

Parameter list

This list can be used for checking and making a note of your parameter settings. The list can be folded and placed in the enclosed plastic folder.

Control keys



[QUICK MENU] gives access to the parameters used in the Quick menu. The [QUICK MENU] key is also used if a change of a parameter value is not to be carried out. See also [QUICK MENU] + [+].



[CHANGE DATA] is used for changing a setting. The [CHANGE DATA] key is also used for confirming the change of a parameter setting.



[+] / [-] are used for selecting a parameter and for changing the chosen parameter value. These keys are also used in Display mode for switching between operating variable

read-outs.



[QUICK MENU] + [+] keys must be pressed simultaneously to give access to all parameters.



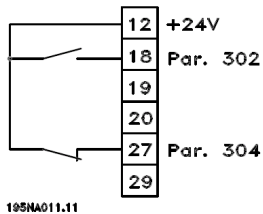
[STOP/RESET] is used for stopping the connected motor or for resetting the frequency converter after a trip.



[START] is used for starting the frequency converter. Is always active, but the [START] key cannot override a stop command.

Start/stop

Start/stop using terminal 18 and coasting stop using terminal 27.



Status messages

F r

The frequency converter shows the present output frequency in Hertz [Hz].

I o

The frequency converter shows the present output current in Amps [A].

U o

The frequency converter shows the present output voltage in Volts [V].

U d

The frequency converter shows the intermediate circuit voltage in Volts [V].

P o

The frequency converter shows the calculated output power in kilowatts [kW].

no trun

This message is displayed if an attempt is made to change a parameter value, while the motor is running. Stop the motor to change the parameter value.

L C P

This message is shown if an LCP 2 control unit has been installed and the [QUICK MENU] or [CHANGE DATA] key has been activated. With an LCP 2 unit installed, it is only possible to change parameters via this unit.

Err

A warning or alarm will be shown by means of a digit code on the display, e.g. Err 13. A warning will be shown on the display until the fault has been corrected, and an alarm will flash until [RESET] is activated.

Ha

The frequency converter shows the present Hand mode reference in Herz [Hz].

Warnings/alarm messages

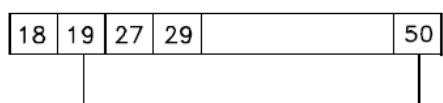
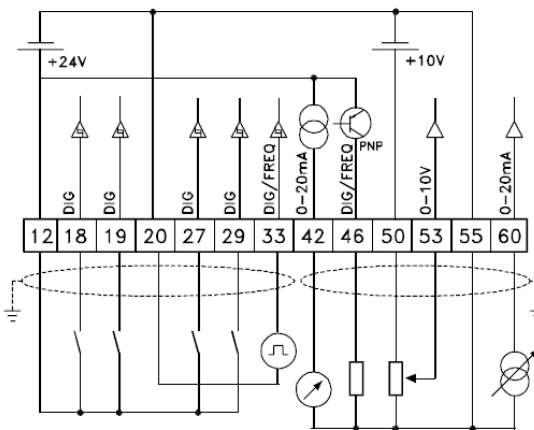
The list below gives a description of the different warnings and alarms. After a Trip locked, the mains supply must be disconnected and the fault must be corrected. Connect the mains supply again and reset the frequency converter. The frequency converter is now ready for operation.

A Trip can be reset manually in three different ways:

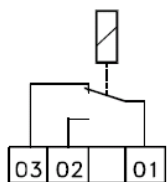
- Via the control key [STOP/RESET]
- Via a digital input.
- Via serial communication.

The manual gives a description of the different faults.

- No. 2 Live zero fault
- No. 4 Mains phase fault
- No. 5 Voltage warning high
- No. 6 Voltage warning low
- No. 7 Overvoltage
- No. 8 Undervoltage
- No. 9 Inverter overload
- No. 10 Motor overload
- No. 11 Motor thermistor
- No. 12 Current limit
- No. 13 Overcurrent
- No. 14 Earth fault
- No. 15 Switch mode fault
- No. 16 Short-circuit
- No. 17 Serial communication time-out
- No. 18 HPFB bus time-out
- No. 33 Out of frequency range
- No. 34 HPFB communication fault
- No. 35 Inrush fault
- No. 36 Overload temperature
- Nos. 37-45 Internal faults
- No. 50 AMT R_s outside limit
- No. 51 AMT fault re. nameplate data
- No. 52 AMT faulty motor phase
- No. 53 AMT motor too small
- No. 54 AMT incorrect motor
- No. 55 AMT timeout
- No. 56 AMT warning during AMT
- No. 99 Locked



