QUICK START GUIDE

PARAMETER LIST

USA units

FP FEP-14 / iSP RCF
FrigoSof t 3.6

CHILLER

FS 3.6.2-2x

SPORLAN KIMO Refrigeration HVAC

Automatic to OPERATOR menu approx. 2 s after switching on

FrigoSoft36.2_2b XXXT4-6 1.3x → OPERATOR menu at level 1

			Type / Value	Description		Further information
Measured values	- Compressor rack:	01:ts____td TEMP Y.Y YY.Y "C	Measured values	Compressor rack: Suction and discharge gas temp.	Optional use	9.1.1
		02:te____tc TEMP Y.Y YY.Y "C	Measured values	Compressor rack: Saturated evaporat. and condens. temp.		
		03:pe____pc PRES Y.Y YY.Y bar	Measured values	Compressor rack: Evaporating and condensing pressure		
		04:pe____pc P DV Y.Y Y.Y%	Deviations	Compressor rack: Evaporating and condensing pressure		
	- Variable-speed Compressor (VsC):	06:VsC OIL PRESS Y.Y bar	Measured value	Variable-speed Compressor: Oil pressure	Optional use	9.1.2
		07:VsC ELEC A_Hz Y.Y Y.Y Hz	Measured values	Variable-speed Compressor: Motor current, Motor frequency		
	- Fixed-speed Compressor (FsC):	08:FsC ACTV_POSS Y Y	Measured values	Fixed-speed Compressors: Number active / possible		9.1.1
	- Variable-speed Fans (VsF), Condenser:	10:CONDEN %_tamb YY.Y YY.Y "C	Measured values	Condenser: Variable-speed fan / Ambient		9.1.3
	- Heat transfer medium:	20:HtM TMP MS_SP YY.Y YY.Y "C	Measured value_ Setpoint	Heat transfer medium, Temperature: -30.0 ... 50.0 "C		9.1.4
Settings	- Heat transfer medium:	21:HtM TMP LSETP → 10.0 "C	Setting	Heat transfer medium, Temperature: -20.0 ... 20.0 "C		8.3.3
		22:HtM TMP |+_-| → 2.0 "C	Setting	Heat transfer medium, 0.5x band: 1.0 ... 10.0 "C		
		23:HtM Dtsup max → 12.0 "C	Setting	Heat exchanger, Delta temperature max.: 5.0 ... 20.0 "C/K		
		24:HtM Dtsup min → 5.0 "C	Setting	Heat exchanger, Delta temperature min.: 10.0 ... 20.0 "C/K		
	- Suction pressure:	30:pe MINIMUM → 2.5 bar (36.3 psig, - 8 °C*)	Setting	pe, Stop value "Pump Down limit": -0.5 ... 7.0/30.0 bar		8.3.2
		39:pe MAXIMUM → 5.5 bar (79.8 psig, 10 °C*)	Limit value	pe, Maximum value: -0.5 ... 7.0/30.0 bar		
	- Discharge / condensing pressure:	41:pc SETPOINT 1 → 16.5 bar (239 psig, 40 °C*)	Setting 1	pc, Setpoint 1: 0.0 ... 30.0 bar		8.3.4
		42:pc SETPOINT 2 → 19.2 bar (279 psig, 46 °C*)	Setting 2	pc, Setpoint 2: 0.0 ... 30.0 bar		
		49:pc MAXIMUM → 22.2 bar (322 psig, 52 °C*)	Limit value	pc, High Limit: 0.0 ... 30.0 bar		
		50:REFRIGERANT → R407C v	Selection	Refrigerant: R404A, R507C, R407C, R410A, R717, R134a, R22, ...		8.3.5
	Variable-speed Compressor (VsC)	61:VsC CURR MAX → FFF.FF A	Limit value	VsC, Maximum current: 0.00 ... 999.99 A		8.4.1
	- Frequency range:	62:VsC FREQ MAX → 60.0 Hz	Limit value	VsC, Maximum frequency: 15.0 ... 90.0 Hz		
		65:VsC FREQ MIN → 25.0 Hz	Limit value	VsC, Minimum frequency: 15.0 ... 90.0 Hz		
	- Torque:	70:VsC tinh TIME → FFF.F s	Limit value	VsC, Minimum OFF time: 0.1 ... 3000.0 s		8.4.3
		71:VsC thld TIME → 10.0 s	Setting	VsC, Hold time (time at fmin following oil pulse): 0.1 ... 3000.0 s		
	- Time settings:	76:VsC toil STRT → 4.0 s	Setting	VsC, Oil lubrication pulse time: 0.1 ... 3000.0 s		8.4.4
		77:VsC poil MIN → 0.8 bar	Limit value	VsC: Minimum oil pressure -0.5 ... 7.0 bar	Optional use	
	Lubrication:	78:EPV toff tmin → 30.0 s	Setting	EPV, Switch-off delay at lower temp. limit: 0.0 ... 3000.0 s		
	Fixed-speed Compressor (FsC)	81:FsC ton DLY → FFF.0 s	Setting	FsC, Switch-on delay: 0.1 ... 3000.0 s		8.5.1
	- Time settings	82:FsC toff DLY → FF.0 s	Setting	FsC, Switch-off delay: 0.1 ... 3000.0 s		
	- Rack design:	83:FsC NUMBER → 1	Selection	FsC, Number of compressors: 0 ... 7		
	Controllers	91:pe CNTRL P-GN → F.FF	Setting	pe controller, Proportional gain: 0.10 ... 100.00		8.6.1
	- VsC: pe Controller:	92:pc CNTRL P-GN → 10.0	Setting	pc controller, Proportional gain: 0.1 ... 100.0		8.6.2
	- VsF: pc Controller:	93:VsF CD MIN SD → 15.00	Setting	Var.-speed Fan, cond., min. speed: 0.00 ... 100.00		
	- VsF: Minimum speed:	94:pc LIMIT P-GN → 25.00	Setting	pc limiter, Proportional gain: 0.00 ... 100.00		
	- VsC/FsC: pc/HP Pressure limiting:	A1:AOUT1 FUNCTN → INPUT 0	Selection	AOUT1 - Function selection: INPUT 0...3		8.7.1
	Other settings	A2:AOUT2 FUNCTN → INPUT 0	Selection	AOUT2 - Function selection: INPUT 0...3		
		A3:AOUT3 FUNCTN → INPUT 5	Selection	AOUT3 - Function selection: INPUT 0...7		
		A4:DOUT1 FUNCTN → INPUT 0	Selection	DOUT1 - Function selection: INPUT 0...7		
		A6:CONTRL FUNCTN → 0002	Selection	FrigoSoft - Function selection: 0000 ... 0133		8.7.2
		A9:LANGUAGE → ENGLISH	Selection	Language selection: ENGLISH ... NEDERLANDS		8.7.3

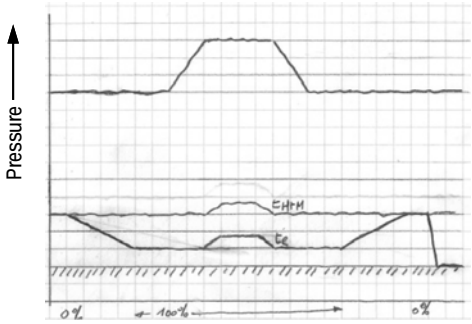
* Factory setting for R407C

Key for abbreviations	
VsC:	Variable-speed Compressor
FsC:	Fixed-speed Compressor
HtM:	Heat transfer Medium
VsF:	Variable-speed fans (Condenser / Dry cooler)

= YYY.YY % : Measured value depending on operating point
→ FFF.0 s : Factory default value depending on frame size and rated power

FIRST TIME POWER UP: Page 11

Explanation of adjustable operating pressures:



Suggested refrigeration settings:

Based on EN 12900

High ambient temp.

