General

The 3G3JV is a miniature high-efficiency frequency inverter with an excellent price- performance relationship.

The generous dimensions of the power section ensure a high starting torque and low susceptibility to overload which increases machine reliability.

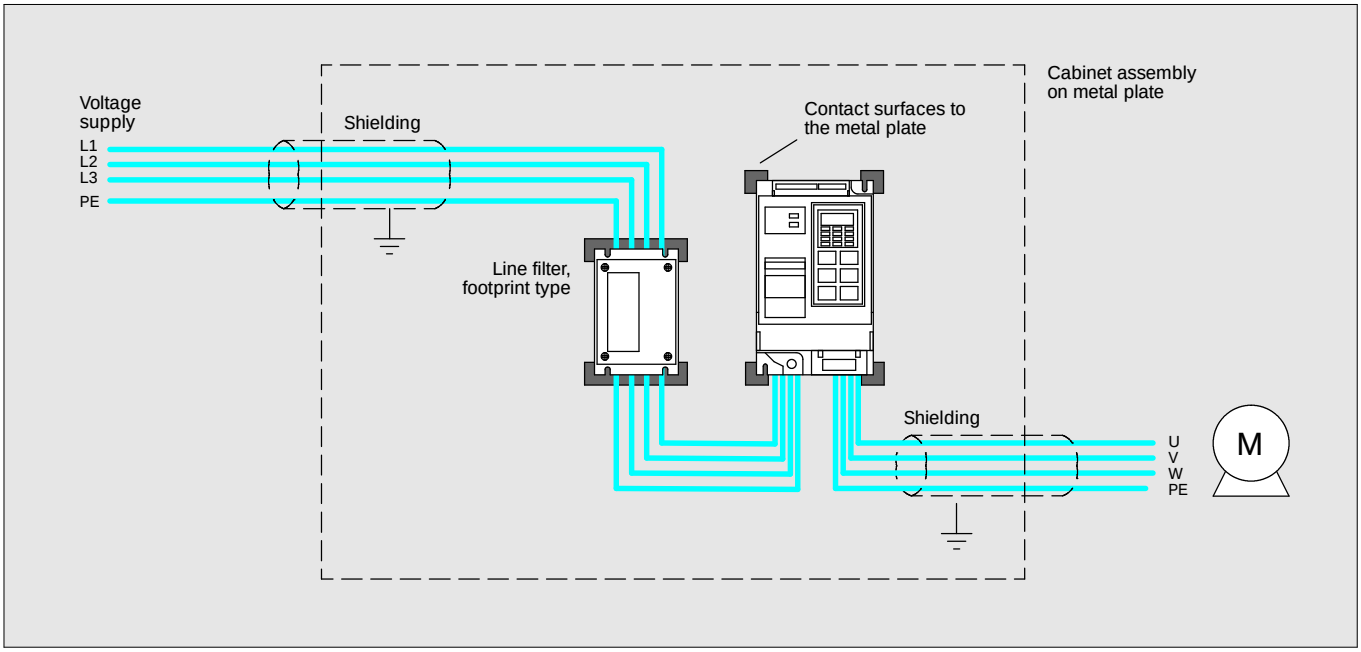
Its many programmable inputs and outputs, an integrated potentiometer for speed control and various monitor functions provide the inverter with high versatility and flexibility. The multifuntion inputs can be set to either PNP or NPN. The analog inputs can be 0..10 V, 4..20 mA or 0..20 mA.

Features

- exceptionally compact design
- integrated reference value potentiometer
- modbus interface, optional
- 8 fixed frequencies
- 4 multifunction digital inputs
- 1 multifunction digital output
- 1 multifunction analog output
- Approval: CE, UL, CSA

System architecture

To comply with relevant EMC guidelines it is imperative for frequency inverters to be operated with line filters.