PTC MOTOR THERMISTOR



#	Parameter-description	Selection/range	Factory setting	Setting
001	Language	[0]=English, [1]=German, [2]=French, [3]=Danish, [4]=Spanish, [5]=Italian	[0]=English	
002	Local/remote operation	[0]=Remote operation, [1]=Local operation	[0]=Remote operation	
003	Local reference	$0-f_{MAX} / Ref_{MIN}-Ref_{MAX} / -Ref_{MAX} - +Ref_{MAX}$	000,000.000	
004	Active Setup	[0]=Factory Setup, [1]=Setup 1, [2]=Setup 2, [3]=Setup 3, [4]=Setup 4, [5]=Multi Setup	[1]=Setup 1	
005	Programming Setup	[0]=Factory Setup, [1]=Setup 1, [2]=Setup 2, [3]=Setup 3, [4]=Setup 4, [5]=Active Setup	[5]=Active Setup	
006	Setup copying	See manual	[0]=No copying	
007	LCP copy	[0]=No copying, [1]=Upload all parameters, [2]=Download all parameters, [3]=Download power-independent parameters	[0]=No copying	
008	Display scaling of output frequency	0.01 - 100.00	1.00	
009	Large display readout	See manual	[4]=Frequency [Hz]	
010	Small display readout 1.1	See manual	[1]=Reference [%]	
011	Small display readout 1.2	See manual	[6]=Motor current [A]	
012	Small display readout 1.3	See manual	[8]=Power [kW]	
013	Local control	[0]=Local not active, [1]=Local control and open loop, [2]=Remote operated control and open loop, [3]=Local control as par. 100, [4]=Remote operated control as par. 100	[4]=Remote operated control as par. 100	
014	Local stop/Reset	[0]=Not active, [1]=Active	[1]=Active	
015	Local jog	[0]=Not active, [1]=Active	[0]=Not active	
016	Local reversing	[0]=Not active, [1]=Active	[0]=Not active	
017	Local reset of trip	[0]=Not active, [1]=Active	[1]=Active	
018	Lock for data change	[0]=Not locked, [1]=Locked	[0]=Not locked	
019	Operating mode at power-up, local operation	[0]=Auto restart, use saved ref. [1]=Forced stop, use saved ref. [2]=Forced stop, set ref. to 0	[1]=Forced stop, use saved ref.	
020	Lock for Hand mode	[0]=Not active, disable [1]=Active, enable	[1]=Active, enable	
024	User-defined Quick Menu	[0]=Not active, [1]=Active	[0]=Not active	
025	Quick Menu Setup	[Index 1-20] Value 0-999	000	
100	Configuration	[0]=Speed regulation, open loop [1]=Speed regulation, closed loop [3]=Process regulation, closed loop	[0]=Speed regulation, open loop	
101	Torque characteristic	[1]=Constant torque [2]=Variable torque, low [3]=Variable torque, medium [4]=Variable torque, high [5]=Variable torque, low CT start [6]=Variable torque, medium CT start [7]=Variable torque, high CT start [8]=Special motor characteristic	[1]=Constant torque	
102	Motor power $P_{M,N}$	0.37 - 11 kW	Depends on unit	
103	Motor voltage $U_{M,N}$	200-240 V/380-480 V	Depends on unit	
104	Motor frequency $f_{M,N}$	24-1000 Hz	50 Hz	
105	Motor current $I_{M,N}$	$0.01 - I_{MAX}$	Depends on choice of motor	
106	Rated motor speed	$100 - f_{M,N} \times 60$ (max. 60000 rpm)	Depends on choice of motor	
107	Automatic motor tuning	[0]=Optimisation off [2]=Optimisation on	[0]=Optimisation off	
108	Stator resistance R_s	$0.000 - X.XXX \Omega$	Depends on choice of motor	
109	Stator reactance X_s	$0.00 - X.XX \Omega$	Depends on choice of motor	
119	High start torque	0.0 - 0.5 sec.	0.0 sec.	
120	Start delay	0.0-10.0 sec.	0.0 sec.	
121	Start function	[0]=DC hold during start delay time [1]=DC brake during start delay time [2]=Coasting during start delay time [3]=Start frequency/voltage clockwise [4]=Start frequency/voltage in reference direction	[2]=Coasting during start delay time	
122	Function at stop	[0]=Coasting [1]=DC hold	[0]=Coasting	
123	Min. frequency for activating of function at stop	0.1 - 10.0 Hz	0.1 Hz	
126	DC brake time	0-60 sec.	10 sec.	
127	DC brake cut-in frequency	0.0 (OFF) - par. 202. Output frequency high limit, f_{MAX}	OFF	
128	Motor thermal protection	See manual	[0]=No protection	
130	Start frequency	0.0-10.0 Hz	0.0 Hz	
131	Voltage at start	0.0 - 200.0 V	0.0 V	