Factory setting

	R404A / R507			R407C			R22			R134a		R410A	
	MT	...	HT	MT	...	HT	MT	...	HT	...	HT	...	HT
	-10	0	10	-10	0	10	-10	0	10	0	10	0	10
pe2:	3.3	5.0	7.2	2.2	3.6	5.5	2.6	4.0	6.8	1.9	3.2	7.0	9.9

21:HtM TMP LSETP → 10.0 °C

30:pe MINIMUM → 2.5 bar	-28 °C/ 1.2	-18 °C/ 2.2	- 8 °C/ 3.6	-28 °C/ 0.5	-18 °C/ 1.3	-8 °C/ 2.5	-28 °C/ 0.8	-18 °C/ 1.7	- 8 °C/ 2.8	-18 °C/ 0.5	-8 °C/ 1.2	-18 °C/ 3.3	-8 °C/ 5.2
39:pe MAXIMUM → 5.5 bar	5 °C/ 6.0	5 °C/ 6.0	5 °C/ 6.0	10 °C/ 5.5	10 °C/ 5.5	10 °C/ 5.5	10 °C/ 6.8	10 °C/ 6.8	10 °C/ 6.8	12 °C/ 3.4	12 °C/ 3.4	12 °C/ 10.5	12 °C/ 10.5
41:pc SETPOINT 1 → 16.5 bar	40.. °C/ 17.3	40.. °C/ 17.3	40.. °C/ 17.3	40.. °C/ 16.5	40.. °C/ 16.5	40.. °C/ 16.5	40.. °C/ 14.3	40.. °C/ 14.3	40.. °C/ 14.3	40.. °C/ 9.2	40.. °C/ 9.2	40.. °C/ 23.3	40.. °C/ 23.3
42:pc SETPOINT 2 → 19.2 bar	46.. °C/ 20.1	46.. °C/ 20.1	46.. °C/ 20.1	46.. °C/ 19.2	46.. °C/ 19.2	46.. °C/ 19.2	46.. °C/ 16.7	46.. °C/ 16.7	46.. °C/ 16.7	46.. °C/ 10.9	46.. °C/ 10.9	46.. °C/ 27.0	46.. °C/ 27.0
49:pc MAXIMUM → 22.2 bar	52 °C/ 23.0	52 °C/ 23.0	52 °C/ 23.0	52 °C/ 22.2	52 °C/ 22.2	52 °C/ 22.2	52 °C/ 19.3	52 °C/ 19.3	52 °C/ 19.3	55 °C/ 13.9	55 °C/ 13.9	55 °C/ 33.4	55 °C/ 33.4
50:REFRIGERANT → R407C	R404A/R507			R407C			R22			R134a		R410A	

LP: -0.5 ... 7.0 bar / 0 ... 25 bar

HP: 0 ... 30 bar / 0 ... 40 bar

Pressure transducers

LP			*									*	*
HP												*	

* Modified settings required, see Special Settings, page 4

Diagnostics

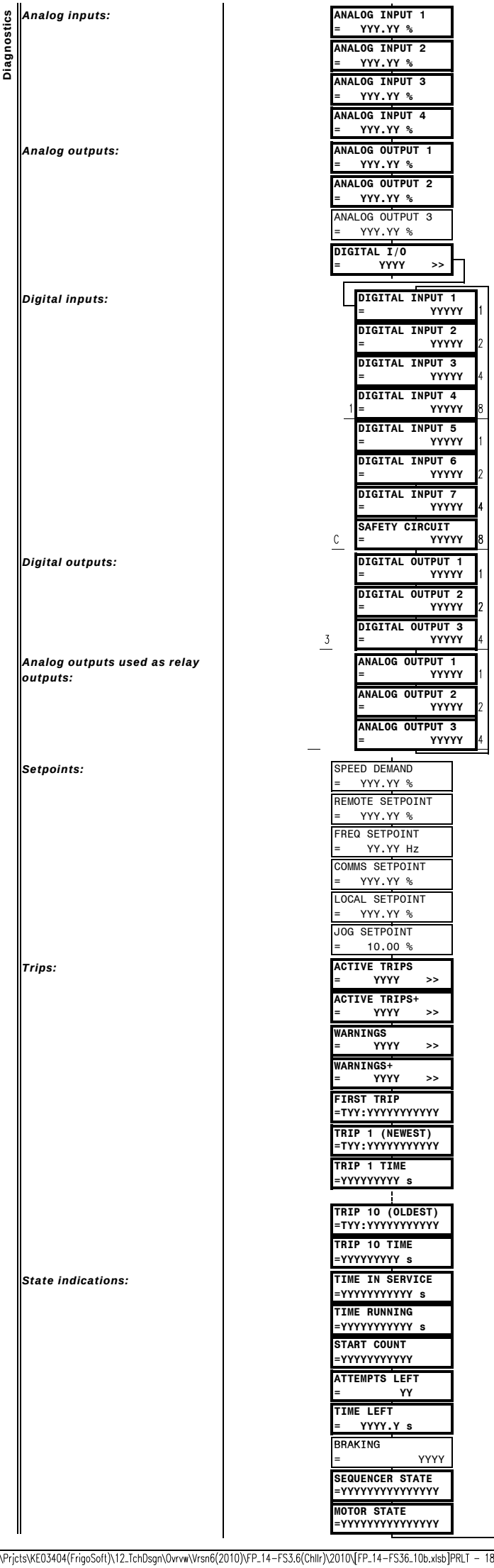
DIAGNOSTICS menu at level 1 (M / E)

Electrical values:

DRIVE FREQUENCY = YY.YY Hz	Internal value	Variable-speed Compressor: Motor Frequency	9.2.1
MOTOR CURRENT A = YY.Y A	Measured value	Variable-speed Compressor: Motor current [A]	
MOTOR CURRENT % = YY.YY %	Internal value	Variable-speed Compressor: Motor current [%]	
DC LINK VOLTS = YYY V	Measured value	Variable-speed Compressor: DC link voltage	
BASE FREQ ACTIVE = YY.Y Hz	Internal value	Variable-speed Compressor: Active base frequency	
BASE VOLT ACTIVE = YYY.Y V	Internal value	Variable-speed Compressor: Active base voltage	
TERMINAL VOLTS = YYY V	Measured value	Variable-speed Compressor: Motor voltage	
TORQUE FEEDBACK = YY.YY %	Internal value	Variable-speed Compressor: Calculated torque	
FIELD FEEDBACK = YY.YY %	Internal value	Variable-speed Compressor: Calculated magnetic motor field	
ELECTRICAL POWER = YY.Y kW	Measured value	Variable-speed Compressor / Rack: Calculated / Measured electrical power	
ELECTRICL ENERGY = YYY kWh	Measured value	Variable-speed Compressor / Rack: Calculated / Measured electrical energy	

Stage controller:

SC STAGE NUMBER = Y	Internal value	Compressor rack: Number of stages	9.2.2
SC CAPACITY CNTR = YYYYY	Command	Compressor rack: Capacity Control activated	
SC OUTPUT = YYYY	Internal value	Compressor rack: Output control signal	
SCC OUTPUT 1 = YYYYY	Command	Compressor rack: Output control signal 1	
SCC OUTPUT 4 = YYYYY	Internal value	Compressor rack: Output control signal 4	
SC CAPACITY = Y.YY	Internal value	Compressor rack: Calculated total power	
SC CAPACITY % = YY.YY %	Internal value	Compressor rack: Calculated total power in %	
SC DIAGNOSTIC = Y	Internal value	Compressor rack: Diagnostics	



AIN1 (X2:2) Analog input 1	**pe, Suction-pressure transducer:** **4 ... 20 mA; 0.0 ... 100.0 %**	**6.3.1 /**
AIN2 (X2:3) Analog input 2	**pc, High-pressure transducer:** **4 ... 20 mA; 0.0 ... 100.0 %**	
AIN3 (X2:4) Analog input 3	**HtM, Temperature of heat-transfer medium:** **0 ... 5 V: -10 ... +40 °C**	
AIN4 (X2:5) Analog input 4	**Ext. act. value / setpoint:** **2 ... 10 V ==> +20.0 °C … -20.0 °C** **tamb:** -30...50° C	
AOUT1 (X2:6) Analog output 1	**VsF condenser / VsC speed /** **Hot-gas bypass / -**	**6.3.2**
AOUT2 (X2:7S-7G) Analog output 2	**- / VsC speed /** **Hot gas bypass / -**	**6.3.2**
AOUT3 (X2:8S-8G) Analog output 3	Not in use	**6.3.2**
Menü	**Digital inputs and outputs**	**5.2**
DIN1 (X2:12) Digital input 1	**Enable (Start)**	**5.2.1-4**
DIN2 (X2:13) Digital input 2	**Force lubrication speed**	**5.3**
DIN3 (X2:14) Digital input 3	**Activate Setpoint / Limit pe2**	**5.2.2/4**
DIN4 (X2:15) Digital input 4	**NOT activate Setpoint /** **Limit pe1**	
DIN5 (X2:16) Digital input 5	**Activate Setpoint pc2**	**5.3**
DIN6 (X2:17) Digital input 6	**FsC Safety circuits without fault /** **Activate VsC continuous operation**	**5.3**
DIN7 (X2:18) Digital input 7	**Activate emergency operation**	**5.3**
DIN8 (X2:19) Digital input 8	**Safety circuit "Ready" (No fault)**	**5.4**
DOUT1 (X:21-22) Digital output 1	**Ready (Health)**	**6.3.4**
DOUT2 (X2:23-24) Digital output 2	**Operating**	**6.3.4**
DOUT3 (X2:25-26) Digital output 3	**Activate FsC1** **(Fixed-speed Compressor 1)**	**6.3.4**
AOUT1 (X2:6) Analog output 1	**- / - /** **- / No pc limiting**	**6.3.2**
AOUT2 (X3:7A-7B) Digital output A2	**Activate FsC2 / - /** **- / No pc limiting**	**6.3.4**
AOUT3 (X3:8A-8B) Digital output A3	Activate FsC3 / Capacity Control / Min. capacity / Min. capacity delayed / No pc limiting / Swop compressor	**6.3.4**
Internal value	VsC: Actuating value of Freq.: % of maximum frequency	**8.1.13**
Internal value	Remote setpoint: % of maximum frequency	
Internal value	VsC Frequency Setpoint: Frequency	
Internal value	Comms command setpoint: % of maximum frequency	
Internal value	Local setpoint: % of maximum frequency	
Internal value	Jog setpoint: % of maximum frequency	
Trips	**Active trips:** **First set**	**10.2-4**
Trips	**Active trips:** **Second set**	
Warning	**Warnings:** **First set**	
Warning	**Warnings:** **Second set**	
Trip	**Trip which caused shut down**	
Trip	**Trip 1 (newest) which caused shut down**	
Trip	**Time trip 1 occured**	
Trip	**Trip 10 (oldest) which caused shut down**	
Trip	**Time trip 10 occured**	
Measured value	**Time powered up**	**10.2-4**
Measured value	**Time VsC running**	
Measured value	**Number of VsC starts**	
Internal value	**Autorestart logic:** **Attempts left**	
Internal value	**Autorestart logic:** **Time to next start attempt**	
Status	iSpeed: Chopper active	
Status	**iSpeed operating status:** **Sequencer control state**	
Status	**VsC operating status:** **Sequencer control state**	

