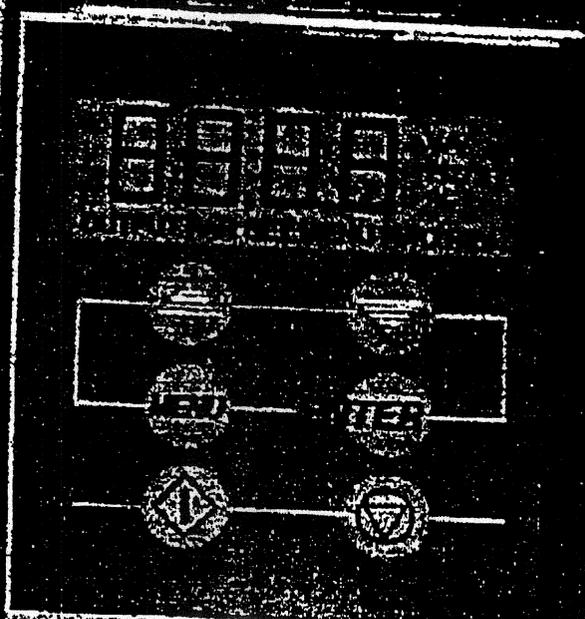


Access Point



4.6

2.25



Warning! Dangerous voltage
Consult User's manual before opening.
Wait at least 5 min. after disconnecting supply
before removing the cover

UNCONTROLLED COPY
EXPIRY DATE: 3/1/2011

CONTROLLED COPY
EI PAIVITETA

Warning: Dangerous voltage
Consult User's manual before opening.
Wait at least 5 min. after disconnecting supply
before removing the cover.



