	**6.7**
M1/U	**Motor of Variable-speed Compressor**	- Through interlocked isolating contactor if required	**7.7.1/ 7.7.2**
M2/V			
M3/W			
PE	**Protective earth connection to compressor motor**		**7.7.2**

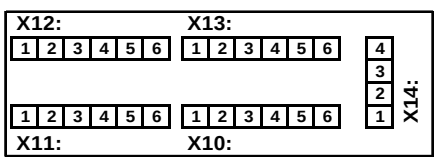
FrigoSoft 4.7 activated: External Control with 0..10 V / 4..20 mA



VsC: **Variable-speed Compressor**

Connection with the functional earth required - e.g. a wire connection to an earth terminal

Terminal position:



Terminal List for control functions

FrigoSoft 4.7 activated: External Control with 0..10 V / 4..20 mA

Terminal / Designation		Signal / Function	Explanation	Further information
X13.1	**0 V**	**Ground for analog signals**		
X11.1	**AI1**	**Analog Input:** **External controller, Speed 4…20 mA** 4...20 mA: fmin ... fmax <3.5 mA: Fault	- Alternative usage (largest wins)	
X13.2	**AI2**	**Analog Input:** **External controller, Speed 0…+10 V** 0...+10 V: fmin ... fmax	- Alternative usage (largest wins)	
X11.5	P10 V	Universal Analog Output (5 mA max. load)	- Do not use	
X11.6	N10 V	Universal Analog Output (5 mA max. load)	- Do not use	
X12.5	+24 V	Supply for contacts of digital inputs		
X13.2	**DI1**	**Digital Input:** **Start (Enable)** +24 V: Start 0 V: Controlled stop	- **Must be used:** - Load: 3.3 kΩ, 7.3 mA	
X13.3	*DI2*	*Digital Input:* *Activate Lubrication Speed (50 Hz)* *+24 V: Lubrication speed* *0 V: Normal operation*	- *Optional use*	
X13.4	***DI3***	**Digital Input:** **Normal function with adjustable times** +24 V: Times 70: 71: & 72: normal and adjustable, 99: D100 (Delay OFF 15 min) 0 V: Times 70: 71: & 72: 0 s fixed (e.g. for WURM), 99: 1100 (no fault)	- Connect to +24 V at terminal X12:5 - Verify Parameters 70: 71: 72 & 99: are correctly set	
X12.1	***DI4***	**Digital Input:** **Do not use**		
X12.2	*DI5*	Digital Input: Pulses from Energy Meter +24 V: Pulse 0 V: Not activated	- Optional use	
X12.3	**DI6**	**Digital Input:** **Identification Module BM-1 (>=50 Hz)** +24 V: IMB Coding (mark) 0 V: IMB Coding (space)	- Must be used: - *Connect to Module BM-1, terminal X4.5*	
X10.1	**STO-A**	**Digital Input STO (Safe Torque Off), Channel A** +24 V: Operation Enable 0 V: Safe Stop	- Must be used: - Enable from contact pair of safety relay - Active if Channel B simultaneously activated - Load: 3.3 kΩ, 7.3 mA	
X10.2	**0 V**	**Functional earth for Safe Torque Off**	- Must be used	
X10.3	**STO-B**	**Digital Input STO (Safe Torque Off), Channel B** +24 V: Operation Enable 0 V: Safe Stop	- Must be used: - Enable from contact pair of safety relay - Active if Channel A simultaneously activated - Load: 3.3 kΩ, 7.3 mA	
X14.1 / X14.2	**DO1**	**Relay Output:** **"Ready" (without fault)** Closed: Ready (no fault) Open: No supply, fault or alarm	- Ready (no fault): - Function depends on the following setting **SPECIAL_ADJUSTMENTS_ | DATA | Dt1** - Max load: AC 230 V / 250 VA	
X14.3 / X14.4	**DO2**	**Relay Output:** **- Single compressor:** **- Activate VsC1 (Operating)** Closed: Operation / Activate Open: Stop, Deactivated	- To control auxiliaries such as: Crankcase heater, Condenser fan, Start unloader - Max load: AC 230 V / 250 VA	
X11.3	**AO1**	**Analog Output with alternative functionality:** **Frequency** 0...+10 V: 0.0 ... 100.00 %	- Function depends on the following setting: **SPECIAL_ADJUSTMENTS_||Dt8** - Max load: 5 mA	
X11.4	**AO2**	**Analog Output with alternative functionality:** **Hot-gas Bypass control** 0...+10 V: 0.0 ... 100.00 %	Function depends on the following setting: **SPECIAL_ADJUSTMENTS_||Dt8** - Max load: 5 mA	