QUICK SETUP menu at level 1 (M / E)

Basic settings:

LANGUAGE → ENGLISH	Selection _____	ENGLISH, DEUTSCH, FRANCAIS, ESPANOL, ITALIANO, SVENSK, POLSKI, PORTUGUES, NEDERLANDS
APPLICATION → SAVED APP	**Selection _____**	**RHVAC Application**
ACCESS LEVEL → OPERATOR	**Selection _____**	**Menu access level**
SELECT UNITS 1 → DEFAULT	**Selection _____**	**Displayed pressure units: DEFAULT: bar; ALTERNATE: psig**
SELECT UNITS 2 → DEFAULT	**Selection _____**	**Displayed temperature units: DEFAULT: "C; ALTERNATE: "F**
SELECT UNITS 3 → DEFAULT	Selection	Not in use
SELECT UNITS 4 → DEFAULT	Selection	Not in use
REFRIGERANT → R407C_v (RFA / RFB / RFC)	Selection _____	Refrigerant for calculation: p --> t; t --> p

Special settings:

DATA 1 VALUE 1 → 0.00	**Selection _._**	**Pressure Transducer pe [bar]:** 0.00: **-0.5...7.0** | 1.00: 0...25 | 2.00: 0...30 | 3.00: 0...60
DATA 1 VALUE 2 → 1.00	**Selection _._**	**Pressure Transducer pc [bar]:** 0.00: 0...25 | 1.00: **0...30** | 2.00: 0...60 | 3.00: 0...160
DATA 1 VALUE 3 → 20.00	**Setting ___.__**	thtm is reduced above this ambient temperature with ambient temperature control
DATA 1 VALUE 4 → 5.00	**Setting ____.__**	**Minimum thtm with ambient temperature control**
DATA 1 VALUE 5 → -40.00	**Setting ___.__**	**Analog input AIN4: Scale (80.00 for tamb)**
DATA 1 VALUE 6 → 20.00	**Setting ___.__**	**Analog input AIN4: Offset (-30.00 for tamb)**
DATA 1 VALUE 7 → 15.00	**Setting __.__**	**Suction line: Minimum superheat [K]**
DATA 1 VALUE 8 → 110.00	**Setting ___.__**	**Discharge line: Maximum temperature [°C]**
DATA 1 LOGIC 1 → FALSE	**Selection _____**	**Analog input AIN4:** FALSE: +2...+10 V | TRUE: tamb
DATA 1 LOGIC 2 → FALSE	Selection	Not in use
DATA 1 LOGIC 3 → FALSE	**Selection _____**	**Digital output DOUT1: Multiplexed multi function**
DATA 1 LOGIC 4 → FALSE	Selection _____	Not in use
DATA 2 VALUE 1 → 0.00	**Selection _._**	**Compensation for temperature glide tc (-2.00 with R407_v)**
DATA 2 VALUE 2 → 1.20	**Selection _._**	**Factor for increase in fmin when limiting**
DATA 2 VALUE 3 → 20.00	**Selection __.__**	**Suction pressure controller: PID I time constant**
DATA 2 VALUE 4 → 20.00	**Selection __.__**	**Condensing pressure controller: PID I time constant**
DATA 2 VALUE 5 → 100.00	**Selection ___.__**	**HtM temperature controller: PID I time constant**
DATA 2 VALUE 6 → 10.00	**Selection _._**	**Control factor with ambient temperature control (Min thtm [°C] at tamb+100/Factor [°C])**
DATA 2 VALUE 7 → 12.00	**Selection __.__**	**tc-ta max. for floating condenser control [K]**
DATA 2 VALUE 8 → 2.00	**Selection _._**	**tc-ta min. for floating condenser control [K]**
DATA 2 LOGIC 1 → FALSE	Selection	Not in use
DATA 2 LOGIC 2 → FALSE	Selection	Not in use
DATA 2 LOGIC 3 → FALSE	**Selection _____**	**Show parameter: O1:ts___td TEMP**
DATA 2 LOGIC 4 → FALSE	**Selection _____**	**Show parameters: O6:VsC OIL PRESS; 77:VsC poil MIN**

VsC motor settings:

MAX FREQ → 60.00 Hz	Setting __.__ Hz	VsC: Maximum frequency
MIN FREQ → 25.00 Hz	Setting __.__ Hz	VsC: Minimum frequency
MOT RATED VOLTS → 400.0 V	Setting ___._ V	VsC: Motor rated voltage
MOT RATED FREQ → 50.00 Hz	Setting __.__ V	VsC: Motor rated frequency
MOT BASE FREQ → 55.00 Hz	Setting __.__ Hz	VsC: Motor base frequency
MOT RATED CURRNT → YY.YY A	Setting ____.__ A	VsC: Motor maximum current
FIXED BOOST → YY.YY %	Setting __.__ %	VsC: Motor fixed boost
AUTO BOOST → YY.YY %	Setting __.__ %	VsC: Motor auto boost
MIN BASE FREQ → 25.00 Hz	Setting __.__ Hz	VsC: Motor minimum base frequency
SKIP FREQ 1 → 0.0 Hz	Setting __._ Hz	VsC: Skip frequency 1
SKIP BAND 1 → 0.0 Hz	Setting _._ Hz	VsC: Skip band 1
SKIP FREQ 2 → 0.0 Hz	Setting __._ Hz	VsC: Skip frequency 2
SKIP BAND 2 → 0.0 Hz	Setting _._ Hz	VsC: Skip band 2

Energy meter:

Serial communications:

Analog input types:

Compressor rack:

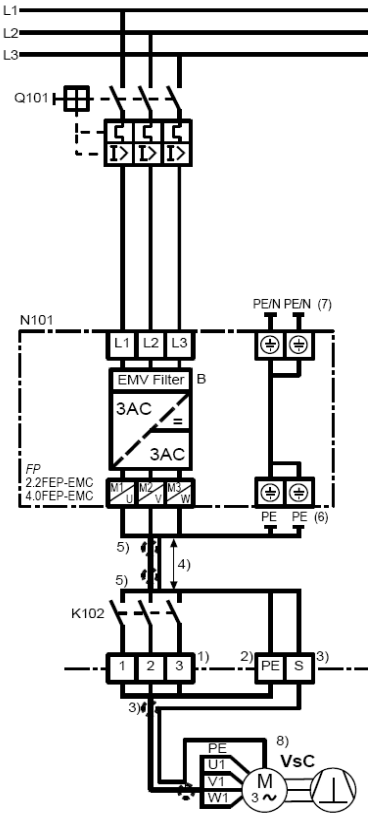
ENERGY MET RESET → FALSE	Selection	Energy meter: Reset at FALSE --> TRUE --> FALSE
ENERGY MET MODE → INTERNAL	Selection	Energy meter: Mode: Internal= VsC; External= Rack
ENERGY MET SCALE → 1.0 kW	Selection	Energy meter: Scale: 1 kWh each pulse
P3 EI ASCII UID → 1	Selection	P3 RS232 port with EI ASCII protocoll: Unit Identifier address
MDBS RTU ADDRESS → 1	Selection	RS485 Interface option: Modbus RTU address
MDBS RTU PARITY → 1	Selection	RS485 Interface option: Modbus RTU parity
AIN 1 TYPE → 4..20 mA	Selection	Analog input AIN1: Type
AIN 2 TYPE → 4..20 mA	Selection	Analog input AIN2: Type
AIN 3 TYPE → +1..+5 V	Selection	Analog input AIN3: Type
AIN 4 TYPE → +2..+10 V	Selection	Analog input AIN4: Type (+1..+5 V for tamb)
SC FsD+ DELAY → FFF s	Setting ___ s	Stage controller: FsC switch-on delay
SC FsD+ FORCE → FALSE	**Selection _____**	**Stage controller, Manual force: One stage more at FALSE>TRUE>FALSE**
SC FsD- DELAY → FF s	Setting ___ s	Stage controller: FsC OFF delay
SC FsD- FORCE → FALSE	**Selection _____**	**Stage controller, Manual force: One stage less at FALSE>TRUE>FALSE**
SC FsD RUN MAX → 6000 s	Setting ____ s	Stage controller: FsC maximum run time
SC FsD RUN MIN → 60 s	Setting ___ s	Stage controller: FsC minimum run time
SC FsD STOP MAX → 600 s	Setting ____ s	Stage controller: FsC maximum stop time
SC FsD STOP MIN → 60 s	Setting ___ s	Stage controller: FsC minimum stop time
SC CC ACTIVE MAX → 300 s	Setting ___ s	Stage controller, Capacity Control: FsC CC maximum active time
SC CC RECOVR MIN → 15 s	Setting ___ s	Stage controller, Capacity Control: FsC CC minimum recovery time
SC FAST STOP DLY → 2 s	Setting ___ s	Stage controller: FsC OFF delay at fast stop
SC FsD TOT OP RS → FALSE	Selection _____	Stage controller: FsC reset total operating times
SC FsD NMB ST RS → FALSE	Selection _____	Stage controller: FsC reset total start count
SC STAGE NMB MAX → 1	Setting _	Stage controller: FsC maximum number of stages
SC LOGIC TYPE	Setting _	Stage controller, FsC type of logic: 0: Normal; 1: Swop 1 (FsC); 2: Swop 2
SC CODE TYPE → 0	Setting _	Stage controller, FsC type of code: 0: MBC; 1: GBC; 2: MGBC
SC CODE OFFSET → 0	Setting _	Stage controller: FsC code offset:
SC CC OUT → 0	Setting _	Stage controller: Internal Capacity Control output activated
SC VsD CAPACITY → 100.00	**Setting ___.__**	**Stage controller: Set VsD capacity**
SC VsD CC CPCTY → 100.00 %	**Setting ___.__ %**	**Stage controller: Set VsD capacity when capacity controlled**
SC FsD FREQ → 50.00 Hz	Setting __.__ Hz	Stage controller: Set FsD frequency
SC FsDO CAPACITY → 100.00	Setting	Not used
SC FsDO CC CPCTY → 0.00 %	Setting	Not used
SC FsD1 CAPACITY → 100.00	**Setting ___.__**	**Stage controller: Set FsD1 capacity**
SC FsD1 CC CPCTY → 100.00 %	**Setting ___.__ %**	**Stage controller: Set FsD1 capacity when capacity controlled**
SC FsD2 CAPACITY → 100.00	**Setting ___.__**	**Stage controller: Set FsD2 capacity**
SC FsD2 CC CPCTY → 100.00 %	**Setting ___.__ %**	**Stage controller: Set FsD2 capacity when capacity controlled**
SC FsD3 CAPACITY → 100.00	**Setting ___.__**	**Stage controller: Set FsD3 capacity**
SC FsD3 CC CPCTY → 100.00 %	**Setting ___.__ %**	**Stage controller: Set FsD3 capacity when capacity controlled**
SC FsD4 CAPACITY → 100.00	**Setting ___.__**	**Stage controller: Set FsD4 capacity**
SC FsD4 CC CPCTY → 100.00 %	**Setting ___.__ %**	**Stage controller: Set FsD4 capacity when capacity controlled**
SC CAPACITY TYPE → 1	Selection	Stage controller: Set capacity calculation type
SC DIAGNOST SEL → 1	**Selection _**	**Stage controller: Diagnostic select**

AVAILABLE SOON

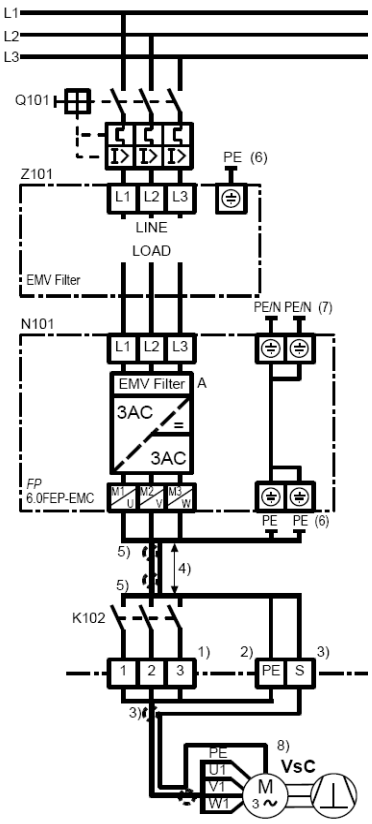
0: FsD with longest run time		**1: Longest run time**		Output value:
2: FsD with longest stop time		**3: Longest stop time**		
4: Run/Stop times	**11: Total running times**	**18: Total number of starts**	**FsD1:**	**DIAGNOSTICS**
10:	**17:**	**24:**	**FsD7:**	**SC DIAGNOSTIC**

POWER SECTION

Power connections



FP 4.0FEP / iS RCF9.5:
Power wiring



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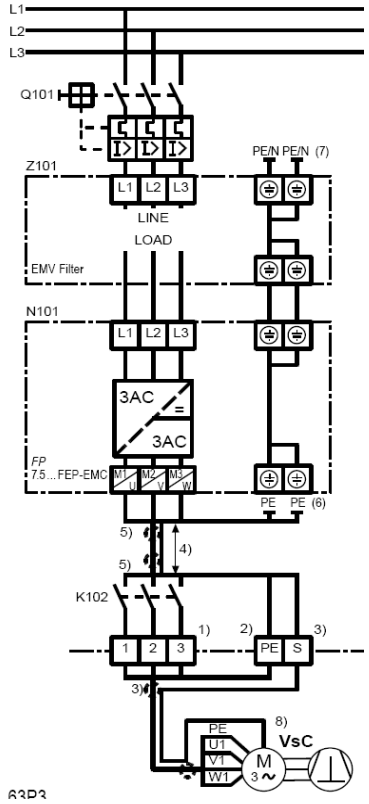
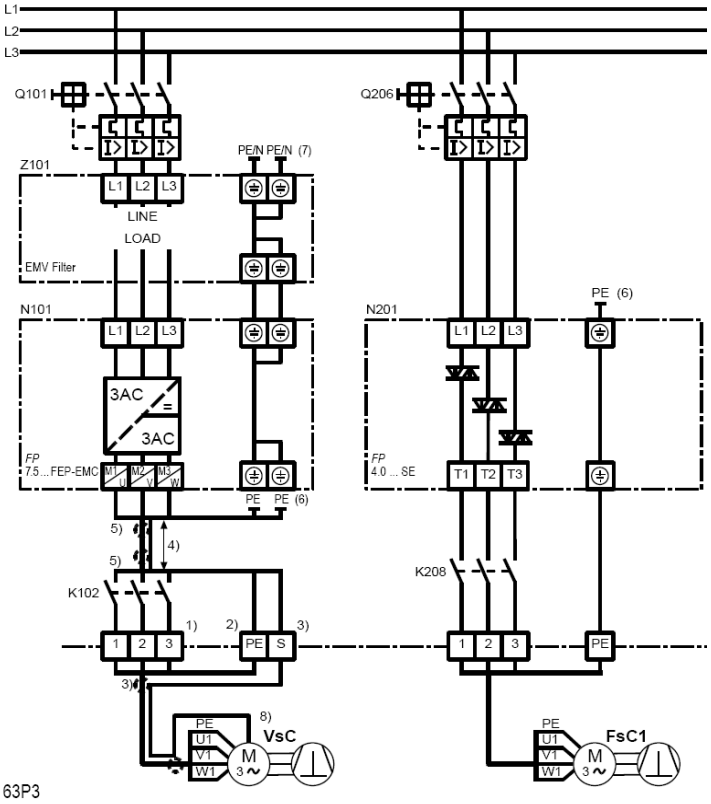
Power wiring



FP 7.5 ... 90FEP / iS RCF23 ... 205:
Power wiring



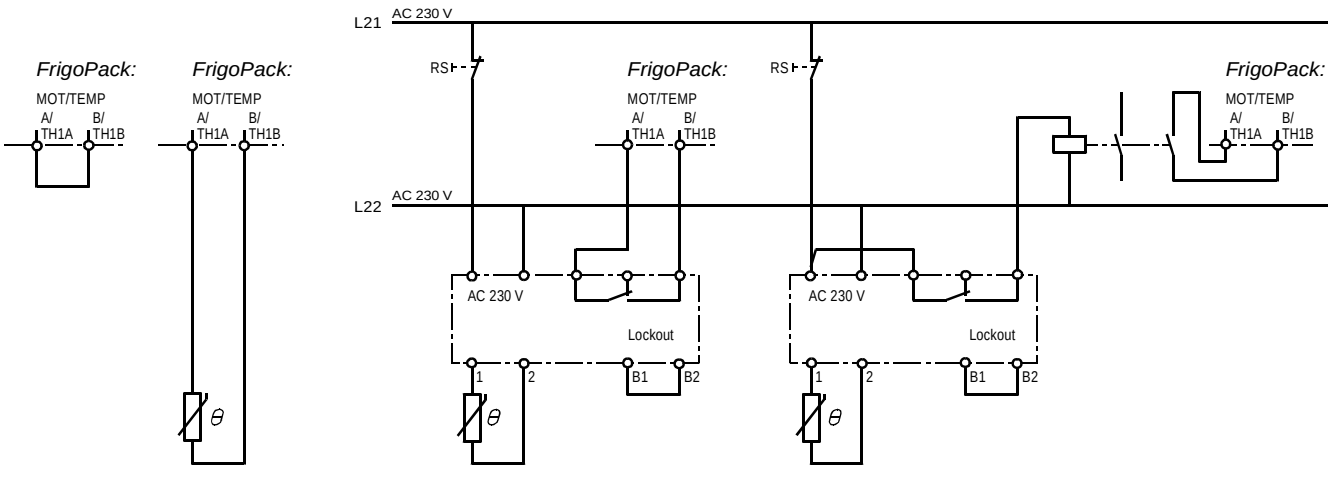
FP 7.5 ... 90FEP / iS RCF23 ... 205:
Power wiring with two compressors