Product overview

Max. motor output	Output current	Rated voltage	Product number
			Standard type
Single phase 230 V			
0,1 kW	0,8 A	1 x 230 VAC	**3G3JV-AB001**
0,25 kW	1,6 A	1 x 230 VAC	**3G3JV-AB002**
0,55 kW	3,0 A	1 x 230 VAC	**3G3JV-AB004**
1,1 kW	5,0 A	1 x 230 VAC	**3G3JV-AB007**
1,5 kW	8,0 A	1 x 230 VAC	**3G3JV-AB015**
Three phase 230 V			
0,1 kW	0,8 A	3 x 230 VAC	**3G3JV-A2001**
0,25 kW	1,6 A	3 x 230 VAC	**3G3JV-A2002**
0,55 kW	3,0 A	3 x 230 VAC	**3G3JV-A2004**
1,1 kW	5,0 A	3 x 230 VAC	**3G3JV-A2007**
1,5 kW	8,0 A	3 x 230 VAC	**3G3JV-A2015**
2,2 kW	11 A	3 x 230 VAC	**3G3JV-A2022**
4,0 kW	11 A	3 x 230 VAC	**3G3JV-A2040**
Three phase 400 V			
0,37 kW	1,2 A	3 x 400 VAC	**3G3JV-A4002**
0,55 kW	1,8 A	3 x 400 VAC	**3G3JV-A4004**
1,1 kW	3,4 A	3 x 400 VAC	**3G3JV-A4007**
1,5 kW	4,8 A	3 x 400 VAC	**3G3JV-A4015**
2,2 kW	5,5 A	3 x 400 VAC	**3G3JV-A4022**
3,0 kW	7,2 A	3 x 400 VAC	**3G3JV-A4030**
4,0 kW	9,2 A	3 x 400 VAC	**3G3JV-A4040**

Accessories

Line filter, braking resistors, ferrite rings, DIN track mounting bracket

Inverter	Product number		
	Line filter (footprint filter)	Ferrite rings	DIN track mounting bracket
3G3JV-AB001	**3G3JV-PFI1010-E**	**3G3IV-PFO OC/1**	**3G3IV-PZZ08122A**
3G3JV-AB002	**3G3JV-PFI1010-E**	**3G3IV-PFO OC/1**	**3G3IV-PZZ08122A**
3G3JV-AB004	**3G3JV-PFI1010-E**	**3G3IV-PFO OC/1**	**3G3IV-PZZ08122A**
3G3JV-AB007	**3G3JV-PFI1020-E**	**3G3IV-PFO OC/1**	**3G3IV-PZZ08122B**
3G3JV-AB015	**3G3JV-PFI1020-E**	**3G3IV-PFO OC/2**	**3G3IV-PZZ08122B**
3G3JV-A2001	**3G3JV-PFI2010-E**	**3G3IV-PFO OC/1**	**3G3IV-PZZ08122A**
3G3JV-A2002	**3G3JV-PFI2010-E**	**3G3IV-PFO OC/1**	**3G3IV-PZZ08122A**
3G3JV-A2004	**3G3JV-PFI2010-E**	**3G3IV-PFO OC/1**	**3G3IV-PZZ08122A**
3G3JV-A2007	**3G3JV-PFI2010-E**	**3G3IV-PFO OC/1**	**3G3IV-PZZ08122A**
3G3JV-A2015	**3G3JV-PFI2020-E**	**3G3IV-PFO OC/2**	**3G3IV-PZZ08122B**
3G3JV-A2022	**3G3JV-PFI2020-E**	**3G3IV-PFO OC/2**	**3G3IV-PZZ08122B**
3G3JV-A2040	**3G3JV-PFI2030-E**	**3G3IV-PFO OC/2**	**3G3IV-PZZ08122C**
3G3JV-A4002	**3G3JV-PFI3005-E**	**3G3IV-PFO OC/1**	**3G3IV-PZZ08122**B
3G3JV-A4004	**3G3JV-PFI3005-E**	**3G3IV-PFO OC/1**	**3G3IV-PZZ08122B**
3G3JV-A4007	**3G3JV-PFI3010-E**	**3G3IV-PFO OC/1**	**3G3IV-PZZ08122B**
3G3JV-A4015	**3G3JV-PFI3010-E**	**3G3IV-PFO OC/2**	**3G3IV-PZZ08122B**
3G3JV-A4022	**3G3JV-PFI3010-E**	**3G3IV-PFO OC/2**	**3G3IV-PZZ08122B**
3G3JV-A4030	**3G3JV-PFI3020-E**	**3G3IV-PFO OC/2**	**3G3IV-PZZ08122C**
3G3JV-A4040	**3G3JV-PFI3020-E**	**3G3IV-PFO OC/2**	**3G3IV-PZZ08122C**