UNCONTROLLED COPY
EI PÄIVITETÄ

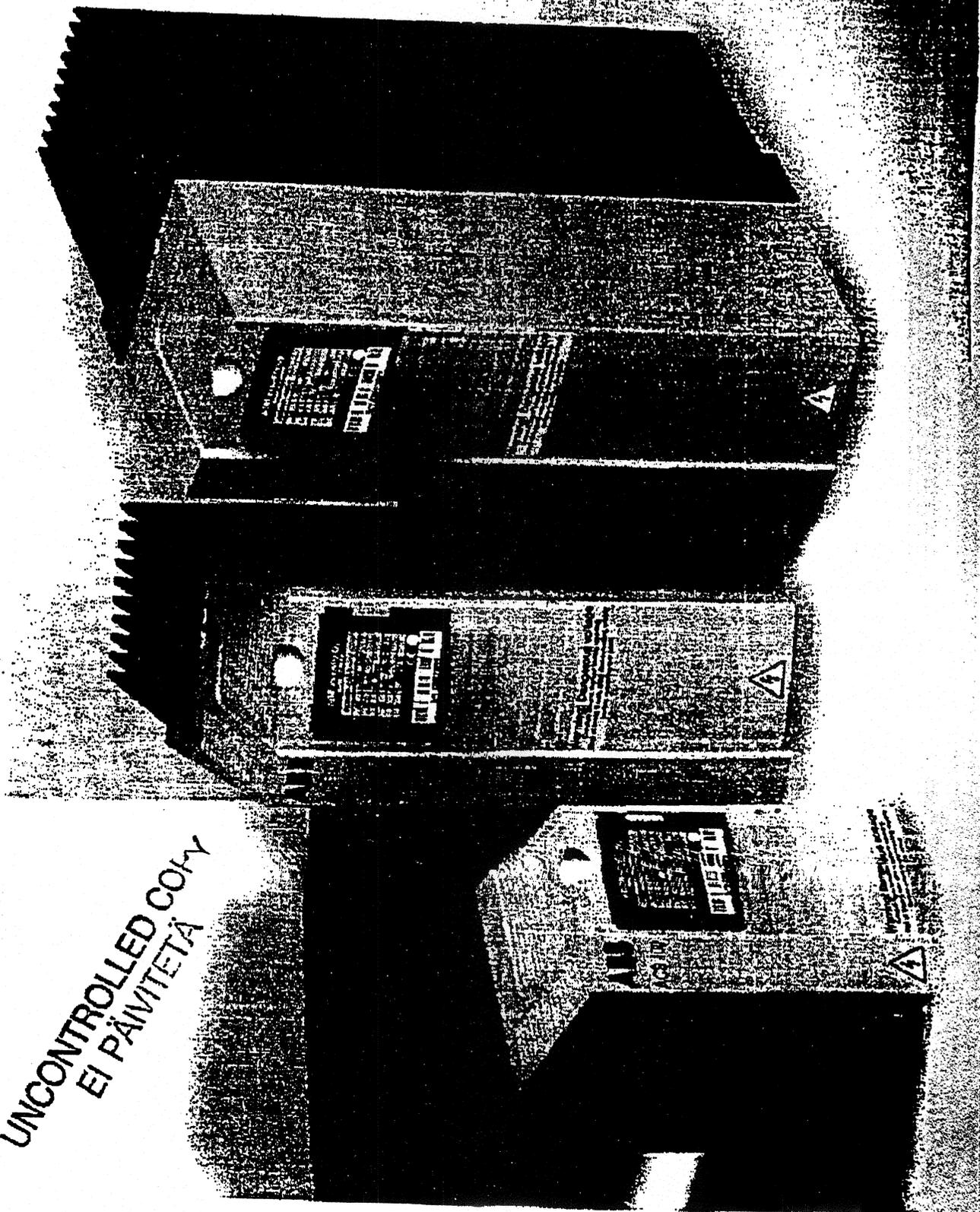


ABB Industry Oy VSD Products V.M. Leppänen / TGZ 11.1.1996 W	ACS100 PRODUCT RANGE	Document: ACS100-HW-0002 Rev: 4 File: TYPIT04.XLS Page: 1/1
---	-----------------------------	--

Base Units	Power circuit accessories:						Enclosure accessory:
	Type	PN / kW	IN / A	RFI-filter	Input choke	Output choke	
1-input 200..240V +/-10%	ACS101-K75-1	0.37	2.2	ACS101-FLT-A1	ACS101-CHK-A1	ACS103-CHK-A3	ACS100-ENC-AB
	ACS101-1K1-1	0.55	3.0	ACS101-FLT-B1	ACS101-CHK-B1	ACS103-CHK-B3	
	ACS101-1K6-1	0.75	4.3		ACS101-CHK-C1	ACS103-CHK-C3	
	ACS101-2K1-1	1.1	5.9	ACS101-FLT-C1	ACS101-CHK-D1	ACS103-CHK-D3	ACS100-ENC-C
	ACS101-2K7-1	1.5	7.3		ACS101-CHK-E1	ACS103-CHK-E3	ACS100-ENC-D
	ACS101-4K1-1	2.2	10.7	ACS101-FLT-D1	ACS101-CHK-F1	ACS103-CHK-F3	
3-input 200..240V +/-10%	ACS103-K75-1	0.37	2.2		ACS103-CHK-A3		ACS100-ENC-AB
	ACS103-1K1-1	0.55	3.0		ACS103-CHK-B3		
	ACS103-1K6-1	0.75	4.3		ACS103-CHK-C3		
	ACS103-2K1-1	1.1	5.9		ACS103-CHK-D3		
	ACS103-2K7-1	1.5	7.3		ACS103-CHK-E3		
	ACS103-4K1-1	2.2	10.7		ACS103-CHK-F3		

Standard control interface:	Control accessories:
1 AI	Parameter unit ACS100-PAN
3 DI	Extension cable ACS100-EXT
1 RO	