#	Parameter-description	Selection/range	Factory setting	Setting
132	DC brake voltage	0-100% of max. DC brake voltage	0%	
133	Start voltage	0.00-100.00 V	Depends on unit	
134	Load compensation	0.00-300.0%	100.0%	
135	U/f ratio	0.00-20.0 at Hz	Depends on unit	
136	Slip compensation	-500 - +500% of rated slip compensation	100%	
137	DC hold voltage	0-100% of max. DC hold voltage	0%	
138	Brake cut out value	0.5 - 132.0/1000.0 Hz	3.0 Hz	
139	Brake cut in frequency	0.5 - 132.0/1000.0 Hz	3.0 Hz	
140	Current, minimum value	0 - 100% of Within	0%	
142	Spread reactance	0.000-XXX.XXX Ω	Depends on choice of motor	
143	Internal fan control	[0]=Automatic, [1]=Always switched on, [2]=Always switched off	[0] = Automatic	
144	Gain AC brake	1.0 - 1.50	1.30	
146	Reset voltage vector	[0]=Off [1]=Reset	[0]=Off	
200	Output frequency range	[0]=Only clockwise, 0-132 Hz [1]=Both directions, 0-132 Hz [2]=Only anti-clockwise, 0-132 Hz [3]=Only clockwise, 0-1000 Hz [4]=Both directions, 0-1000 Hz [5]=Only anti-clockwise, 0-1000 Hz	[0]=Only clockwise, 0-132 Hz	
201	Output frequency low limit, f_{MIN}	0.0 - f_{MAX}	0.0 Hz	
202	Output frequency high limit, f_{MAX}	f_{MIN} - 132/1000 Hz	132 Hz	
203	Reference/feedback range	[0]=Min. ref./fb - Max. ref./fb [1]=-Max. ref./fb - Max. ref./fb	[0]=Min. ref./fb - Max. ref./fb	
204	Min. reference Ref_{MIN}	Par. 100 Config. = Open loop [0] - 100,000.000 - par. 205 Ref_{MAX} Par. 100 Config. = Closed loop [1]/[3] - Par. 414 Min. fb - Par. 205 Ref_{MAX}	0.000	
205	Max. reference Ref_{MAX}	Par. 100 Config. = Open loop [0] Par. 204 Ref_{MIN} -1000.000 Hz Par. 100 Config. = Closed loop [1]/[3] Par. 204 Ref_{MIN} - Par. 415 Max. fb	50.000 Hz 50.000	
206	Ramp type	[0]=Linear [1]=Sine-shaped [2]=Sine- ² shaped	[0]=Linear	
207	Ramp-up time 1	0.02-3600 sec.	3.00 sec.	
208	Ramp-down time 1	0.02-3600 sec.	3.00 sec.	
209	Ramp-up time 2	0.02-3600 sec.	3.00 sec.	
210	Ramp-down time 2	0.02-3600 sec.	3.00 sec.	
211	Jog ramp time	0.02-3600 sec.	3.00 sec.	
212	Quick stop ramp-down time	0.02-3600 sec.	3.00 sec.	
213	Jog frequency	0.0- Par. 202 Output frequency high limit	10.0 Hz	
214	Reference function	[0]=Sum [1]=Relative [2]=External/preset	[0]=Sum	
215	Preset ref. 1	-100.00% - + 100.00%	0.00%	
216	Preset ref. 2	-100.00% - + 100.00%	0.00%	
217	Preset ref. 3	-100.00% - + 100.00%	0.00%	
218	Preset ref. 4	-100.00% - + 100.00%	0.00%	
219	Catch up/slow down reference	0.00-100% of the current reference	0.00%	
221	Current limit, I_{LM}	[A] = x-xxx.x% of I_{MAX}	160%	
223	Warning: Low current	0.0 - Par. 224 Warning: High current, I_{HIGH}	0.0 A	
224	Warning: High current	Par. 223 Warning: Low current, I_{LOW} - I_{MAX}	I_{MAX}	
225	Warning: Low frequency	0.0 - par. 226 Warning: High frequency, f_{HIGH}	0.0 Hz	
226	Warning: High frequency	Par 225 f_{LOW} - 120/1000 Hz	132.0 Hz	
227	Warning: Low feedback, FB_{LOW}	100,000.000 - par. 228 Warning: FB_{HIGH}	-4000.000	
228	Warning: High feedback, FB_{HIGH}	Par. 227 - Warning: FB_{LOW} - 100,000.000	4000.000	
229	Frequency bypass, bandwidth	0 (OFF) - f_{MAX}	0 Hz	
230	Frequency bypass 1	0 - 132/1000 Hz	0.0 Hz	
231	Frequency bypass 2	0 - 132/1000 Hz	0.0 Hz	
302	Digital input Terminal 18	See manual	[7]=Start	
303	Digital input Terminal 19	See manual	[9]=Reversing	
304	Digital input Terminal 27	See manual	[3]=Reset and coasting inverse	
305	Digital input Terminal 29	See manual	[13]=Jog	
307	Digital input Terminal 33	See manual	[0]=No operation	
308	Term. 53, analogue input voltage	[0]=No operation, [1]=Reference [2]=Feedback	[1]=Reference	
309	Term. 53, Min. scaling	0.00 - 10.0 V	0.0 V	