Technical data

230 V class

Single phase: 3G3JV-AB			AB001	AB002	AB004	AB007	AB015		
Three phase: 3G3JV-A2			A2001	A2002	A2004	A2007	A2015	A2022	A2040
Maximum allowed motor output		kW	0,12	0,25	0,55 (0,4*)	1,1 (0,75*)	1,5 (1,1*)	2,2	4,0
Output data	Inverter output	kVA	0,3	0,6	1,1	1,9	3,0	4,2	6,7
	Output rated current	A	0,8	1,6	3,0	5,0	8,0	11,0	17,5
	Max. output voltage		proportional to the input voltage: 0..240 V						
	Output frequencies		400 Hz						
Supply	Rated input voltage and frequency		200..240 V, 50/60 Hz						
	Max. voltage variation		-15 % to +10 %						
	Max. frequency variation		± 5 %						

* With single phase connection for JV-A2 type s

400 V class

Three phase: 3G3JV-A4			A4002	A4004	A4007	A4015	A4022	A4030	A4040
Maximum allowed motor output		kW	0,37	0,55	1,1	1,5	2,2	3,0	4,0
Output data	Inverter output	kVA	0,9	1,4	2,6	3,7	4,2	5,5	7,0
	Output rated current	A	1,2	1,8	3,4	4,8	5,5	7,2	9,2
	Max. output voltage		proportional to the input voltage: 0..460 V						
	Output frequencies		400 Hz						
Supply	Rated input voltage and frequency		3-phase, 380..460 V, 50/60 Hz						
	Max. voltage variation		-15 % to +10 %						
	Max. frequency variation		+/- 5 %						

* With single phase connection for JV-A2 type s

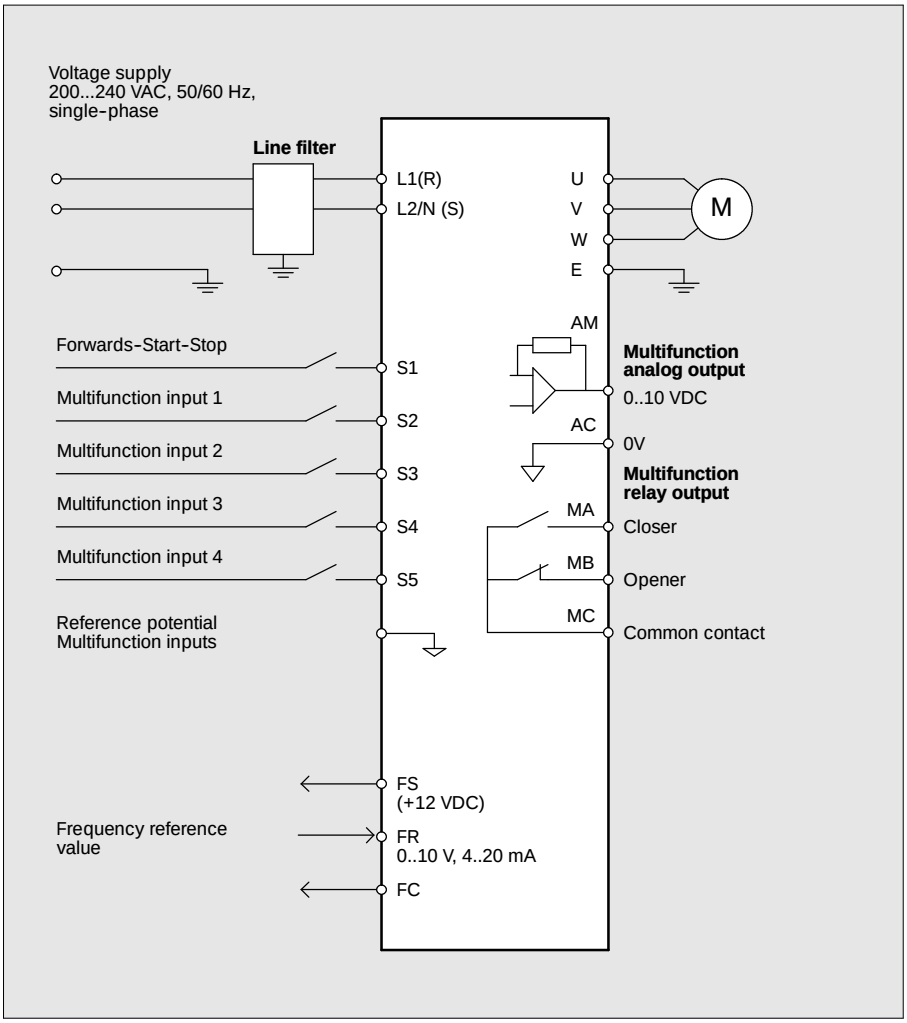
Technical data (continued)