Power terminals

Terminal / Designation	Signal / Function		Explanation	Further information
PE, PE	**FP ...30FEP-EMC / iS RCF23 ... 73: Protective earth connections (both to be earthed)**		- Observe all safety and EMC requirements	**7.7.1**
PE	**FP 37... FEP-EMC / iS RCF87...: Protective earth connection**			
L1	**Three phases of voltage supply**		- Ensure that supply voltage agrees with data on FrigoPack / iSpeed name plate	**7.7.1**
L2/N				
L3				
DC+			- Do not use otherwise risk of damage to FrigoPack / iSpeed	
(DBR)				
DC-				
M1/U	**Compressor motor**		- Variable-speed Compressor via safety contactor	**7.7.1/ 7.7.2**
M2/V				
M3/W				
PE	**Protective earth connection to compressor motor**			**7.7.2**
(DBR+)			- Do not use otherwise risk of damage to FrigoPack / iSpeed	
(DBR-)				
AUX1	**Only with: FP 55...FEP-EMC / iS**		- Supply externally	**6.7**
AUX2	**2AC 230 supply for equipment fan**			**6.8.4**

Terminals for motor protection

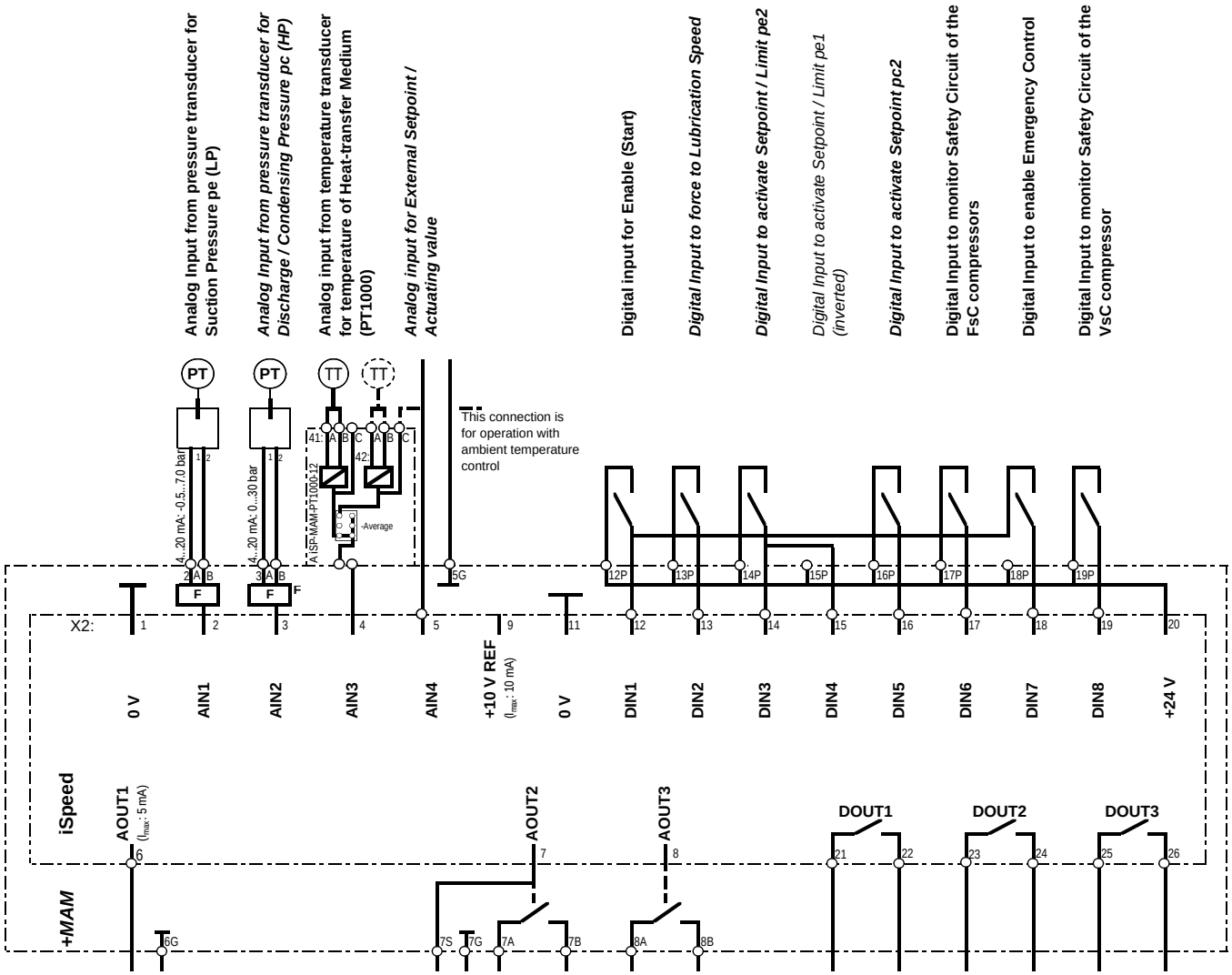
Terminal / Designation	Signal / Function		Explanation	Further information
X2:				
MOT/ TEMP	**Alternative a), Without processing:**		- Thermistor protection is processed in safety circuit, these two terminals must be linked	**6.2**
	Alternative b), Direct processing of motor thermistors:		- Connect motor thermistors between these two terminals	
	Alternative c), Processing an external thermistor relay:		- Connect the "normally open" contacts of external thermistor relay (e.g. KRIWAN) between these two terminals	
	Alternative d), Processing an external thermistor relay:		- Connect the "Normally open" contacts of an auxiliary relay wired to an external thermistor relay (e.g. KRIWAN) between these two terminals.	



a) b) c) d)

CONTROL SECTION

Control connections



- **VsF Condenser fan: Actuating Value /**
  - VsC: Measured speed /
  - VsC: Control of hot gas bypass valve /
  - pc limiting

Analog Output depending on setting:

A1:AOUT1 FUNCTN

- **FsC2: Activate /**
  - VsC: Measured speed /
  - Not used
  - pc limiting

Analog Output / Relay depending on setting:

A2:AOUT2 FUNCTN

- FsC2: Activate /
- FsC3: Activate /
- Capacity Control /
- No high-pressure limiting/
- Minimum capacity /
- **Enable expansion valve/**
- Compressor swop

Relay depending on setting:

A3:AOUT3 FUNCTN

- **"VsC Ready for operation" /**
  - Multiplexed signal

Relay depending on setting:

A4:DOUT1 FUNCTN

- **"VsC Operating" to control auxiliaries such as:**
  - **Crankcase heater, Condenser fan, Start unloader**
  -

Relay:

- **FsC1: Activate**

Relay:

VsC: Variable-speed Compressor **FsC: Fixed-speed Compressor**

FP FEP-14 / iSP RCF
FrigoSoft 3.6

Special settings

A1:AOUT1 FUNCTN

Setting		Function
-	**INPUT 0**	**VsF: Actuating Value**
-	INPUT 1	VsC: Measured speed (Frequency)
-	INPUT 2	Not used
-	INPUT 3	No high-pressure limiting

A2:AOUT2 FUNCTN

Setting		Function
-	**INPUT 0**	**FsC2: Activate**
-	INPUT 1	VsC: Measured speed (Frequency)
-	INPUT 2	Not used
-	INPUT 3	No high-pressure limiting

A3:AOUT3 FUNCTN

Setting		Function
-	INPUT 0	FsC2: Activate
-	INPUT 1	FsC3: Activate
-	INPUT 2	Activate capacity control
-	INPUT 3	No high-pressure limiting
-	INPUT 4	Minimum capacity
-	**INPUT 5**	**Enable expansion valve**
-	INPUT 6	pe >= pemax
-	INPUT 7	General purpose swop signal