VsC: **Variable-speed Compressor**
FsC: **Fixed-speed Compressors**
CC: **Capacity Control**

VfG: **Variable-speed fan group (Condenser / Dry cooler)**

CONTROL SECTION

FrigoSoft 4.7 activated: External Control with 0..10 V / 4..20 mA:

The regulations for refrigeration equipment reference the safety standard EN 60204-1
(Safety of machinery - Electrical equipment of machines - Part 1 General requirements).

It is established and proven practice that safety circuits (including pressure-limiting devices) are processed by electromechanical devices such as relays or contactors.

It is not permissible to use standard software-based automation controls (such as PLCs) as these are not functionally fail-safe or a software error can result in dangerous operating conditions.

In an emergency (such as a pressure-limit reached) the Stop Category 0 (immediate removal of power) is appropriate.

Contactor interruption in the energy supply to the compressor is a proven circuit technique for the immediate and safe stopping of compressor motors in an emergency condition.

The integrated Safe Torque-Off (STO) function of this Refrigeration Inverter may be used as an alternative method provided that a bypass contactor is not used. With correct installation a Safety Integrity Level of SIL3 can be achieved.

A typical safety circuit would normally consist of the following:
- Essential safety-relevant devices such as approved over-pressure switches
- Optional devices such as low-pressure switches, oil pressure or level monitoring controls

The safety circuit should terminate at a safety relay with two normally-open contacts wired as follows:
- Two individual or a single common connection from P24 V from the Refrigeration Inverter to the supply side of these two contacts.
- Two independent normally-open contacts dedicated to the Safe-Torque Off function of the refrigeration inverter wired to inputs STO-A and STO-B

The previously described standards and recommendations are general guidelines for the safety-relevant design of the installation.

However it is the installer or contractor's responsibility to assess the risk of each installation and to ensure that all safety measures are appropriate and functional.

Functional recommendations

A control switch should be provided with the following functionality:

- Middle position:	**OFF**	Controlled STOP of the compressor or compressor rack
- Right position:	**AUTO**	AUTOMATIC controlled operation
- Left position:	**MAN**	MANUAL test or emergency operation without activation of the Refrigeration Inverter

The normal automatic stopping and starting of the compressor should only be by using the AUTOMATIC (start) command at Digital Input DI1 of the Refrigeration Inverter.

Opening contactors in the input or output of the Refrigeration Inverter during operation must not be used for normal starting or stopping of the compressor as this will stress the Refrigeration Inverter and reduce the working life.

To ensure correct monitoring and fault logging the operating commands should be separate from the safety circuit.

The MANUAL mode of operation should preferably make use of a pump-down pressure switch to enable controlled operation.

It is recommended that control circuit automatically reverts to MANUAL operation if the FrigoPack Refrigeration Inverter is not available. This condition should be signalled to a supervising or warning system.

If in a fault condition no compressor is available, then a means of stopping the evaporation is recommended to minimize the risk of liquid in the suction line should be provided.