General data

Control functions	Control method	Sinusoidal PWM, terminal Volts/Hertz control
	Output frequency range	0,1..400 Hz
	Frequency precision	digital reference value: ±0,01 % (-10..+50 °C)
		analogue reference value: ±0,5% (25 ±10 °C)
	Resolution of frequency reference value	digital reference value: 0,01 Hz (<100 Hz), 0.1 Hz (>100 Hz)
		analogue reference value 1/1000 of maximum frequency
	Resolution of output frequency	0,01 Hz
	Overload capacity	150%/60 s
	Frequency reference value	0..10 V (20 kW), 4-20 mA (250 W), 0-20 mA (250 W)
	Braking torque (short-time peaks)	up to 200 W 150%
		550W, 1,1 kW 100%
		1,5 kW 50%
		>1,5 kW 20%
		Sustained braking torque approx. 20% without, 150% with external braking resistor
Protective functions	Motor overload protection	electronically adjustable motor protection
	Instantaneous overcurrent protection	stops at approx. 250% of rated output current
	Overload protection	stops at 150% of rated current for 1 min.
	Overvoltage protection	stops when maincircuit DC voltage is approx. 410 V
	Undervoltage protection	stops when maincircuit DC voltage is approx. 160 V
	Momentary power interruption compensation (selection)	stops for 15 ms or more by setting the inverter to momentary power interruption mode, operation can be continued if power is restored within approx. 0,5 sec.
	Cooling fin overheating	detects at 110 °C ± 10 °C
	Ventilator control	electronic protection against blocking
	Grounding protection	protection at rated output current level
Functions	Digital inputs	4 multifunction digital input
	Digital outputs	1 multifunction digital output
	Analog output	1 multifunction analog output (0..10 V)
	Braking and acceleration times	0,0..999 s
	Display	frequency, current or reference value by selection
		error and status LED
Ambient conditions	Type of protection	IP20, wall installation
	Cooling	separate cooler for 0,75 kW (200 V)
	Ambient temperature	open installation: -10 °C to 50 °C
		wall installation: -10 °C to 40 °C
	Air humidity	95% (without condensation)
	Storage temperature	-20 °C to +60 °C
	Assembly	in cabinet, free of dust and corrosive gases
	Position height	max. 1000 m
Ambient conditions	Vibration resistance	1 *g* at <20 Hz, 0,2 *g* at <50 Hz

