



POWER ELECTRONICS



Short Form: Refrigeration Software for Compressors and Condensers

Variable Speed Drives
YASKAWA
V7 - Series

PED

Power Electronics Deutschland GmbH

Conradtystr. 41

90441 Nürnberg

Tel.: 0911 99 43 99 - 0

Fax.: 0911 99 43 99 - 8

E-mail: info@ped-deutschland.de

Overview of the most useful parameter

Parameter No.:	Default value:	Change during run: Y/N	Manual page:
n001	02	12 N	S. 43

Data Input Setting

Initialization

n001	0	12 N	S4
------	---	------	----

Setup for default values
Clears fault history

Mode 12 = Initialization
Mode 0 = Parameter lock

START/STOP Command via terminals

n003	0	1 N	S0
------	---	-----	----

Selecting RUN/STOP Command for the inverter.

Mode 0: Digital Operator
Mode 1: Terminal S1

Pressure feedback source

n004	100	1 N	S. 53
------	-----	-----	-------

Defines analogue Input Fr:

Mode 1: Bedienfeld
Mode 2: 0-10V
Mode 3: 4-20mA
Mode 100: Compressor sw

Stop-mode selection

n005	0	1 N	S. 70
------	---	-----	-------

Stopping method

Mode 0: Deceleration to stop
Mode 1: Coast to stop

Max. output frequency

n011	50	60 J	S. 42
------	----	------	-------

Default 60 Hz
System adjustment
Example:

Compressor: 60Hz
Condenser: 50Hz

Motor rated frequency (n13 <= n11)

n013	50	60 N	S. 42
------	----	------	-------

Default 60 Hz
System adjustment
Example:

Compressor: 60Hz
Condenser: 50Hz

Mid output frequency

n014	15	25 N	S. 43
------	----	------	-------

To setup V/f pattern

Example:
Compressor: 60Hz = 1,5Hz
Condenser: 50Hz = 25Hz

Mid output voltage

n015	12	100 N	S. 43
------	----	-------	-------

To setup V/f pattern

Example:
Compressor: 60Hz = 12V
Condenser: 50Hz = 100V

Acceleration ramp rate

n019	1	1 J	S. 56
------	---	-----	-------

Default value 1
Time from 0% - 100%
output frequency

Compressor = 1s
Condenser = 10s

Deceleration ramp rate

n020 1 [Data] 1 J S. 56
ENTER

Default: 1s
Ramp rate from 100.0% - 0.0%
Output frequency
Compressor = 1s
Condenser = 15s

Frequency reference upper limit

n033 100 [Data] 100 N S. 55
ENTER

Default 100%
This is equal to max.
frequency n011
System adjustment.

Frequency reference lower limit

n034 0 [Data] 50 N S. 55
ENTER

Setting depends on max.
frequency at n011
System adjustment
Compressor: 50% = 30Hz
Condenser: 30% = 15Hz

Rated motor current

n036 10 [Data] 10 N S. 87
ENTER

Used for the thermal
protection of the motor
System adjustment.
Is equal to the current
of the motor name plate

Function output relay

n057 0 [Data] 100 N S. 78
ENTER

Could be used as a fault
relay or status relay
Mode 0 = fault
Mode 1 = run
Mode 100=2nd Compressor DOL

Jump frequency 1

n083 00 [Data] 00 N S. 61
ENTER

Excludes critical frequencies
n086 = Determines Band width
Frequency 2 (n084)
Frequency 3 (n085)
System adjustment

Jump frequency width

n086 00 [Data] 00 J S. 61
ENTER

Determines the band
width of the jump frequencies
adjusted in n083, n084
and n086.
System adjustment

PID control selection

n128 0 [Data] 5 N S. 106
ENTER

Determines the function
of the PID controller
Output characteristic:
Revers
Mode 5

Proportional gain

n130 1 [Data] 3 N S. 106
ENTER

Default: 3
Example:
Compressor: 3
Condenser: 8
System adjustment

Integral time

n131 1 [Data] 1 N S. 106
ENTER

Default: 1s
Example:
Compressor: 1s
Condenser: 30s
System adjustment

PID - feedback

n164 0 [Data] 1 N S. 106
ENTER








Default:
0 = 0-10V; 1= 4-20mA
System adjustment

Function of the digital operator

Changes to the different Modes by pressing the "DSPL" - button.