Example of suitable safety and control circuits

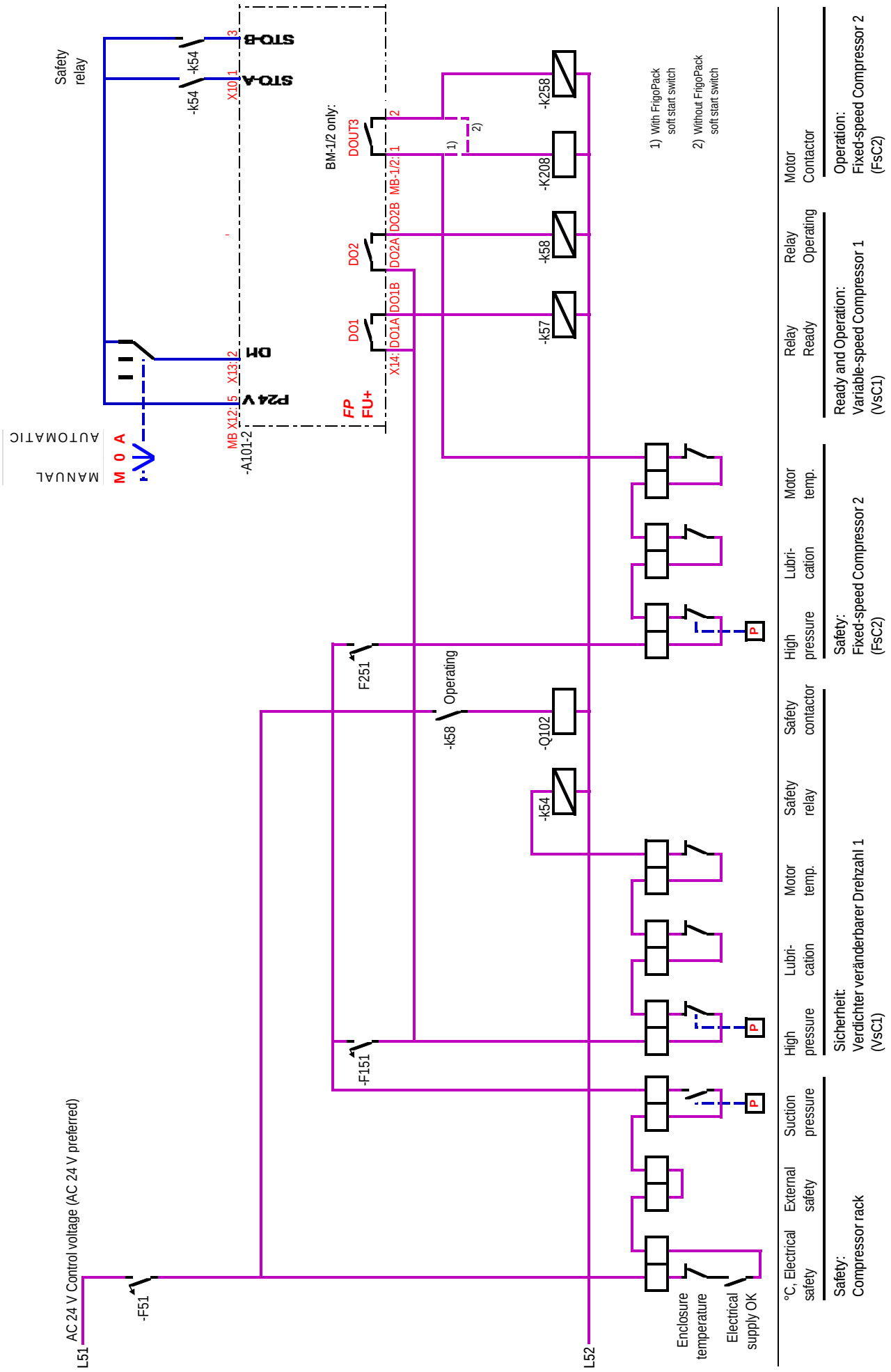
The following simplified overview of the safety and control wiring of a typical system only includes the wiring for AUTOMATIC operation.