#	Parameter-description	Selection/range	Factory setting	Setting
310	Term. 53, Max. scaling	0 - 10.0 V	10.0 V	
314	Term. 60, analogue input current	[0]=No operation, [1]=Reference [2]=Feedback	[0]=No operation	
315	Term. 60, Min. scaling	0.0 - 20.0 mA	0.0 mA	
316	Term. 60, Max. scaling	0.0 - 20.0 mA	20.0 mA	
317	Time out	1 - 99 sec.	10 sec.	
318	Function after time out	[0]=No operation, [1]=Freeze output frequency, [2]=Stop, [3]=Jog, [4]=Max. speed, [5]=Stop and trip	[0]=No operation	
319	Term. 42, analogue output	See manual	[7] = 0- I_{INV} 0-20 mA	
323	Relay output	See manual	[1]=Drive ready	
327	Pulse/reference feedback	150 - 67600 Hz	5000 Hz	
341	Term. 46, digital output	See manual	[1]=Drive ready	
342	Term. 46, Max. pulse output	150 - 10,000 Hz	5000 Hz	
343	Precise stop function	See manual	[0] = Normal ramp stop	
344	Counter value	1 - 999999	100000 pulses	
349	Speed comp delay	0 - 100 ms	10 ms	
400	Brake function	[0]=Off, [1]=Resistor brake [4] AC brake, [5]=Load sharing	Depends on unit	
405	Reset function	See manual	[0]=Manual reset	
406	Automatic restart time	0 - 10 sec.	5 sec.	
409	Trip delay overcurrent	0 - 60 sec. (61=OFF)	OFF	
411	Switching frequency	3000 - 14000 Hz	4500 Hz	
412	Output frequency dependent switching	[2] = No LC-filter [3] = LC-filter fitted	[2] = No LC-filter	
413	Overmodulation function	[0]=Off, [1]=On	[1]=On	
414	Min. feedback, FB_{MIN}	-100,000.000 - par. 415 FB_{MAX}	0.000	
415	Max. feedback, FB_{MAX}	par. 414 FB_{MIN} - 100,000.000	1500.000	
416	Process units	See manual	[0]=No unit	
417	Speed PID proportional gain	0.000 (OFF) - 1.000	0.010	
418	Speed PID integral time	20.00 - 999.99 ms (1000 = OFF)	100.00 ms	
419	Speed PID differential time	0.00 (OFF) - 200.00 ms	20 ms	
420	Speed PID D-gain limit	5.0 - 50.0	5.0	
421	Speed PID lowpass filter time	20 - 500 ms	20 ms	
423	U1 voltage	0.0 - 999.0 V	par. 103	
424	F1 frequency	0.0 - par. 426 F2 frequency	par. 104 Motor frequency	
425	U2 0voltage	0.0 - 999.0 V	par. 103	
426	F2 frequency	Par. 424 F1 frequency - par. 428 F3 frequency	par. 104 Motor frequency	
427	U3 voltage	0.0 - 999.0 V	0.0 V	
428	F3 frequency	Par. 426 F2 frequency - 1000 Hz	par. 104 Motor frequency	
437	Process PID Normal/inverse control	[0]=Normal, [1]=Inverse	[0]=Normal	
438	Process PID anti windup	[0]=Not active, [1]=Active	[1]=Active	
439	Process PID start frequency	f_{MIN} - f_{MAX} (par. 201/202)	Par. 201 Output frequency low limit, f_{MIN}	
440	Process PID proportional gain	0.0 - 10.00	0.01	
441	Process PID integration time	0.01 - 9999.99 ms (OFF)	OFF	
442	Process PID differentiation time	0.00 (OFF) - 10.00 sec.	0.00 sec.	
443	Process PID diff. gain limit	5.0 - 50.0	5.0	
444	Process PID lowpass filter time	0.02 - 10.00	0.02	
445	Flying start	[0]=Off, [1]=OK same direction, [2]=OK both directions, [3]=DC brake and start	[0]=OFF	
451	FF factor	0 - 500%	100%	
452	Controller range	0 - 200%	10%	
456	Brake voltage reduce	0 - 25 V if 200V device 0 - 50 V if 400V device	0 0	

Terminal Rail Layout