UNCONTROLLED COPY
EI PÄIVITETÄ

ACS100 = a parameterless drive

- variable speed for virtually any 200 ... 240V 0.37 ... 2.2kW 3~induction motor:
- line inputs 1-/3- 200 ... 240V 50/60Hz
- small size base units... no more than 80 mm wide
- easy-to-use... typically no further configuration needed
- simple acceleration ramp adjustment
- base units mount on DIN-rail side by side to save cubicle space
- when desired, base units mount through cubicle back panel to keep the heat out
- all parts including accessories protected against involuntary touching... *[Signature]*
- robust long life design... operation in up to 50C ambient
- a set of accessories all with application literature
 - parametering unit for customizing and diagnostics in demanding applications
 - extension cable for parametering unit
 - RFI filters
 - NEMA 4 (IP65) upgrade enclosures
 - input and output chokes
- fast response to start/stop/reverse... +/- 1ms variation
- accurate control... 0.1% frequency resolution
- flexible control connections
 - accepts 0 .. 20 mA and 0 ... 10V analogue signals
 - accepts PNP and NPN logic digital commands 12 ... 24 V (48 V with an external resistor)
 - fault relay output
 - isolated inputs
- programmable features (with parametering unit)
 - output current limit
 - output frequency limit
 - versatile start and stop modes
 - acceleration and deceleration ramps
 - Volts/Hertz ratio
 - IR -compensation
 - DC-hold
 - parameter upload/download
- full protection features
 - output short circuit
 - output earth fault
 - output I2t overload
 - motor I2t overload
 - over temperature
 - loss of AI signal
- UL listed

UNCONTROLLED COPY
EI PÄÄTÄ

*I/O configuration } added with 3rd DI
crawl speed*

Group 1: Actual Values

- 101 F ACT
Frequency to motor. This parameter is display only.
- 102 F REF
The frequency reference input or local frequency reference.
- 103 I ACT
Calculated motor phase current. Accuracy +- 10%.
- 104 LAST FAULT
Last Fault in fault memory. Codes are explained in table below.

Code	Reason
1	Overcurrent
2	Overvoltage
3	Overtemperature
4	Short circuit / Earth fault / Driver aux volt. loss
5	Undervoltage
6	Low AI-signal
7	Motor overtemp.
8	Panel com. loss
9	Reserved (Bus com. loss) ?
10	Eeprom error ?
11	Size error ?

UNCONTROLLED COPY

Group 2: Motor values & Limits

- 201 U NOM
Nominal motor voltage (from the motor rating plate). U NOM sets the maximum output voltage supplied to motor by ACS100. F NOM sets the frequency where the voltage to motor is equal to U NOM. ACS 100 cannot supply the motor with a voltage greater than the mains voltage.
- 202 F NOM
Nominal motor frequency from the motor rating plate. This frequency is also called the field weakening point. If output frequency is greater than F NOM, output voltage is U NOM.
- 203 I NOM
Nominal motor current from the motor rating plate. (This parameter is used only when motor thermal protection function is used; refer to parameter MOTOR PROT FREQ LIMIT).
- 204 NOM SPEED
Nominal motor speed from motor rating plate.

Dept TGZ	Prepared M. Korpinen	Date 22.02.1996	Approved	Revision 1	Page 2/6
-------------	-------------------------	--------------------	----------	---------------	-------------

205 I MAX

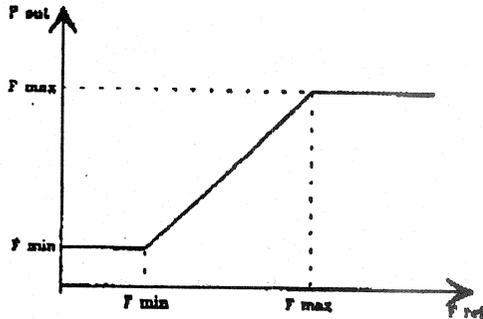
Sets the maximum output current ACS100 will supply to motor.

206 F MAX

Sets maximum frequency ACS100 will supply to motor. See picture below.

207 F MIN

Sets minimum frequency ACS100 will supply to motor. See picture below.