Suggestions for the safety and control wiring with these features are available on request.

Please enquire at your supplier for assistance with the planning of complex systems or systems with special requirements.

SAFETY CIRCUIT

FrigoSoft 4.7 activated: External Control with 0..10 V / 4..20 mA:



FIRST-TIME POWER UP

Mounting and electrical safety:

Ensure that all recommendations in the Product Manual have been adhered to.

UL compliance where appropriate:

Ensure that all recommendations in the Product Manual for UL compliance have been adhered to.

EMC compliance:

Ensure that all recommendations in the Product Manual for EMC compliance have been adhered to.

View Level:

There are three basic view levels selectable in the Wizard (see page 2):

OPERATOR:
Available without password as it is not possible to change any settings at this level.

TECHNICIAN:
For refrigeration-trained and authorized personnel (Password 8670). This level is sufficient for normal commissioning.

ENGINEER:
Special applications and usage (special Super-User password).

Language:

The language selection is only relevant when the 4-line Graphic Key Pad is fitted to the inverter
The following languages can be selected (see page 2):
English, German
(French, Spanish and Italian in preparation)

***FrigoSoft*® 4.7:** **No upper module fitted.**
Operation with an external controller.
The control input can be alternatively
4 … 20 mA at AI1 or 0 … +10 V at AI2.
If both are applied then largest input wins control over the refrigeration inverter

Recommended basic commissioning steps:

- Verify that the power circuit corresponds to the suggestions on the previous pages 12/13

- In particular ensure that an interlocked safety contactor is fitted between the Refrigeration Inverter and the compressor if a parallel bypass connection is used.

- Verify that the control circuit corresponds to the suggestions on the previous pages 14…16.

- In particular ensure that two isolated contacts of the safety relay are connected to the Safe Torque Off inputs of FrigoPack: STO-A (Terminal X10.1) / STOP-B (Terminal X10.3)

- Remove Start Input: DIN1: X13:2.

- Connect main power supply.

- Verify that the blue LED for Suction Pressure near terminals BM-1: 1 & 2 lights. If not, then check that the wiring to the pressure transmitter is correct

- If a high-pressure pressure transmitter is used, then verify that the red LED near terminals BM-1: 3 & 4 for the high pressure lights. If not, then check that the wiring

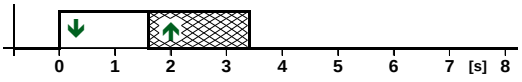
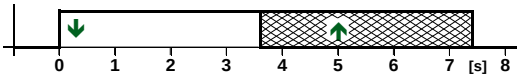
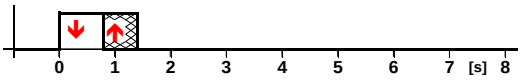
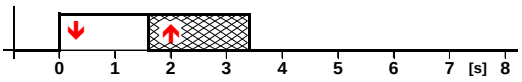
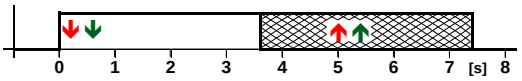
- Measure the pressures with a pressure gauge. Verify that the pressure indicated at parameters 03:pe____VsC_pc_PRESS agree with these external measurements.

FrigoSoft 4.7 activated: **External Control with 0..10 V / 4..20 mA**
The following settings are optional with FS 4.7

Recommended basic commissioning steps (cont.):

- Set the Refrigerant at the following parameter:
  `FIRST_SETUP_____ | SD-Card:Data_Select__ |`
  `<1:Refrigerant_____`
  as described on pages 7,20
- Set the Compressor at the following parameter:
  `FIRST_SETUP_____ | SD-Card:Data_Select__ |`
  `<2:VFsC_Manufacturr`
  `<3:VFsC_Type_____`
  `<4:VFsC_Cylinders__`
  `<5:Motor_Voltage___`
  `<6:VFsC_Compressor_`
  `<<<TO_ENTER_DATA>>>`
  as described on pages 7,20
- Reset to the following starting position (IMPORTANT) :
  `FIRST_SETUP_____ | SD-Card:Data_Select__ |`
  `<0:Selection_disbld`