Connections diagram

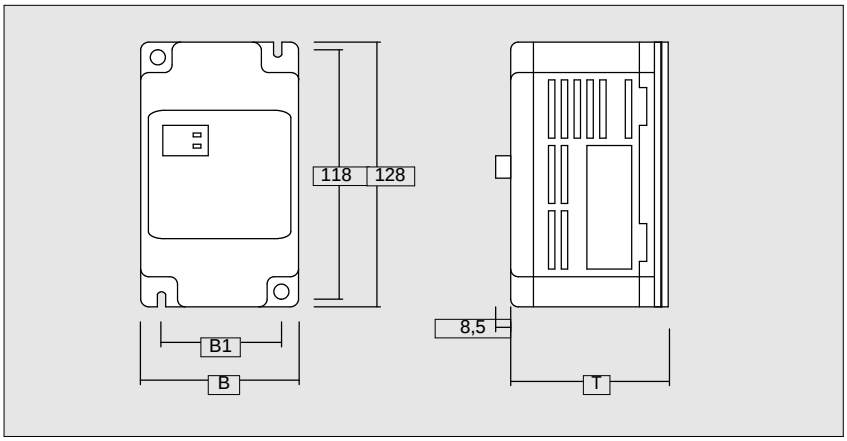
L3 remains free with single-phase equipment



Dimensions (mm)

3G3JV

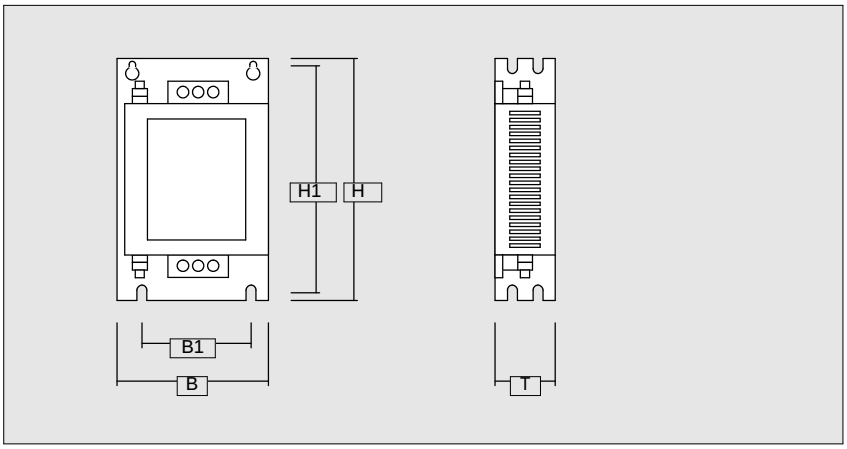
			Product number	
B	**B1**	**T**	**AB**	**A2**
68	56	70	001	001
68	56	70	002	002
68	56	112	004	004
68	56	112	-	007
108	96	129	007	015
108	96	154	015	022
140	128	161	-	040



			Product number
B	**B1**	**T**	**A4**
108	96	81	002
108	96	99	004
108	96	129	007
108	96	154	015
108	96	154	022
140	128	161	030
140	128	161	040

Line filter 3G3JV-PFI_

B	**B1**	**H**	**H1**	**T**	**Product number**
71	51	169	156	45	1010E
111	91	169	156	50	1020E
82	62	194	181	50	2010E
111	91	169	156	50	2020E
144	120	174	161	50	2030E
111	91	169	156	50	3005E
111	91	169	156	50	3010E
144	120	174	161	50	3020E