208 DIRECTION LOCK

Reverse lock-out; 1=FWD/REV; 2=FWD only. If this parameter is set to FWD only, local and external direction commands are ignored and motor won't run. In that case ACS 100 will inform by...?

UNCONTROLLED COPY
EJ PAINEN

Group 3: Stop / Ramps / U/f

301 STOP

Stop function; 1=Coast, 2=Ramp; See also parameter DC INJECTION TIME.

Coast: When stop command is given, ACS 100 stops modulation and injects DC voltage to motor according to parameter DC INJECTION TIME (DC Braking). If DC INJECTION TIME is set to zero, drive will coast to stop.

Ramp: When stop command is given, frequency is ramped down to zero according to parameter DEC TIME. After ramp, dc voltage is supplied to motor according to parameter DC INJECTION TIME (DC Hold).

302 SMOOTHING

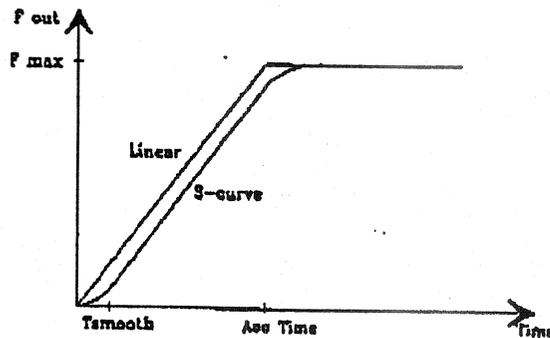
This parameter allows to select the shape of acc/dec ramp. 0=Linear, 1=S-curve 1, 2=S-curve 2, 3=S-curve 3.

Linear is suitable for steady acceleration/deceleration.

S-curve 1 smooths the start and end of acceleration/deceleration. Smoothing time (T_{smooth}) is 2 % of total acceleration/deceleration time. See picture below.

S-curve 2 smooths the start and end of acceleration/deceleration. Smoothing time is 4 % of total acceleration/deceleration time. See picture below.

S-curve 3 smooths the start and end of acceleration/deceleration. Smoothing time is 8 % of total acceleration/deceleration time. See picture below.



UNCONTROLLED COPY
BY PAINETA

303 ACC TIME

Acceleration time from zero to maximum frequency (0...F MAX).

304 DEC TIME

Deceleration time from maximum frequency to zero (F MAX...0).

305 U/f RATIO

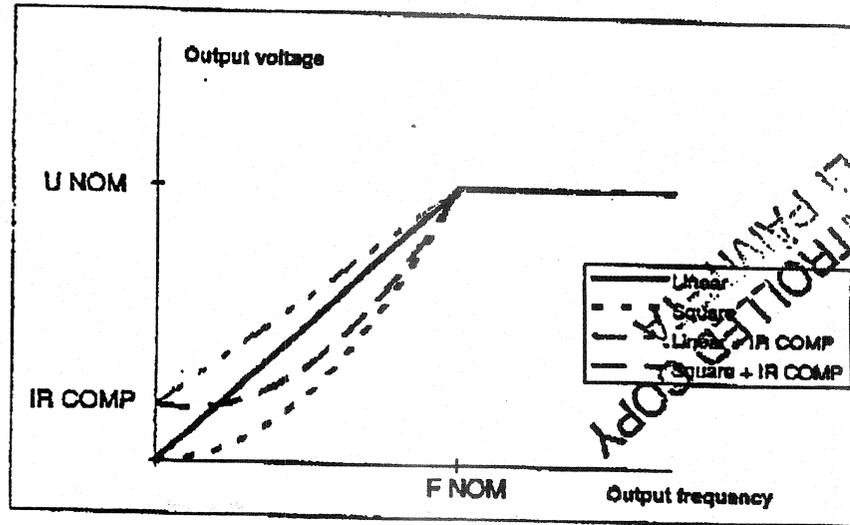
U/f below field weakening point; 1=Linear, 2=Square. The voltage frequency ratio from 0 Hz to nominal motor frequency (F NOM). See picture below.