MULTI-FUNCTIONAL SPECIAL KEYS '1'&'0' AND SOFT KEYS

Timed Operation:	Key:	Action:		Explanation:
	I	**Reset Inhibit Timer:**	Digital Eing. DE1 (start): Start ==> Stop ==> Start	Only if in View Level ENGINEER
		**Modify ted setpoints to correspond to:** `31:ted_SETPOINT_1____`	Press Green Key 5 s and release:	See page 3:
	O	**Reset trip and Autorestart:**	**Press Red Key 1 s and release**	
		**Stop and LOCAL reset:**	**Press Red Key 2 s and release**	
		Restart will occur automatically when the inhibit time is expired		
	I + O	**Interrogate Project Description:**	**Navigate to Welcome Menu** **Press GREEN+RED Key together 2 s and release**	`FrigoPack_FU+/12`

Keypad display in TEST and DEMO Modes:

Mode	`4-!TEST-MODE+1!_`	Basic Module
Evaporat.: ted	`Y.Y °C YY.Y °C`	tcb :Condens.
Start	`YYYYYYYY YYYY`	State
Electrical: Elec	`Y.Y Hz Y.Y A`	Elec

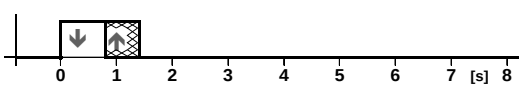
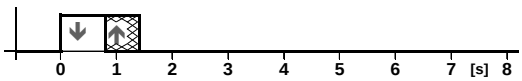
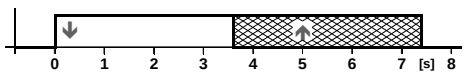
View Level TECHNICIAN or ENGINEER required in this range:

Navigate between -3 -- +2 with UP / DOWN keys.

:

Refrig. Softw., language:	**+10 s ↓ /**	`1-FrigoSft 1.7.2`
File:	**+10 s ↓ /**	`2-FS27_18a_____`
Initials, Date created:	+10 s ↓ /	`3-JPG:01.07.2019`
TEST and DEMO Modes:	+10 s ↓ /	`4-!TEST-MODE 0!_`
- LOCAL Mode automatic: Ramp-up and ramp-down:	Change direction with LEFT / RIGHT keys, see below	`4-!TEST-MODE+2!_` *Deactivate DI1 first*
- LOCAL Mode manual: Increase or decrease speed	LEFT / RIGHT keys: Change speed, see below	`4-!TEST-MODE+1!_` *Deactivate DI1 first*
- Back to Welcome Menu:	+10 s ↑ /	`4-!TEST-MODE 0!_`
- TEST / DEMO Mode -1:	Simulated pressure values, uses set compressors:	`4-!TEST-MODE-1!_` *Activate DI1*
- TEST / DEMO Mode -2:	Modified pressure values, uses set compressors:	`4-!TEST-MODE-2!_` *Activate DI1*
- PROD Mode -3:	Production: shorter times:	`4-!TEST-MODE-3!_`

Reset various values: **Press GREEN+RED Key together and hold**
Refer to SPECIALS | SpJ on page 6:

		**Increase LOCAL speed:**	**Press LEFT Key 1 s and release**	**+1 Hz**
		**Reduce LOCAL speed:**	**Press RIGHT Key 1 s and release**	**-1 Hz**
		**Reset to top level:**	**Press Right Soft Key 5 s and release**	

Setting-up step by step

Starting condition:

```
SD-Card:Data_Select__
  <0:Selection_disbld
SD-Card:Data_Read____
  <NORMAL_OPERATION>
```

05|FS+|01.01a

1: REFRIGERANT:

Not available with FrigoSoft 4.7

STEP 1

Set Refrigerant selection mode:

```
SD-Card:Data_Select__
```

Select Refrigerant:

```
SD-Card:Data_Read____
__<14:R134aHFC
```

Modify as follows if necessary:

- Forwards Backwards -

Compressor pre-selections:

2

2a.