AVAILABLE SOON

A4:DOUT1 FUNCTN

Refer to Page 10

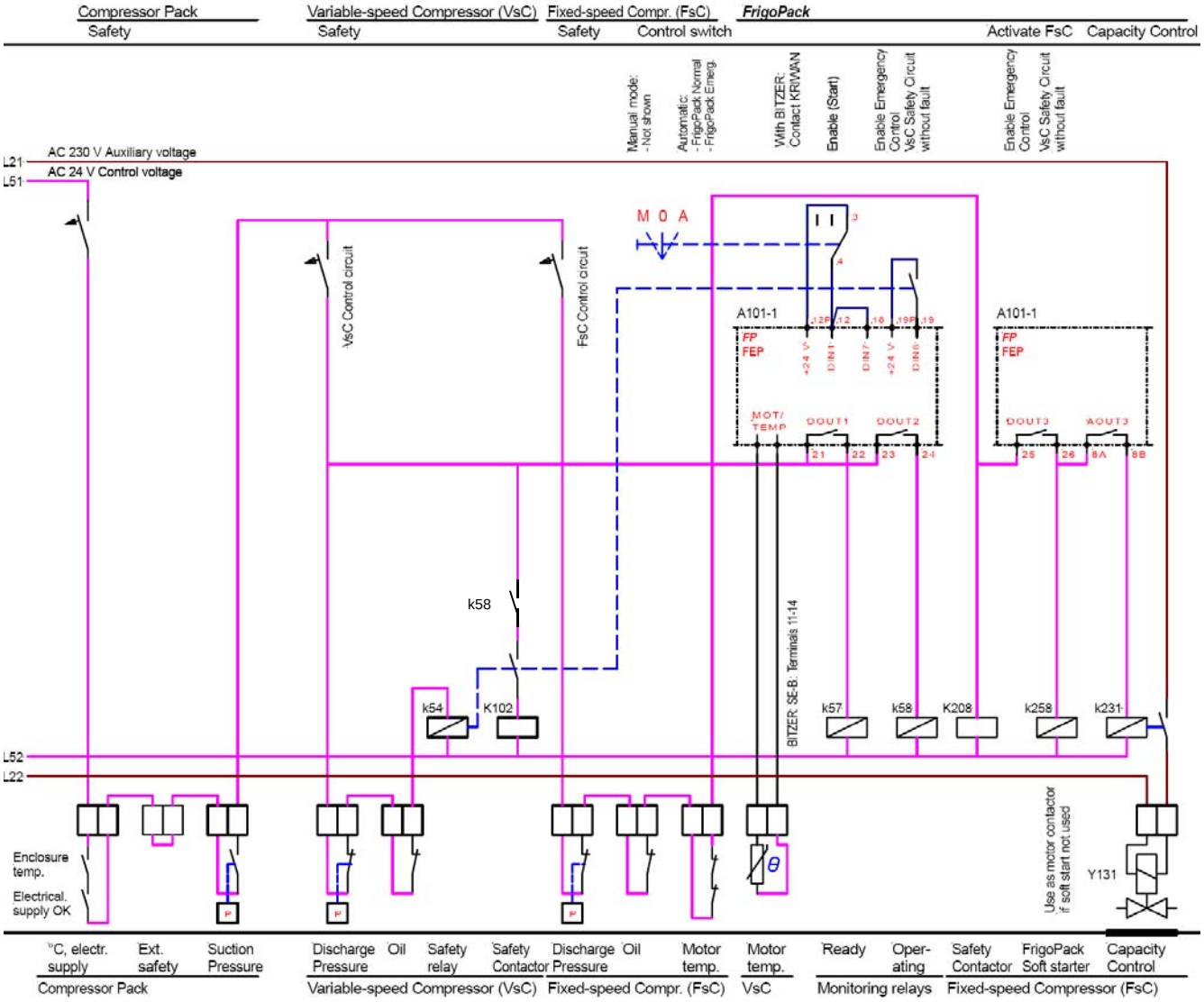
Terminals for control functions

Terminal / Designation		Signal / Function	Explanation	Further information
2A - 2B	AIN1	**Analog Input from pressure transducer for Suction Pressure pe (LP):** **0 mA: Fault** **4 mA: -0.5 bar** **20 mA: +7.0 bar**	- Suction pressure pe (LP), must be used - Suitable pressure transducer: - A REF-P-TRANSD-LP7+PL - Connections: - 1 --> 2A; 2 --> 2B	**7.7.4**
3A - 3B	*AIN2*	***Analog Input from pressure transducer for Discharge / Condensing Pressure pc (HP):*** ***0 mA: Not used*** ***4 mA: 0.0 bar*** ***20 mA: +30.0 bar***	- *Discharge / condens. pressure Pc (HP), optional use* - *Suitable pressure transducer:* *- A REF-P-TRANSD-HP30+PL* - *Connections:* *- 1 --> 3A; 2 --> 3B*	***7.7.4***
4A - 4B	AIN3	**Analog input from temperature transducer for temperature of Heat-transfer Medium (PT1000)**	- Temperature of Heat-transfer Medium - For use with option O FEP-MAM-PT1000-11	**5.3, 7.7.5**
5 - 5G	AIN4	**Analog input for External Setpoint / Actuating value:** **0 V: 21:HtM TMP LSETP** **+ 2 V: +20.0 °C** **+10 V: - 20.0 °C**	- External setpoint / actuating value required for operation with external controller - Use screened cable	**5.2.3/4**
		Analog input from temperature transducer for the ambient temperature (PT1000):	- Ambient temperature - For use with option O FEP-MAM-PT1000-12	**5.2.3/4**
6 - 6G	AOUT1	**Analog Output (5 mA max. load) normally used with internal relay:** 0 V: 0.00 % Actuating value +10 V: 100.00 % Actuating value	- Depending on setting: **A1:AOUT1 FUNCTN** - 0: VsF Condenser fan: Actuating Value / - 1: VsC: Measured speed / - 2: Not used	**7.7.3**
		Digital Output with integrated relay: Open: **Not activated** Closed: **Activated**	- 3: pc limiting - Only use special relay A RELAY-DC12V (available as accessory)	
7A - 7B	AOUT2	**Analog Output (5 mA max. load) normally used with ir** 0 V: **0.00 % Actuating value** +10 V: **100.00 % Actuating value**	- Depending on setting: **A2:AOUT2 FUNCTN** - 0: FsC2: Activate / - 1: VsC: Measured speed / - 2: Not used	**7.7.3**
		Digital Output with integrated relay: Open: Not activated Closed: Activated	- 3: pc limiting - Max contact load: AC 230 V, 250 VA	
8A - 8B	AOUT3	**Analog Output used with internal relay:** Open: **Not activated** Closed: **Activated** **AVAILABLE SOON**	- Depending on setting: **A3:AOUT3 FUNCTN** - 0: FsC2: Activate / - 1: FsC3: Activate / - 2: Capacity Control / - 3: No high-pressure limiting/ - 4: Minimum capacity / - 5: Enable expansion valve/ - 6: pe>=pemax/ - 7: Compressor swop - Max contact load: AC 230; 250 VA	**7.7.3**
12P - 12	DIN1	**Digital input for Enable (Start):** **0 V: Stop** **+24 V: Enable**	- Enable / Start	**5.2.1-4, 7.7.3**
13P - 13	*DIN2*	***Digital Input to force to Lubrication Speed:*** ***0 V: Normal*** ***+24 V: Lubrication speed***	- *Force Lubrication Speed* - *Optional use* - *Requires external timer*	***5.3, 7.7.3***
14P - 14	*DIN3*	***Digital Input to activate Setpoint / Limit pe2:*** ***0 V: No action*** ***+24 V: Activate Setpoint / Limit Value pe2***	- *Setpeint / Limit selection pe* - *Optional use* - *Connect to DIN4 for normal selection*	***5.2.2/4, 7.7.3***
15P - 15	*DIN4*	***Digital Input to activate Setpoint / Limit pe1 (inverted):*** ***0 V: Activate Setpoint / Limit Value pe1*** ***+24 V: No action***	- *Setpeint / Limit selection (inverted) pe* - *Optional use* - *Connect to DIN3 for normal selection*	***5.2.2/4, 7.7.3***
16P - 16	*DIN5*	***Digital Input to activate Setpoint pc2:*** ***0 V: No action*** ***+24 V: Activate Setpoint / Limit Value pc2***	- *pc Setpoint selection* - *Optional use*	***5.3, 7.7.3***
17P - 17	DIN6	**Digital Input to monitor Safety Circuit of the FsC compressors:** **0 V: >=1 FsCs not available or faulty** **+24 V: All FsCs available and fault free**	- FsC Safety circuits without fault (Enables swop logic if all FsCs are available) - Alternative use: VSC continuous operation	**5.3, 7.7.3**
18P - 18	DIN7	**Digital Input to enable Emergency Control:** **0 V: No Emergency Control** **+24 V: Activate Emergency Control**	- Emergency operation (Operation with a defect inverter or compressor) - Optional use	**5.3, 7.7.3**
19P - 19	DIN8	**Digital Input to monitor Safety Circuit of the VsC compressor:** **0 V: External fault** **+24 V: Normal (no fault)**	- VsC Safety circuit without fault - Must be used - Interrupt if there is a fault (Required to stop inverter operation)	***5.4, 7.7.3***