Linear: The voltage of the motor changes linearly with frequency when the frequency is below nominal motor frequency (F NOM). Linear U/f ratio is suitable for constant torque applications.

Square: The voltage of motor is proportional to the square of frequency when the frequency is below nominal motor frequency (F NOM). Square U/f ratio is suitable for centrifugal pump and fan applications.

306 IR COMP

IR COMP defines the extra voltage applied to motor from zero to nominal motor frequency (F NOM). See picture below. IR compensation voltage should be kept as low as possible for the application.



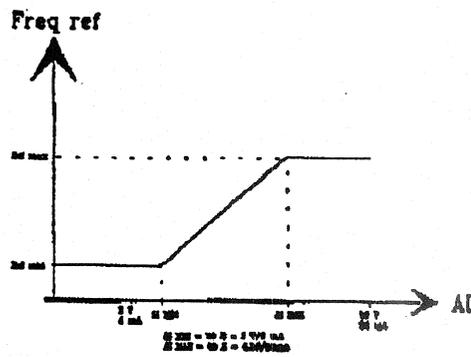
307 DC INJECTION TIME

DC injection time after modulation has stopped. If stop function is coast, ACS 100 will do DC braking. If stop function is ramp, ACS100 will do DC-hold after ramp.

Group 4: I/O

- 401 AI MIN
- 402 AI MAX
- 403 REF MIN
- 404 REF MAX

Parameters AI MIN, AI MAX, REF MIN and REF MAX define the scaling of analog input. For AI MIN and AI MAX, 0% equals 0 V or 0 mA and 100% equals 10 V or 20 mA at analog input. REF MIN and REF MAX set the corresponding reference values (Hz) for AI MIN and AI MAX. AI MIN cannot be set higher than AI MAX. REF MIN can be set higher than REF MAX to enable inverse operation. See pictures below.



405 I/O CONFIGURATION

I/O configuration defines the operation of digital inputs.
1=ABB Standard, 2=3-Wire, 3=Alternate

ABB Standard

Digital input	Function	Notes
1	Start/Stop	Connect + x V DC to Start
2	Reverse	Connect + x V DC to Reverse
3	Preset speed	Connect + x V DC select Preset speed

3-Wire

Digital input	Function	Notes
1	Start	Connect momentary + x V DC to Start; Minimum Start pulse is x ms.
2	Stop	Connect momentary 0 V DC to Stop; Minimum Stop pulse is x ms.
3	Reverse	Connect + x V DC to Reverse

Alternate

Digital input	Function	Notes
1	Start forward	Connect + x V DC to Start Forward
2	Start reverse	Connect + x V DC to Start Reverse
3	Preset speed	Connect + x V DC select Preset speed

406 PRESET SPEED

Preset speed. Can be actuated from digital input. See tables above.

UNCONTROLLED COPY
EIPAVIETA

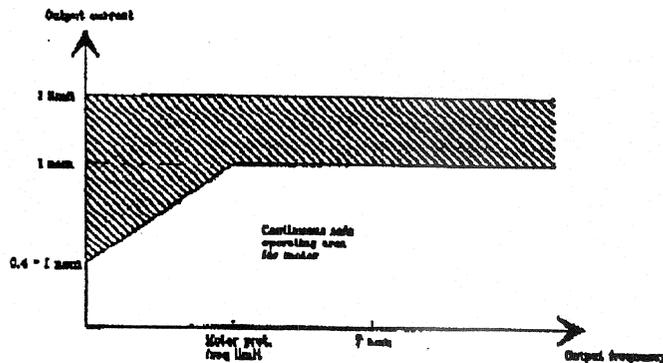
Group 5: Supervision

501 AI FAULT

This parameter allows you to disable Analog input signal fault detection. If this feature is enabled ACS100 will detect fault and stop if analog input signals falls below AI MIN.

502 MOTOR PROT FREQ LIMIT

Thermal protection frequency limit for motor. This parameter with parameter I NOM defines the continuous safe operating area of motor. See picture below. Motor thermal protection function is enabled when this parameter is other than 0.



503 RESTART

Number of times ACS100 will automatically reset the fault and restart after any of the following faults: overcurrent, overvoltage, undervoltage, Low AI signal,...? This feature is disabled, if the setting value is 0.

Group 9: Version info

999 VERSION

Version number of software.

CONTROLLED COPY

ABB Industry Oy VSD Products V-M. Leppänen / TGZ 11.1.1995	ACS100 PRODUCT LIST	Document: ACS100-YL-0052 Rev: 2 File: 100LST02.XLS Page: 1/1
---	---------------------	---

Product	Ratings		Package		USD		Units		Source		Available	
	PN	1-/3-	W*H*D	Wt	Cost	Price	1996	1997	Mfg	Mins qty	Pilots	Mendon

Base Units

ACS101-K75-1	0.37	1	90*130*180	1.0									
ACS101-1K1-1	0.55	1	90*130*180	1.2									
ACS101-1K8-1	0.75	1	90*130*180	1.2									
ACS101-2K1-1	1.1	1	90*200*235	1.8									
ACS101-2K7-1	1.5	1	90*200*235	1.8									
ACS101-4K1-1	2.2	1	90*200*235	2.1									
ACS103-K75-1	0.37	3	90*130*180	1.0									
ACS103-1K1-1	0.55	3	90*130*180	1.1									
ACS103-1K8-1	0.75	3	90*130*180	1.1									
ACS103-2K1-1	1.1	3	90*200*235	1.6									
ACS103-2K7-1	1.5	3	90*200*235	1.6									
ACS103-4K1-1	2.2	3	90*200*235	1.9									
Total							15.8	50					

Control Accessories

ACS100-PAN	n.a.	n.a.	25*55*55	0.1						Denstrom		
ACS100-EXT	n.a.	n.a.	20*100*100	0.1								

RFI-filters

ACS101-FLT-A1	0.37	1										
ACS101-FLT-B1	0.55/0.75	1										
ACS101-FLT-C1	1.1/1.5	1										
ACS101-FLT-D1	2.2	1										

Chokes

ACS101-CHK-A1	0.37	1	70*70*90	1						Transformatik		
ACS101-CHK-B1	0.55	1	70*70*90	1.2						Transformatik		
ACS101-CHK-C1	0.75	1	70*70*90	1.1						Transformatik		
ACS101-CHK-D1	1.1	1	70*70*90	1.4						Transformatik		
ACS101-CHK-E1	1.5	1	80*100*110	1.5						Transformatik		
ACS101-CHK-F1	2.2	1	80*100*110	1.5						Transformatik		
ACS103-CHK-A3	0.37	(1/3)	70*70*90	0.7						Transformatik		
ACS103-CHK-B3	0.55	(1/3)	70*70*90	0.8						Transformatik		
ACS103-CHK-C3	0.75	(1/3)	70*70*90	0.8						Transformatik		
ACS103-CHK-D3	1.1	(1/3)	70*70*90	0.9						Transformatik		
ACS103-CHK-E3	1.5	(1/3)	70*70*90	0.9						Transformatik		
ACS103-CHK-F3	2.2	(1/3)	80*100*110	1.3						Transformatik		

NEMA4 enclosures (IP65)

ACS100-ENC-AB	n.a.	1/3	250*290*200									
ACS100-ENC-C	n.a.	1/3	250*380*200									
ACS100-ENC-D	n.a.	1	260*410*200									

UNCONTROLLED COPY
EI PÄÄTTETÄ

ABB Industry Oy VSD Products	ACS 100 Parameter list	ACS100-SW-0021 File:100_PAR.XLS
Dept TGS	Prepared M. Korpinen	Revision 3
	Date 22.2.1998	Approved

Group/feature	Parameter	Code	Range	Resolution	Default	Changeable if start active	Saved in EEPROM	Description
I/O	AI min	401	0-100%	1 %	0 %	No	Yes	Analog input min limit; AI min < AI max; 100% = 10 V or 20 mA
	AI max	402	0-100%	1 %	100 %	No	Yes	Analog input max limit; 100% = 10 V or 20 mA
	Ref min	403	0-250 Hz	1 Hz	0 Hz	No	Yes	Reference min frequency
	Ref max	404	0-250 Hz	1 Hz	50 Hz	No	Yes	Reference max frequency
	I/O config	405	1-3	1	1	No	Yes	I/O configuration selection; 1=ABB Standard; 2=3-Wire; 3=Alternate
Supervision	Preset speed	406	0-250 Hz	0.1 Hz	5 Hz	Yes	Yes	Preset speed
	AI Fault	501	0-1		1	Yes	Yes	AI fault if AI < AI min; 0=disable; 1=enable
	Motor prot freq lim	502	0-250 Hz	1 Hz	0	Yes	Yes	Thermal protection frequency limit for motor
Version info	Restart #	503	0-11	1	0	Yes	Yes	Number of start attempts after fault; 1=auto
	Version	999	00.00-99.99				No	Version number of sw

CONTROLLED COPY
EI PAVITETA

ABB Industry Oy
VSD Products
 Dept TGS
 Prepared M. Korpinen
 Date 22.2.1998
 Approved
ACS 100
Parameter list
 ACS100-SW-0021
 File:160_PAR.XLS
 Revision 3

Group/feature	Parameter	Code	Range	Resolution	Default	Changeable if start active	Saved in EEPROM	Description
Actual values	Fact	101	0-250 Hz	0.1 Hz	-	-	No	Output frequency
	Fref	102	0-250 Hz	0.1 Hz	-	Yes*	No	Reference frequency
	Iact	103	A	0.1 A	-	-	No	Output current
	Last Fault	104	0-15	1	0	-	Yes	Last Fault
Motor values & Limits	U nom	201	200-240 V	200, 208, 220, 230, 240 V	230 V	No	Yes	Motor nominal voltage
	F nom	202	50-250 Hz	1 Hz	50 Hz	No	Yes	Motor nominal frequency
	I nom	203	0.5-1.5 * In	0.1 A	In	No	Yes	Motor nominal current
	Norm speed	204	0-9999 rpm	1 rpm	1440 rpm	No	Yes	Motor nominal slip
	I max	205	0.5-1.5 * In	0.1 A	1.5 * In	Yes	Yes	Output current limit
	F max	206	0-250 Hz	1 Hz	60 Hz	Yes	Yes	Output frequency max
	F min	207	0-250 Hz	1 Hz	0 Hz	Yes	Yes	Output frequency min
	Direction lock	208	1-2	1	1	Yes	Yes	Reverse lock-out; 1=FWDREV; 2=FWD only
	Stop	301	1-2	1	1	No	Yes	Stop mode; 1=Coast, 2=Flamp; See also Parameter DC injection time
	Ramp	302	1-4	1	1	No	Yes	Ramp shape; 1=Linear, 2=S-curve 1, 3=S-curve 2, 4=S-curve 3
Acc	Acc	303	0-1800 s	0-99.9, 0.1 s 100-1800, 1 s 0-> no ramps used	3 s	Yes	Yes	Acceleration time 0-Fmax
	Dec	304	0-1800 s	0-99.9, 0.1 s 100-1800, 1 s 0-> no ramps used	3 s	Yes	Yes	Deceleration time Fmax-0
	UI ratio	305	1-2	1	1	No	Yes	UI below field weakening point; 1=Linear, 2=Square
IFR comp	IFR comp	306	0-30 V	1 V	0 V	Yes	Yes	Voltage boost
	DC injection time	307	0-250s	0-99.9, 0.1 s; 100-250, 1 s	3 s	No	No	DC injection time after modulation has stopped; if coast stop -> DC braking+Hold; if ramp stop -> DC-hold

UNAPPROVED COPY