Set of Parameters

Parameter number	Default setting	MODBUS address	Name	Adjustment range
n001	1	101H	Parameter write prohibit selection/ parameter initialization	0 Only n01 can be adjusted 1 n01-079 can be altered 6 reset error memory 7 not used 8 initializes parameters to default values in 2-wire sequence 9 initializes parameters to default values in 3-wire sequence
n002	0	102H	Operation mode selection	0 Operator console 1 Multifunction inputs 2 via modbus (option card needed)
n003	0	103H	Frequency reference selection	0 integrated potentiometer 1 parameter n021 2 0..10 V 3 4..20 mA 4 0..20 mA 6 modbus (option card needed)
n004	0	104H	Stop method	0 Stop at ramp (n017) 1 Coast to stop
n005	0	105H	Backwards direction of rotation	0 Reverse enabled 1 Reverse disabled
n006	0	106H	Operator stop button	0 Stop button at n02= 1 enabled 1 Stop button at n02= 1 disabled
n007	0	107H	Reference value in local mode	0 integrated potentiometer 1 digital via operator (n024)
n008	0	108H	Reference value input in local mode	0 complete input with ENTER 1 no ENTER necessary
n009	60.0 Hz	109H	Maximum output frequency	50,0..400 Hz
n010	200 V	10AH	Max. output voltage	1..255 V
n011	60.0 Hz	10BH	Corner frequency	0,2..400 Hz
n012	1.5 Hz	10CH	Middle output frequency	0,1..399,9 Hz
n013	12 V	10DH	Output voltage at middle output frequency	0,1..255 V
n014	1.5 Hz	10EH	Minimum output frequency	0,1..10 Hz
n015	12 V	10FH	Output voltage at minimum output frequency	0.1..50 V
n016	10.0s	110H	Acceleration time 1	0,0..999 s

Set of parameters (continued)

Parameter number	Default setting	MODBUS address	Name	Adjustment range
n017	10.0s	111H	Braking time 1	0,0..999 s
n018	10.0s	112H	Acceleration time 2	0,0..999 s
n019	10.0s	113H	Braking time 2	0,0..999 s
n020	0	114H	S curve slide on braking/ accelerating	0 no S curve 1 0,2 s 2 0,5 s 3 1,0 s
n021	0.00 Hz	115H	Frequency reference value 1	0,0..400 Hz
n022	0.00 Hz	116H	Frequency reference value 2	0,0..400 Hz
n023	0.00 Hz	117H	Frequency reference value 3	0,0..400 Hz
n024	0.00 Hz	118H	Frequency reference value 4	0,0..400 Hz
n025	0.00 Hz	119H	Frequency reference value 5	0,0..400 Hz
n026	0.00 Hz	11AH	Frequency reference value 6	0,0..400 Hz
n027	0.00 Hz	11BH	Frequency reference value 7	0,0..400 Hz
n028	0.00 Hz	11CH	Frequency reference value 8	0,0..400 Hz
n029	6.00 Hz	11DH	Jog frequency	0,0..400 Hz
n030	100%	11EH	Max. reference value limit	0..110 % of n09
n031	0	11FH	Min. reference value limit	0..110 % of n09
n032	depending on model	120H	Motor rated current for simulation of motor protection switch	0..120% in relation to inverter rated current
n033	0	121H	Simulation of motor protection switch	0 Standard motor with standard rated data 1 Standard motor for short-time operation 2 No thermal protection
n034	8min	122H	Thermal motor time constant	1 - 60min
n035	0	123H	Function of ventilator (in the inverter)	0 only runs during RUN (1 min after STOP) 1 always runs
n036	2	124H	Multifunction input 2	2 reverse/stop (2-wire) 3 external error (NO) 4 external error (NC) 5 Error reset 6 Multi-step speed reference 1 7 Multi-step speed reference 2 8 Multi-step speed reference 3 10 Jogging 11 Acc./dec. time change over 12 external base block (NO) 13 external base block (NC) 14 Speed search of max. frequency 15 Speed search of assigned frequency 16 Acc./dec. prohibit 17 Local/Remote change-over 18 Serial change-over/operator 19 Fast stop n19 error (NO) 20 Fast stop n19 alarm (NO) 21 Fast stop n19 error (NC) 22 Fast stop n19 alarm (NC)
n037	5	125H	Multifunction input 3	0 Change in rotation direction (3-wire) otherwise see n036
n038	3	126H	Multifunction input 4	see n036
n039	6	127H	Multifunction input 5	34 Up or down comment 35 Self-test otherwise see n036

Set of Parameters (continued)