Terminal / Designation		Signal / Function	Explanation	Further information
21 - 22	DOUT1	**Relay output "VsC Ready":** Open: **No supply, fault or alarm** Closed: **Ready (no fault)** **Optional additional functions with multiplex:** **Relay "Ready+Multiplex":** Open: **No supply, fault or alarm** Closed: **VsC Ready OR (VsC Operating AND Multiplexed Signal)** Enable multiplex: **DATA 1 LOGIC 3: TRUE**	- "VsC Ready for operation" / Depending on setting: **A4:DOUT1 FUNCTN** - 0: FsC3: Activate / - 1: FsC4: Activate / - 2: Capacity Control / - 3: No high-pressure limiting/ - 4: Minimum capacity / - 5: Enable expansion valve/ - 6: pe>=pemax/ - 7: Compressor swop - Max contact load: AC 230 V, 250 VA	**5.4, 7.7.3**
23 - 24	DOUT2	**Relay output "VsC operating":** Open: **VsC: Inhibited / Not operating** Closed: **VsC: Starting / Operating**	- "VsC Operating" to control auxiliaries such as: Crankcase heater, Condenser fan, Start unloader - Max contact load: AC 230 V, 250 VA	**5.4, 7.7.3**
25 - 26	DOUT3	**Relay output to activate FsC1:** Open: **Not activated** Closed: **Activated**	- FsC1: Activate - Max contact load: AC 230 V, 250 VA	**7.7.3**

VsC: **Variable-speed Compressor (Inverter operation)** VsF: **Variable-speed fan (condenser)**
FsC: **Fixed-speed Compressor**

Safety and control circuits



Important note:

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

It is recommended that the following additional functions are included in the control system:
- MANUAL mode of operation using a "Pump Down" circuit
- A security circuit to provide:
  - Automatic selection of MANUAL operation in an emergency
  - Means of stopping the evaporators if compressors are not available.

- Standard suggestions for the safety and control wiring with these features are available on request.
- KIMO RHVAC can assist with the planning of complex systems or systems with special requirements.

FIRST TIME POWER UP

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

Language selection:
- Power up holding key 'PROG' depressed
- Release key 'PROG' and press key 'M'
  - Arrow to left of second line should appear
- Select required language with the arrow keys 'UP' / 'DOWN'

- Press key 'E' 4x followed by key 'M' 2x
  - OPERATOR menu ist selected

Selection of this refrigeration application, Restoring factory settings:
- Power up while holding arrow keys 'UP' and 'DOWN' depressed.

`RESTORE DEFAULTS | UP TO CONFIRM`
should be shown
- Press arrow key 'UP'
  - A short moment later
    `APPLICATION | NONE`
    will be shown
- Press key 'M'
  - Arrow to left of second line should appear
- Select configuration: `FrigoSoft36.2_2x`
  with arrow keys 'UP'/'DOWN'
- Press key 'E', wait a short moment, press key 'E' 2x and verify if correct configuration has been
- Store loaded configuration as follows

Storing configurations and parameter changes:
- Press key 'PROG' 3s long
  `SAVE CONFIG | UP TO CONFIRM`
  should be shown
- Press arrow key 'UP' and wait until following message is shown in the second line:
  `SAVING -> COMPLETE`
- Press key 'E' 2x followed by key 'M' 2x
  - OPERATOR menu ist selected

Pressure transducers:
This refrigeration application is designed for use with the following pressure transducers:

- pe: -0.5 ... 7.0 bar	-7.25 ... 101.53 psi	Relative (gauge) pressure
- pc: 0 ... 30 bar	0.00 ... 435.11 psi	"

WARNING: Only use approved pressure transducers

OPERATING MODE

`A6:CONTRL FUNCTN`

Setting	Function	Explanation	
- ...X	**Basic control method**		
- ...0	Suction pressure control to calculated setpoints pe1 / pe2 as selected by DIN3/DIN4 at terminals 14/15:	- pe2 corresponding to - pe1 corresponding to	t_{htm} - 23:HtM Dtsup max t_{htm} - 24:HtM Dtsup min
- ...1	HtM temperature control between the calculated internal setpoint of suction pressure pe max and pe1:	- pe max corresponding to - pe1 corresponding to	t_{htm} - 23:HtM Dtsup max 39:pe MAXIMUM
- ...2	**HtM temperature control between the calculated internal setpoints of suction pressure pe2 and pe1:**	**- pe2 corresponding to** **- pe1 corresponding to** **- Factory setting**	**t_{htm} - 23:HtM Dtsup max** **t_{htm} - 24:HtM Dtsup min**
- ...3	Suction pressure control to a fixed test setpoint:	- For test purposes	0.0 bar / 0.0 psig
- ..X.	**Control of condenser**		
- ..0.	**Condensing pressure control to setpoints pc1/pc2:**	**- pc1 as set by** **- pc2 as set by** **- Factory setting**	**41:pc SETPOINT 1** **42:pc SETPOINT 2**
- ..1.	Condensing pressure control between setpoints pc1 and pc2:	- Values as above	
- ..2.	Floating condensing pressure control	- Depending on ambient temperature	
- ..3.	Condensing pressure control to a fixed test setpoint	- For test purposes corresponding to	55 °C / 131 °F
- .X..	**HtM temperature control**		
- .0..	**HtM temperature control in accordance with an internal local setpoint or an external Activating Value**	**Normal operation as temperature controlled chiller or glycol cooler**	
- .1..	HtM temperature control in accordance with the ambient temperature	For energy-saving ambient-controlled HtM temperature control	

TROUBLE SHOOTING LIST

PROBLEM	POSSIBLE CAUSE	Hints for fault finding	REMEDIES
*** TRIPPED *** T01:OVERVOLTAGE	* Voltage of supply too high	- Measure and document the voltage in all three input phases	- Rectify cause of any high voltage
	* Safety contactor not controlled correctly	- Check wiring of control circuit and compare function with KIMO RHVAC recommendations	- Modify wiring
	* Compressor motor defect	- Test if compressor motor will run with DOL supply	- Replace compressor motor
		- Measure resistance of motor winding and compare with manufacturer's data - Check insulation beween phases and to earth	
*** TRIPPED *** T02:UNDERVOLTAGE	* Voltage of supply too low	- Measure and document the voltage in all three input phases	- Rectify cause of any low voltage
*** TRIPPED *** T03:OVERCURRENT	* Phase of supply voltage missing		
*** TRIPPED *** T24:IGBT DESAT	* Safety contactor not controlled correctly	- Check wiring of control circuit and compare function with KIMO RHVAC recommendations	- Modify wiring
*** TRIPPED *** T25:DC LK RIPPLE	* Compressor motor defect	- Test if compressor motor will run with DOL supply	- Replace compressor motor
		- Measure resistance of motor winding and compare with manufacturer's data - Check insulation beween phases and to earth	
	* Power section of FrigoPack / iSpeed faulty	- Remove motor cable connections to FrigoPack / iSpeed	- Replace FrigoPack / iSpeed
		- Check if operation of FrigoPack / iSpeed without a motor connected is possible (No trip message: Probably OK; Trip message: Probably defect) - Test for operation with a small test motor	
	* Incorrect motor connection	- Check wiring to motor terminals (choice of star/delta, part winding etc.)	- Modify wiring
*** TRIPPED *** T05:SAFETY CIRCT	* Safety contactor not controlled correctly	- Check wiring of control circuit and compare function with KIMO RHVAC recommendations	- Modify wiring
	* Safety device in safety circuit tripped	- Check safety circuits	- Reset if necessary
	* DC 24 V control voltage missing	- Check DC 24 V control voltage at FrigoPack / iSpeed	- Modify wiring
		- Short circuit with DC 24 V control voltage	
*** TRIPPED *** T06:AIN1 BREAK	* Suction-pressure transducer not connected or connections swapped	- Check if blue LED at the input of FrigoPack / iSpeed lights	- Verify correct connection to transducer for suction pressure. Exchange leads if necessary
	* Transducer for suction pressure faulty	- Measure current from transducer for suction pressure at input to FrigoPack / iSpeed (must be at least +4 mA)	- Replace transducer for suction pressure
*** TRIPPED *** T09:I*T LIMIT	* Compressor start aborted	- Liquid refrigerant in compressor?	- Contact KIMO RHVAC for advice
		- Defect compressor - Unsuitable FrigoPack / iSpeed settings	
*** TRIPPED *** T17:MOT OVERTEMP	* Link TH1A-TH1B or MOT/TEMP missing	- Check wiring of control circuit and compare function recommendations	- Modify wiring
	* No connection to motor protection PTC		
	* Faulty connection to external PTC relay		
	* Motor winding too hot	- Compressor overloaded	- Contact KIMO RHVAC for advice
*** TRIPPED *** T28:AIN1/2 ERROR	* Transducer for pressure faulty	- Measure current from transducer at input to FrigoPack / iSpeed (must be between 4 .. 20 mA)	- Replace pressure transducer
	* Non compatible type of pressure transducer	- Check if type of pressure transducer is compatible by referring to Section 3.3 or 7.7.4 of the Product Manual	- Replace pressure transducer by compatible type
*** TRIPPED *** ?ANYTHING ELSE?	* Anything else		- Contact KIMO RHVAC for advice

Important note: These messages are of common trips likely to occur during commissioning.
Other trip messages can occur in fault conditions.

When requesting advice from your supplier, always make an exact note of the following:
- Exact trip message in both lines of display
- Message displayed when key 'E' is pressed for at least 10 s.