Important advise:

It is not possible to start the inverter once programming or Local/Remote modes are active (Red LED).

Reference-frequency	Output-frequency	Output-current	Status-Monitor
			
FREF	FOUT	IOUT	MNTR
			
F / R		LO/RE	PRGM
Forward Revers		Local Remote	Programming- Mode

Action:

POWER ON:  FREF  Reference frequency (read only)

   FOUT  Output frequency in Hz (Read only)

   IOUT  Output current (Read only)

   MNTR  Monitor mode (Read only)

    Select function by pressing "UP/DOWN" buttons.

  Confirm with DATA/ENTER

     Reference frequency in Hz

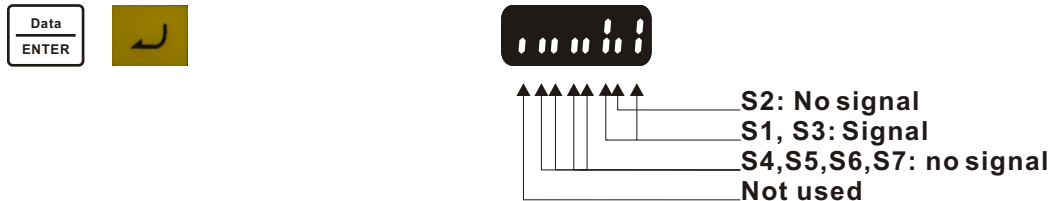
     Output frequency in Hz

     Output current in amps

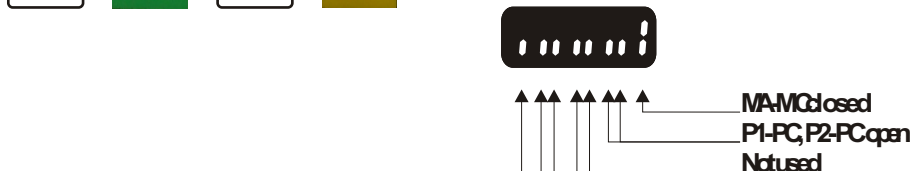
     Output voltage in Volts

     DC-Bus voltage in V

     Status input terminals



     Status of the output terminals





Torque monitor in % rated Torque (n. V/f)



Fault history (4) select with "UP/DOWN"



Software-Version



Anzeige der Ausgangsleistung in kW



PID feedback



PID Input



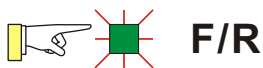
PID Output



Pressure reference in Bar



Pressure feedback in Bar



F/R



Indication "Forward" direction



Indication "Recers" direction



LO/RE



Operation "Local" via digital operator



Operation "Remote" via terminals



PRGM



Full parameter access = n001 in Mode 4



Select parameter with "UP / DOWN"



DATA/ENTER: Value: N020 tacc=10s



New acc. ramp rate: N020 = 1s (Blinking)



Settings are saved in the internal memory.

Special-Parameter Compressor Software

Min. pressure of the transducer



This parameter sets together with P-02 the range of the pressure transducer and is used for the feedback signal
Range: -1 to 50 Bar

Max. pressure of the transducer



This parameter sets together with P-01 the range of the pressure transducer and is used for the feedback signal
Range: -1 to 50 Bar

Pressure level *



This parameter gives the pressure reference for the inverter. In case the setting is outside the range of P01/02 an error message OPE1 occurs
Range: 0 to 50 Bar

Pressure Auto-OFF



Once the pressure in the system drops underneath the setting in parameter P-04 for the time adjusted in P-05 the inverter switches automatically off. In this case the pressure must be below 2Bar for 10s.

Time Pressure Auto-OFF



Range: P-04: 0-30 Bar
Range: P-05: 0-300s

Pressure Auto-ON



Once the pressure exceeds the adjusted hysteresis in the time adjusted in P-07 the inverter switches ON again automatically
Example:

Time Pressure Auto-ON



P-4= 2.0 Bar; P-06= 0,5 Bar; P-07= 10s
The inverter starts at 2.5 Bar if the pressure is within 10s above this level.
Range P-06: 0 to 10 Bar
Range P-07: 0 to 300s

Time constant 2nd compressor



Once the inverter is running at max. speed for the time adjusted in this parameter the inverter will activate the output relay to switch on a 2nd compressor.
Range: 0-300s

Auto-OFF 2nd compressor



Once the pressure in the system drops underneath the setting in parameter P-09 for the time adjusted in P-10 the inverter switches the output relay for the 2nd compressor automatically off. In this case the pressure must be below 3Bar for 10s.