Parameter number	Default setting	MODBUS address	Name	Adjustment range
n040	1	128H	Multifunction output MA, MB, MC (relay)	0 Fault 1 Inverter in operation 2 Reference value reached 3 Zero frequency reached 4 Output frequency ³ n058 5 Output frequency £ n058 6 Over-torque (NO) 7 Over-torque (NC) 10 Alarm 11 Base block 12 Run mode 13 Ready for operation 14 active during error reset 15 under-voltage recognised 16 Reverse direction 17 Speed search 18 Data transfer via ModBus
n041	100%	129H	Reinforcement of analog input	0..255%
n042	0%	12AH	Offset of analog input	-99..99%
n043	0.1s	12BH	Filter time for analog input	0.00..2.00s
n044	0	12CH	Analog input holding	0 Output frequency 1 Motor current
n045	1	12DH	Analog input reinforcement	0,00..2,00
n046	4	12EH	Clock frequency	1 2,5 kHz 2 5,0 kHz 3 7,5 kHz 4 10 kHz 7 12 x motor frequency 8 24 x motor frequency 9 36 x motor frequency
n047	0	12FH	Operation after short voltage breakdown	0 Error signal 1 Error signal after >0.5 s 2 Operation is continued
n048	0	130H	New start attempts after error	0..10
n049	0.0 Hz	131H	Gating frequency 1	0,0..400 Hz
n050	0.0 Hz	132H	Gating frequency 2	0,0..400 Hz
n051	0.0 Hz	133H	Bandwidth of gating frequencies	0,0..25,5 Hz
n052	50%	134H	Current for d.c. braking	0..100 % of the inverter rated current
n053	0.5s	135H	d.c. braking time at Stop	0,0..25,5 s
n054	0.5s	136H	d.c. braking time at Start	0,0..25,5 s
n055	0	137H	Protection against sweep on braking	0 Enabled 1 Disabled (braking resistor!!)
n056	170%	138H	Level of protection against sweep on accelerating	30..200% of the rated current
n057	160%	139H	Level of protection against sweep during operation	30..200% of the rated current
n058	0.0 Hz	13AH	Frequency recognition level	0,0..400 Hz
n059	0	13BH	Over-torque recognition	0 Disabled 1 Detection only when speed coincides and operation continues 2 Detection only when speed coincides and output shut off 3 Always detection, issues alarm 4 Always detection, output shut off

Set of Parameters (continued)

Parameter number	Default setting	MODBUS address	Name	Adjustment range
n060	160%	13CH	Level of torque recognition	30..200%
n061	0.1s	13DH	Time of torque recognition	0,1..10 s
n062	0	13EH	Storing of reference value during motor poti operation	0 No stored after STOP 1 Stored after STOP
n063	1.0	13FH	Torque boost	0,0..2,5
n064	depending on model	140H	Rated slip	0,0..20.0 Hz
n065	depending on model	141H	no-load current	0..99%
n066	0.0	142H	Slip compensation reinforcement	0,0..2.5
n067	2.0s	143H	Delay time for slip compensation	0,0..25,5 s
n068	0	144H	Slip compensation on braking	0 Disabled 1 Enabled
n069	0	145H	Setting unit of transmission frequence reference / frequency monitor	0 0,1 Hz 1 0,01 Hz 2 30000 = max. frequency 3 0,1 %
n070	0	146H	Slave address	0..1
n071	2	147H	Baud rate	0 2400 Kbaud 1 4800 Kbaud 2 9600 Kbaud 3 19200 Kbaud
n072	0	148H	Parity	0 straight 1 not straight 2 no parity
n073	10ms	149H	Send waiting time	10..65 ms
n074	0	14AH	RTS control	0 RTS control 1 RS422A, 1:1 link
n075	0	14BH	Low speed carrier frequency reduction	0 Function disabled 1 Function enabled
n077	0	14DH	Select to prevent accidently overwriting constants stored in EEPROM or digital operator	0 Read prohibited 1 Read allowed
n078		14EH	Error memory	
n079		14FH	Software number	