Set Manufacturer selection mode:

```
SD-Card:Data_Select__
<2:VFsC_Manufacturr
```

Select manufacturer:

```
SD-Card:Data_Read____
_<21:BITZER_________
```

Modify as follows if necessary:

- Forwards Backwards -

2b.

Set Type selection mode:

```
SD-Card:Data_Select__
<3:VFsC_Type_______
```

Select Type:

```
SD-Card:Data_Read____
_<32:Recip_Semihermtc
```

Modify as follows if necessary:

- Forwards Backwards -

2c.

Set no of cylinders (0: screw or scroll):

```
SD-Card:Data_Select__
<4:VFsC_Cylinders__
```

Select no.:

```
SD-Card:Data_Read____
_<44:4_cylinders_____
```

Modify as follows if necessary:

- Forwards Backwards -

2d.

Set Supply voltage:

```
SD-Card:Data_Select__
<5:Motor_Voltage___
```

Select supply voltage:

```
SD-Card:Data_Read____
_<53:5O_Hz_4OO_V_____
```

Motor voltage (NOT SUPPLY VOLTAGE):
Modify as follows if necessary:

- Forwards Backwards -

Enter and verify compressor data:

2e.

Set Compressor selection mode:

```
SD-Card:Data_Select__
<6:VFsC_Compressor_
```

Select compressor:

```
SD-Card:Data_Read____
__<<2CES-4-4OS_______
```

Modify as follows if necessary:

- Forwards Backwards -

2f.

Enter selected data:

```
SD-Card:Data_Select__
   <<<TO_ENTER_DATA>>>
```

To activate:

```
SD-Card:Data_Read____
   <<<PRESS_KEY "|">>>
```

2a .. 2f

Select menu:

```
OPERATION___________
```

Verify settings:

```
25:REFRIGERANT_______
  <14:R134a       HFC
6O:COMPRESSOR________
  <6            2CES-4Y
```

Example compressor

STEP 2

➔4

Expert Overview

Not available with FrigoSoft 4.7

DIAGNOSTICS
EXPERT_OVERVIEW_____
OPERATION

	Time Scheduler: Type / Value	Explanation	Further inform.
02:ted__RACK_tcd_____ Y.Y °C YY.Y °C	Calculated values ___._ °C ___._ °C	Saturated gas temperatures (dew): Evaporating and Condensing	9.01
04:ted__RACK_tcb_Diff Y.Y K Y.Y K	Deviations ___._ K ___._ K	Temp. Deviations from setpoints: Evaporating and Condensing	9.02
08:Start_____Sl-Lm-Cp YYYY YYYY YYYY	Status values ____ ____ ____	Right: Seq.-Lmts-CpctyCntrl-Compr Left: ARS--AttmptsLeft-Time to start	9.03
09:VsC_ELECTRICAL____ Y.Y Hz Y.Y A	Measured values ___._ Hz ___._ A	Variable-speed Compressor, Motor Frequency and Current	9.04

Time scheduler

Not available with FrigoSoft 4.7

Under Development

DIAGNOSTICS
TIME_SCHEDULER_____
EXPERT_OVERVIEW

	Type / Value	Explanation	Further inform.
Schdl__Wkdy__tcb__tev YYYY	States _ _ _ _ _	Schdule (15..0) | Weekday (6..0) | tcb | tev	10.01
Hours_Minutes_Seconds YY:YY:YY	Time __:__:__	Hours:Minutes:Seconds	10.02