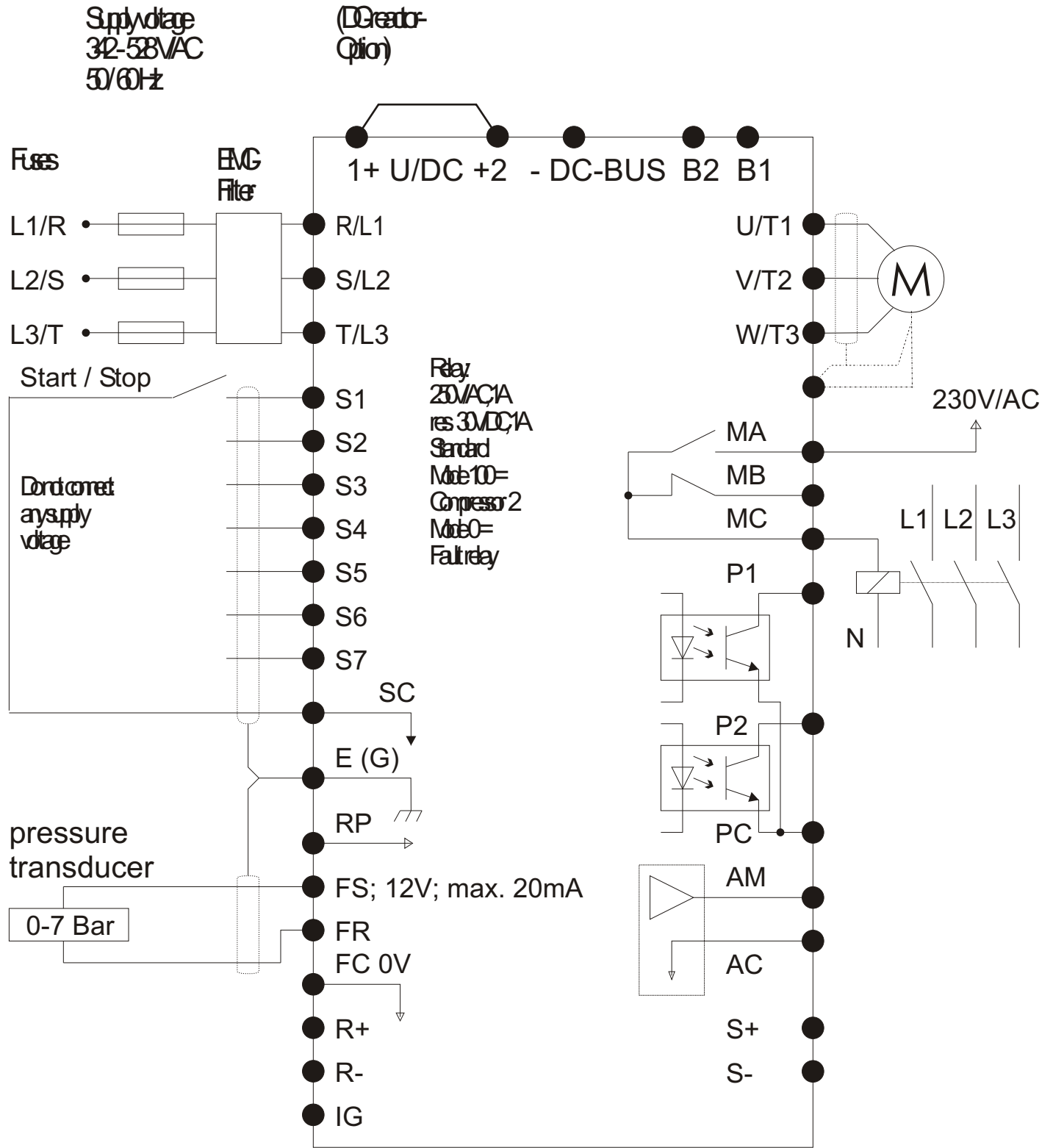
Time Auto-OFF 2nd compressor



Range: P-09: 0-30 Bar
Range: P-10: 0-300s

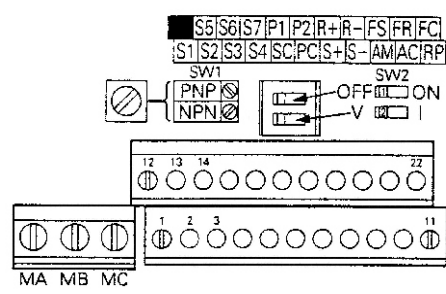
* The low pressure Auto-OFF function is not active in case the setting is "0".

Sandac Wiring



FR: Analogue Input 1
4-20mA, (250 Ohm)

FS: Supply
Analogue Input;
+12V, 20mA



In case of a 4/0-20mA-Signal as a reference put DIP switch 2 in mode "I"

In case of a 0-10V -Signal as a reference put DIP switch 2 in mode "V"

Technical data

	Input			Output			Losses
	Power	Fuse	Voltage	Current	I max for 60s	Power	
Type No. :	in kVA	in A	in V	in A	in A	in kW	in W
V7CC B0B1	0,3	16	230	0,8	1,2	0,10	14,1
V7CC B0P2	0,6	16	230	1,6	2,4	0,25	20,0
V7CC B0P4	1,1	16	230	3,0	4,5	0,55	31,9
V7CC B0P7	1,9	20	230	5,0	7,5	1,10	51,4
V7CC B1P5	3,0	25	230	8,0	12,0	1,50	82,2
V7CC B2P2	4,2	35	230	11,0	16,5	2,20	113,6
V7CC B4P0	6,7	50	230	17,5	26,0	4,00	176,4
V7CC 40P2	0,9	6	400	1,2	1,8	0,37	23,1
V7CC 40P4	1,4	6	400	1,8	2,7	0,55	30,1
V7CC 41P5	2,6	6	400	3,4	5,1	1,10	54,9
V7CC 42P2	3,7	10	400	4,8	7,2	1,50	75,7
V7CC 43P0	4,2	16	400	5,5	8,5	2,20	83,0
V7CC 44P0	5,5	16	400	7,2	10,8	3,00	95,8
V7CC 45P5	7,0	25	400	9,2	13,8	4,00	129,1
V7CC 47P5	11,0	25	400	14,8	22,2	5,50	256,5
	14,0	36	400	18,0	27,0	7,50	308,9

Dimensions inverter and foot print filter

Type No. :	Filter Typ:	In V	Width	Height	Depth	Weight
			in mm	in mm	in mm	in kg
V7CC B0B1	FS-5855-10-07	230	71	169	121	0,6
V7CC B0P2	5855-10-07	230	71	169	121	0,7
V7CC B0P4	5855-10-07	230	71	169	176	1,0
V7CC B0P7	5855-20-07	230	111	169	190	1,5
V7CC B1P5	5855-20-07	230	111	169	190	1,5
V7CC B2P2	5855-30-07	230	144	174	213	2,2
V7CC B4P0	5855-40-07	230	174	174	230	2,9
V7CC 40P2	5857-05-07	400	111	169	137	1,0
V7CC 40P4	5857-05-07	400	111	169	155	1,1
V7CC 41P5	5857-10-07	400	111	169	185	1,5
V7CC 42P2	5857-10-07	400	111	169	201	1,5
V7CC 43P0	5857-10-07	400	111	169	201	1,5
V7CC 44P0	5857-20-07	400	144	174	193	2,1
V7CC 45P5	5857-20-07	400	144	174	193	2,1
V7CC 47P5	5857-30-07	400	184	304	226	4,6
	5857-30-07	400	184	304	226	4,8

Attention!

This short manual does not replace the original manual No.: TOE-S606-11C. All settings are recommendations based on the experience of many field applications. Although it may happen that some or other settings will differ to these default values.
Date: 07. October 2005 Rev B1; SF_V7_Comp1_E.CDR



POWER ELECTRONICS