CHECKLIST AND ADDITIONAL DATA FOR PROBLEM REPORT

KIMO Problem Code		Part of installation	Checklist of questions for PROBLEM REPORT	Explanation	Terminals	Answer/ Confirmation
ES		Electrical: - Supply	• Are there any known power supply interruptions ? • Do these power supply interruptions occur at the same time each day ? • By what amount does the supply voltage vary ?	- Indicate approx. times - Indicate min. and max. voltages		Yes ☐ No ☐ Yes ☐ No ☐ When: _____ Min.: _____ [V] Max.: _____ [V]
EI		- Installation	• Motor cable: Approx. Length ? • Motor cable: Type of screen ? • Motor cable: Screen connected to mounting plate? • Motor cable: Screen connected to metal motor housing ? • Is a galvanised mounting plate used in the electrical enclosure ? • Is a motor filter used between the FrigoPack / iSpeed and the compressor motor ?	- Copper braid ?, Steel braid ?, - Steel conduit ?, none ? - Recommendations: - Contact with large surface area - Make sure no "pig tails" - If yes, indicate KIMO product code		_____ Cu brd. ☐ Fe brd. ☐ Fe cond. ☐ None ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Pr. Cde: _____
MT		Compressor motor	• Have motor currents been entered into the PROBLEM REPORT ?	- Operating point - Start up		Yes ☐ No ☐ Yes ☐ No ☐
MM MM	CI	*FrigoPack* / iSpeed: - Control and sensor inputs	• Protective Earth of FrigoPack / iSpeed connected to mounting plate (two separate short connections) ?	- Terminal:	2x PE	Yes ☐ No ☐
			• Is the DC P24 control voltage present ?	- Terminal:	15P - GN	Yes ☐ No ☐
			• Connection of PTC motor protection ?	- Without processing - Direct processing of motor thermistors - Processing an external thermistor relay - Terminal: -	MOT/TEMP	Linked ☐ Direkt ☐ Relay ☐
			• Safety circuit OK ?	- Terminals for measuring:	19 - GN	Yes ☐ No ☐
			• Enable signal present ?	- Terminals for measuring:	12 - GN	Yes ☐ No ☐
			• *External setpoint or actuating signal present ?* *	- *Terminals for measuring:*	*5 - GN*	_____ *[V]*
			• Signal from suction-pressure transducer present ?	- Terminals for measuring:	2B - GN	_____ [V]
			• *Signal from high-pressure transducer present ?* *	- *Terminals for measuring:*	*3B - GN*	_____ *[V]*
			• *Signal from exhaust temperature transducer present (link if not used) ?* *	- *Terminals for measuring:* - *Terminals for measuring:*	*4B - GN* *4A - 4B*	_____ *[V]* Yes ☐ No ☐
			• * If used	- Terminal for measuring: - Measured against green terminal:	.. ..	
MM	PS	- Power section	• Reserved for future use			
MM	CA	- Control assembly	• Reserved for future use			
MM	CS	- Control settings, parameter	• Operating Mode LOCAL (Programming Pad: LEDs SEQ + REF light) ? • Refrigeration / cooling parameters set ?	- Not suitable for normal operation, only use for commissioning: - The following parameters must be set: **21: … 50:**		Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐
RI	AP	Refrigeration: - Application	• Required Refrigeration Power entered into PROBLEM REPORT ? • Number of cooling outputs entered into the PROBLEM REPORT ? • Operating pressure and temperatures entered into PROBLEM REPORT ? • On/Off times of compressor pack entered into PROBLEM REPORT ?	- Operating point - At start up - Enter variable and fixed speed compressor times separately		Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐
RI	IN	- Installation	• Reserved for future use	- tbd		
RI	PS	- Pressure transducers	• Approx. cable length • Type of screen • Screen NOT connected at sensor end ? • Screen connected to mounting plate of electricial enclosure ? • Are measured pressures stable ?	- Copper braid ?, Steel braid ?, - Steel conduit ?, none ? - Large area contact, no pig tails - Indicate range of variation within 30 s		_____ [m] Cu brd. ☐ Fe brd. ☐ Fe cond. ☐ None ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ pe/LP ____ pc/HP ____ [bar]
RI	RC	- Refrigeration compressor	• Oil present ? • Basic data entered into PROBLEM REPORT ?			Yes ☐ No ☐ Yes ☐ No ☐

FP FEP-14 / iSP RCF
FrigoSoft 3.6

CHILLER
FS 3.6.2-2x

SPORLAN

KIMO
Refrigeration HVAC

CONFIGURATION OVERVIEW / PROBLEM REPORT
(Put cross in box where appropriate)

Application	Refrigeration ☐	No. of cooling outlets ____	Air Conditioning ☐	Condenser ☐	Other ____				
Refrigerant	R404A..... XXXT4-6 1.3x			Total refrig. Power	Other ____				
	R507A..... ☐	R22..... ☐	R.....	____ [kW]	____				
Compressor 1	Piston ☐	No. of cylinders ____	Scroll ☐	Screw ☐	Other ____				
	Start unloader ☐	Part Winding ☐	Variable speed ☐	OR Fixed speed ☐	No. of compressors ____				
	Capacity control ____ [%]	____ [%]	____ [%]	____ [%]					
	Manufacturer ____		Model ____		Anything special ____				
Compressor 2	Piston ☐	No. of cylinders ____	Scroll ☐	Screw ☐	Other ____				
	Start unloader ☐	Part Winding ☐	Variable speed ☐	OR Fixed speed ☐	No. of compressors ____				
	Capacity control ____ [%]	____ [%]	____ [%]	____ [%]					
	Manufacturer ____		Model ____		Anything special ____				
Operating point	Suction pressure ____	High (discharge) pressure ____	Pascal/ ☐	Suction gas temperature ____ [°C]	Discharge gas temperature ____ [°C]	Motor current ____ [A]			
			bar/ ☐						
			lb/in² ☐						
Start up	Suction pressure ____	High (discharge) pressure ____	gauge/ ☐	Anything special ____	Motor current ____ [A]				
			absolute ☐						

Speed variator	**FrigoPack/iSpeed/**MotorMaster Type FP/MM Serial number ____	**Pressure sensors** Suction pressure ____ Discharge pressure ____	**FrigoSoft refrigeration/ A/C software** FS 3.6.2-2x Version ____ Mode ____
Soft Starter	**FrigoPack/iSpeed/**SoftCompact, LEKTROMIK Type FP/SC/LEK Serial number ____	**Switching times of compressor pack** Variable-speed compressor (VsC) t_{ON} ____ [s] t_{PERIOD} ____ [s] Fixed speed compressor(s) (FsCs) t_{ON} ____ [s] t_{PERIOD} ____ [s]	

Report

List of adjustable parameters in OPERATOR menu ____

21:HtM TMP LSETP	10.0 °C	[°C]
22:HtM TMP |+_-|	1.0 °C	[°C]
23:HtM Dtsup max	12.0 °C	[°C]
24:HtM Dtsup min	5.0 °C	[°C]
30:pe MINIMUM	2.5 bar	[bar]
39:pe MAXIMUM	5.5 bar	[bar]
41:pc SETPOINT 1	16.5 bar	[bar]
42:pc SETPOINT 2	19.2 bar	[bar]
49:pc MAXIMUM	22.2 bar	[bar]
50:REFRIGERANT	R407C_v	
61:VsC CURR MAX	FFF.FF A	[Hz]
62:VsC FREQ MAX	60.0 Hz	[Hz]
65:VsC FREQ MIN	25.0 Hz	[Hz]
70:VsC tinh TIME	FFF.F s	[s]
71:VsC thld TIME	10.0 s	[s]
76:VsC toil STRT	4.0 s	[s]
77:VsC poil MIN	0.8 bar	[bar]
81:FsC ton DLY	FFF s	[s]
82:FsC toff DLY	FF s	[s]
83:FsC NUMBER	1	
91:pe CNTRL P-GN	F.00	
92:pc CNTRL P-GN	10.00	
93:VsF CD MIN SD	15.00	
94:pc LIMIT P-GN	25.00	
A1:AOUT1 FUNCTN	INPUT 0	
A2:AOUT2 FUNCTN	INPUT 0	
A3:AOUT3 FUNCTN	INPUT 6	
A4:DOUT1 FUNCTN	INPUT 0	
A6:CONTRL FUNCTN	0000	
A9:LANGUAGE	ENGLISH	

TRIP HISTORY

TRIP	1	2	3	4	5				
TRIP TIME	(NEWEST)				(OLDEST)				
TRIP	6	7	8	9	10				
TRIP TIME									

TIME IN SERVICE : ____ [s]

Manufacturer	Agent / Partner	Customer	Installation
KIMO Refrigeration HVAC Ltd EUR: Tel.: +49 911-8018778 Fax: +49 911-9976118 applications@frigokimo.com www.frigokimo.com **Parker Hannifin Corporation** **Parker Hannifin Ltd:** Tel.: +44 1226-273400 Fax: +44 1226-273401 eurocold@parker.com www.sporlan.com Sporlan Division: Tel.: +1 636-239-1111 Fax: +1 636-239-0414 svd_techsupport@parker.com www.sporlan.com			Name: Date: