



Low voltage AC drives

ABB general purpose drives ACS580 replaces ACS550 Replacement guide

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Contents

4	Selection and sizing of the drive
4	Type designation
5	Options
6	Power and current range
8	Dimensions
10	Mounting
11	Free space requirements
12	Glandbox and installation height
13	Braking resistors
14	Electrical data
16	Default macro
18	Parameter groups
21	Commissioning ACS580 after ACS550 replacement



ABB general purpose drives ACS550

Using the replacement guide

Important notice

This replacement guide is intended for limited distribution to ABB's technical partners and customers who are replacing the ACS550 drive with the ACS580 general purpose drive. ABB has prepared this document to aid sales associates, authorized channel partners and customers in the replacement. Every attempt has been made to ensure the accuracy of the information.

All installation and electrical work should be carried out by a trained professional. ABB takes no responsibility for any damages or other liability whatsoever (including any consequential damages, even if ABB or an ABB representative had advised of the possibility of such damages) resulting from the use or selection of this document for any information, apparatus, method, process, or similar item disclosed in this document. Specification is subject to change without notice.

This guide will help you to replace the ACS550 drive with the ACS580 general purpose drive. Follow the steps outlined in this guide to find the optimal replacement product and to speed up the replacement process.

Step 1: sizing of the drive and selecting options

Compare power range, mounting methods and dimensions to select the correct ACS580 product against the ACS550 drive.

Step 2: wiring and parameter setup

Compare electrical data and basic parameter range for optimal replacement. Use the replacement manual to help on commissioning.



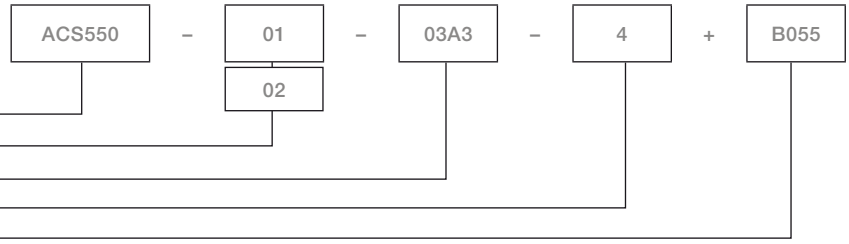
ABB general purpose drives ACS580

Selection and sizing of the drive

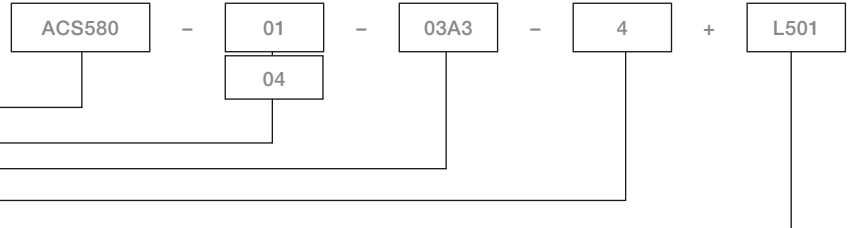
Type designation

1. Start with identifying type designation of your ACS550 drive.
2. Compare the motor's power and current rating from the ratings table below. More detailed ratings tables are on pages 6 and 7.
3. Compare the options on the next page.

ACS550



ACS580



ACS550

Nominal current (A) I_{2N}	Power (kW) P_N	Type designation	Frame size
-	-	-	-
3.3	1.1	ACS550-01-03A3-4	R1
4.1	1.5	ACS550-01-04A1-4	
5.4	2.2	ACS550-01-05A4-4	
6.9	3	ACS550-01-06A9-4	
8.8	4	ACS550-01-08A8-4	
11.9	5.5	ACS550-01-012A-4	
15.4	7.5	ACS550-01-015A-4	R2
23	11	ACS550-01-023A-4	
31	15	ACS550-01-031A-4	R3
38	18.5	ACS550-01-038A-4	
45	22	ACS550-01-045A-4	
59	30	ACS550-01-059A-4	R4
72	37	ACS550-01-072A-4	
87	45	ACS550-01-087A-4	R5
125	55	ACS550-01-125A-4	
157	75	ACS550-01-157A-4	R6
180	90	ACS550-01-180A-4	
205	110	ACS550-01-195A-4	
246	132	ACS550-01-246A-4	
290	160	ACS550-01-290A-4	
368	200	ACS550-01-368A-4	
486	250	ACS550-02-486A-4	R8 (free-standing unit)
526	280	ACS550-02-526A-4	
602	315	ACS550-02-602A-4	
645	355	ACS550-02-645A-4	

Note! In ACS550 I_N is with 110% overloadability.

ACS550 Nominal ratings

I_{2N}	Continuous rms current. 10% overload is allowed for 1 minute in 10 minutes.
P_N	Typical motor power in 400 V at normal use.

The ratings apply up to +40 °C. From 40 to 50 °C with derating.

ACS580

Frame size	Type designation	Power (kW) P_N	Nominal current (A) I_N
R0	ACS580-01-02A6-4	0.75	2.6
	ACS580-01-03A3-4	1.1	3.3
	ACS580-01-04A0-4	1.5	4
	ACS580-01-05A6-4	2.2	5.6
R1	ACS580-01-07A2-4	3	7.2
	ACS580-01-09A4-4	4	9.4
	ACS580-01-12A6-4	5.5	12.6
R2	ACS580-01-017A-4	7.5	17
	ACS580-01-025A-4	11	25
R3	ACS580-01-032A-4	15	32
	ACS580-01-038A-4	18.5	38
	ACS580-01-045A-4	22	45
R4	ACS580-01-062A-4	30	62
	ACS580-01-073A-4	37	73
R5	ACS580-01-088A-4	45	88
	ACS580-01-106A-4	55	106
R6	ACS580-01-145A-4	75	145
	ACS580-01-169A-4	90	169
R7	ACS580-01-206A-4	110	206
	ACS580-01-246A-4	132	246
R8	ACS580-01-293A-4	160	293
	ACS580-01-363A-4	200	363
R9	ACS580-01-430A-4	250	430
	ACS580-04-505A-4	250	505
R10	ACS580-04-585A-4	315	585
	ACS580-04-650A-4	355	650
	ACS580-04-725A-4	400	725
R11	ACS580-04-820A-4	450	820
	ACS580-04-880A-4	500	880

Note! In ACS580 I_N is without overloadability.

ACS580 Nominal ratings

I_N	Rated current available continuously without overloadability at 40 °C (frames R0 to R3 up to +50 °C).
P_N	Typical motor power with no overload.

The ratings apply for the frames R0 to R3 up to +50 °C and the frames R4 to R9 up to +40 °C in enclosed IP class 21. The ratings apply for the frames R10 to R11 up to +40 °C in enclosed IP00/IP20. For derating at higher altitudes, temperatures, switching frequencies or enclosure classes, see the HW manuals, document codes: 3AXD50000018826 and 3AXD50000015497.

Options



ACS550-01

Option name	Description	Available options and code
Degree of protection		
	IP54	B055
Control panel		
ACS-CP-A	Assistant control panel	–
ACS-CP-C	Basic control panel	J404
–	No control panel	0J400
ACS/H-CP-EXT	Panel mounting kit	x
ACS/H-CP-EXT-IP66	Panel mounting kit IP66	x
OPMP-01	Panel holder mounting kit	x
–	–	–
I/O options		
OREL-01	Relay output extension	L511
–	–	–
OHDI-01	115/230 V digital input 6 x DI	x
Control option		
OTAC-01	Encoder	x
Fieldbus		
RCAN-01	CANopen®	K457
RCNA-01	ControlNet™	K462
RDNA-01	DeviceNet™	K451
RECA-01	EtherCAT®	x
RETA-01	EtherNet/IP™	K466
RLON-01	LonWorks®	K452
RETA-01/-02	Modbus TCP	K466/K467
RPBA-01	PROFIBUS DP	K454
RETA-02	PROFINET IO	K467
REPL-02	PowerLink	x
Tools		
MFDI-01	FlashDrop	x
DriveWindow Light	DriveWindow Light and USB serial adapters	x
Remote monitoring		
SREA-01	Ethernet adapter	x

ACS580-01

Replacement	Description	Option name
B056	IP55	
J400	Assistant control panel	ACS-AP-S
J404	Basic control panel	ACS-BP-S
J424	Blank control panel cover	CDUM-01
x	Control panel mounting platform (surface) IP65	DPMP-02
x	Control panel mounting platform (surface) IP65	DPMP-02
x	Door mounting kit for the panel (contains both DPMP-02 and CDPI-01)	DPMP-EXT
K450	Panel bus adapter	CDPI-01
L501	External 24 V AC/DC 2 x RO and 1 x DO	CMOD-01
L523	External 24 V and isolated PTC interface	CMOD-02
L512	115/230 V digital input 6 x DI and 2 x RO	CHDI-01
–	No encoder support	–
K457	CANopen®	FCAN-01
K462	ControlNet™	FCNA-01
K451	DeviceNet™	FDNA-01
K469	EtherCAT®	FECA-01
K473/K475	EtherNet/IP™/Two port	FENA-11/-21
–	No LonWorks® support	–
K473/K475	Modbus TCP/Two port	FENA-11/-21
K454	PROFIBUS DP	FPBA-01
K473/K475	PROFINET IO/Two port	FENA-11/-21
K470	PowerLink	FEPL-02
K458	Modbus RTU	FSCA-01
x	Cold configurator adapter	CCA-01
x	Drive composer entry	Download free from www.abb.com/drives DCPT-01
x	Drive composer Pro	
x	2 x panel bus interface, max 64 drives, 2 x ethernet interface, SD memory card, USB for WLAN/3G	NETA-21

x = ordering with separate material code

Power and current range

Pump and fan duty power

ACS550		ACS580	
Frame size	P_N (kW)	P_N (kW)	Frame size
–	–	0.75	
R1	1.1	1.1	R0
	1.5	1.5	
	2.2	2.2	
	3	3	R1
	4	4	
R2	5.5	5.5	
	7.5	7.5	R2
R3	11	11	
	15	15	R2
R4	18.5	18.5	R3
	22	22	
R5	30	30	R4
	37	37	
R6	45	45	R5
	55	55	
R8 (free-standing unit)	75	75	R6
	90	90	R7
	110	110	
	132	132	R8
	160	160	
R8 (free-standing unit)	200	200	R9
	250	250	
	280	250	R10
	315	315	
–	–	400	R11
	–	450	
	–	500	

Continuous (100%) current

ACS550 nominal		ACS580 nominal*	
Frame size	I_{2N} (A)	I_N (A)	Frame size
–	–	2.6	
R1	3.3	3.3	R0
	4.1	4	
	5.4	5.6	
	6.9	7.2	R1
	8.8	9.4	
	11.9	12.6	
R2	15.4	17	R2
	23	25	
R3	31	32	R3
	38	38	
	45	45	
R4	59	62	R4
	72	73	
R5	87	88	R5
	125	106	
R6	157	145	R6
	180	169	R7
	205	206	
	246	246	R8
	290	293	
	R8 (free-standing unit)	368	363
486		430	
526		505	R10
602		585	
–	–	725	R11
	–	820	
	–	880	

Light-overload (110%) continuous current

ACS550 nominal		ACS580 Light-overload	
Frame size	I_{2N} (A)	I_{LD} (A)	Frame size
–	–	2.5	
R1	3.3	3.1	R0
	4.1	3.8	
	5.4	5.3	
	6.9	6.8	R1
	8.8	8.9	
	11.9	12	
R2	15.4	16.2	R2
	23	23.8	
R3	31	30.4	R3
	38	36.1	
	45	42.8	
R4	59	58	R4
	72	68.4	
R5	87	82.7	R5
	125	100	
R6	157	138	R6
	180	161	R7
	205	196	
	246	234	R8
	290	278	
R8 (free-standing unit)	368	345	R9
	486	400	
	526	485	R10
	602	575	
–	–	715	R11
	–	810	
	–	865	

*Note that 580 nominal current is continuous without overloadability

Comparison table

Current definition	ACS550	ACS580
100% continuous	–	I_N
110% for 1 min/10 min	I_{2N}	I_{LD}
150% for 1 min/10 min	I_{2hd}	I_{Hd}

Definitions table

ACS550 Nominal ratings

P_N Typical motor power in 400 V at normal use.

Light-overload use ratings

I_{2N} Continuous rms current. 110% is allowed one minute in 10 minutes.

The ratings apply up to +40 °C. From 40 to 50 °C with derating.

ACS580 Nominal ratings

P_N Typical motor power in no-overload use.

I_N Rated current available continuously without overloadability at 40 °C (frames R0 to R3 up to +50 °C).

Light-overload use ratings

P_{LD} Typical motor power in light-overload use.

I_{LD} Continuous current allowing 110% I_{LD} for 1 min/10 min at 40 °C (frames R0 to R3 up to +50 °C).

The ratings apply for the frames R0 to R3 up to +50 °C and the frames R4 to R9 up to +40 °C in enclosed IP class 21. The ratings apply for the frames R10 to R11 up to +40 °C in enclosed IP00/IP20.

For derating at higher altitudes, temperatures, switching frequencies or enclosure classes, see the HW manuals, document codes: 3AXD50000018826 and 3AXD50000015497.

Power and current range

Heavy-duty power

ACS550		ACS580	
Frame size	P_{HD} (kW)	P_{HD} (kW)	Frame size
–	–	0.55	
R1	0.75	0.75	R0
	1.1	1.1	
	1.5	1.5	
	2.2	2.2	R1
	3	3	
R2	4	4	
	5.5	5.5	R2
R3	7.5	7.5	
	11	11	R3
R4	15	15	
	18.5	18.5	R4
	22	22	
R5	30	30	
	37	37	R5
R6	45	45	
	55	55	R6
	75	75	R7
	90	90	
R8 (free-standing unit)	110	110	R8
	132	132	
	160	160	R9
	200	200	
	250	200	R10
–	–	280	
	–	315	
	–	315	R11
		355	
		400	

Heavy-duty (150%) continuous current

ACS550		ACS580	
Frame size	I_{2HD} (A)	I_{HD} (A)	Frame size
–	–	1.8	
R1	2.4	2.6	R0
	3.3	3.3	
	4.1	4	
	5.4	5.6	R1
	6.9	7.2	
	8.8	9.4	
R2	11.9	12.6	R2
	15.4	17	
R3	23	24.6	
	31	31.6	R3
	38	37.7	
	44	44.6	R4
R4	59	61	
	72	72	R5
	96	87	
R5	124	105	R6
	156	145	
	162	169	R7
	192	206	
	246	246*	R8
	302	293	
R8 (free-standing unit)	414	363**	R9
	477	361	
	515	429	R10
	590	477	
	–	–	566
–	–	625	R11
	–	725***	
	–	725***	

Comparison table

Current definition	ACS550	ACS580
100% continuous	–	I_N
110% for 1 min/10 min	I_{2N}	I_{Ld}
150% for 1 min/10 min	I_{2hd}	I_{Hd}

Definitions table

ACS550 Heavy-duty use ratings

I_{2hd}	Continuous rms current. 150% is allowed one minute in 10 minutes.
P_{Hd}	Typical motor power in 400 V heavy-duty use.

The ratings apply up to +40 °C. From 40 to 50 °C with derating.

ACS580 Heavy-duty use ratings

P_{Hd}	Typical motor power in heavy-duty use.
I_{Hd}	Continuous current allowing 150% I_{Ld} for 1 minute every 10 minutes at 40 °C. * Continuous current allowing 130% I_{Ld} for 1 minute every 10 minutes at 40 °C. ** Continuous current allowing 125% I_{Ld} for 1 minute every 10 minutes at 40 °C. *** Continuous current allowing 140% I_{Ld} for 1 minute every 10 minutes at 40 °C.

The ratings apply for the frames R0 to R3 up to +50 °C and the frames R4 to R9 up to +40 °C in enclosed IP class 21.

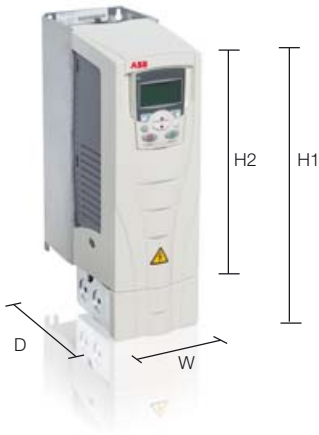
The ratings apply for the frames R10 to R11 up to +40 °C in enclosed IP00/IP20.

For derating at higher altitudes, temperatures, switching frequencies or enclosure classes, see the HW manuals, document codes: 3AXD50000018826 and 3AXD50000015497.

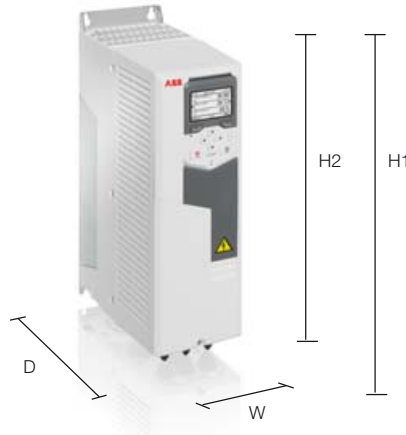
Dimensions

H1 = Front height with glandbox
H2 = Front height without glandbox

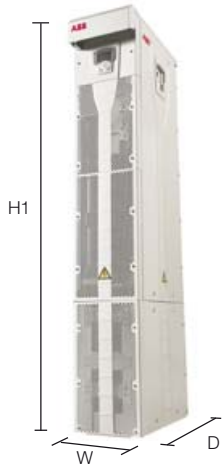
ACS550-01
Wall-mounted drives up to 160 kW



ACS580-01
Wall-mounted drives up to 250 kW



ACS550-02
Free-standing drives from 160 kW up to 355 kW



ACS580-01
Wall-mounted frame R9 drives up to 250 kW



ACS580-04
Drive modules frame R10 and R11 from 250 kW up to 500 kW



OR

	ACS550 R8	ACS580 R9	ACS580 R10	ACS580 R11
Height	2024 mm	955 mm (680 without glandbox)	1462 mm	1662 mm
Width	347 mm	380 mm	345 mm	345 mm
Depth	617 mm	418 mm	529 mm	529 mm
Power	200 to 355 kW	200 to 250 kW	250 to 355 kW	400 to 500 kW

Notice! Wall-mounted ACS580-01 drives must have a 20 cm clearing under the device itself in order to ensure enough air flow for the cooling. The length of supply or motor cables might be a limiting factor.

Customers and users with ACS550-2 R8 frame up to 355 kW now have the opportunity to replace their free-standing unit either with a wall-mounted ACS580-01 R9 frame up to 250 kW or drive module ACS580-04 R10 or R11 frame up to 500 kW.

Dimensions

IP21 protection class

Wall-mounted ACS550 - IP21 (380 to 480 V)					
H1 (mm)	H2 (mm)	W (mm)	D (mm)	P (kW)	Frame size
–	–	–	–	0.75	–
369	315	125	212	1.1	R1
				1.5	
				2.2	
				3	
				4	
				5.5	
469	415	125	222	7.5	R2
				11	
583	478	203	231	15	R3
				18.5	
				22	
689	583	203	262	30	R4
				37	
				45	
736	578	265	286	55	R5
888	698	302	400	75	R6
				90	
				110	
				132	
981				160	
2024	2024	347	617	200	R8 (Free standing unit)
				250	

H1 = Front height with glandbox, H2 = Front height without glandbox

Wall-mounted ACS580 - IP21 (380, 400, 415 V)					
Frame size	P (kW)	H1 (mm)	H2 (mm)	W (mm)	D (mm)
R0	0.75	303	303	125	210
	1.1				
	1.5				
	2.2				
R1	3	303	303	125	223
	4				
	5.5				
R2	7.5	394	394	125	227
	11				
R3	15	454	454	203	228
	18.5				
	22				
R4	30	600	600	203	257
	37				
R5	45	732	596	203	295
	55				
R6	75	726	549	252	369
R7	90	880	601	284	370
	110				
R8	132	965	677	300	393
	160				
R9	200	955	680	380	418
	250				

IP54/55 protection class

Wall-mounted IP54 ACS550				
H (mm)	W (mm)	D (mm)	P (kW)	Frame size
–	–	–	0.75	–
461	222	234	1.1	R1
			1.5	
			2.2	
			3	
			4	
			5.5	
561	222	245	7.5	R2
			11	
629	267	254	15	R3
			18.5	
			22	
760	267	284	30	R4
			37	
			45	
775	369	309	55	R5
924	410	423	75	R6
			90	
			110	
			132	
			160	
1119				

Wall-mounted IP55 ACS580				
Frame size	P (kW)	H (mm)	W (mm)	D (mm)
R0	0.75	303	125	222
	1.1			
	1.5			
	2.2			
R1	3	303	125	233
	4			
	5.5			
R2	7.5	394	125	239
	11			
R3	15	454	203	237
	18.5			
	22			
R4	30	600	203	265
	37			
R5	45	732	203	320
	55			
R6	75	726	252	380
R7	90	880	284	381
	110			
R8	132	965	300	452
	160			

Mounting

Mounting holes

Mounting holes W1 (mm)

ACS550 IP21/IP54		ACS580 IP21/IP55	
-	-	98	R0
R1	98	98	R1
R2	98	98	R2
R3	160	160	R3
R4	160	160	R4
R5	238	160	R5
R6	263	213	R6
		245	R7
		263	R8
-	-	345	R9



Mounting holes

Mounting holes W2 (mm)

ACS550 IP21/IP54		ACS580 IP21/IP55	
-	-	No second holes	R0
R1	No second holes	No second holes	R1
R2	No second holes	No second holes	R2
R3	98	98*	R3
R4	98	98	R4
R5	No second holes	98	R5
		160	R6
		160	R7
R6	No second holes	214	R8
		200	R9

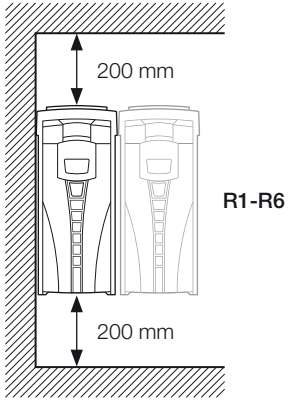
Mounting holes H1 (mm)

ACS550 IP21/IP54		ACS580 IP21/IP55	
-	-	317	R0
R1	318	317	R1
R2	418	417	R2
R3	473	473	R3
R4	578	619	R4
R5	588	581	R5
		531	R6
R6	675	583	R7
		658	R8
-	-	658	R9

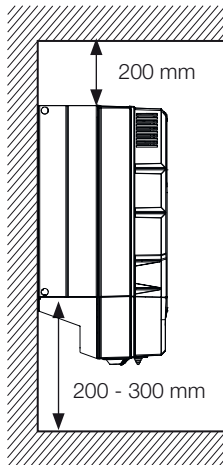
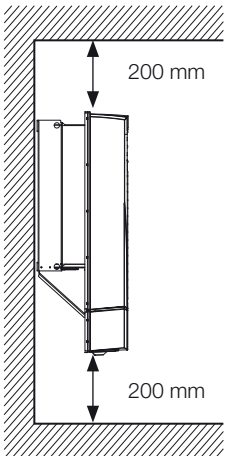
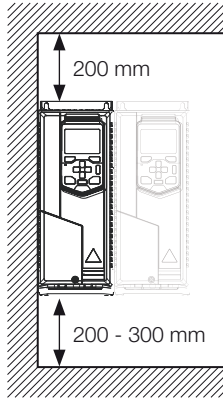
*Second holes only applicable to IP55.

Free space requirements

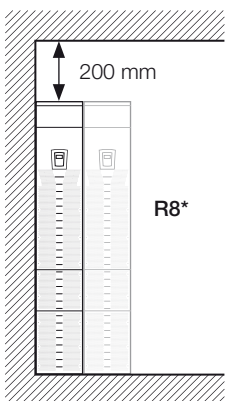
Wall-mounted ACS550-01
IP21/54



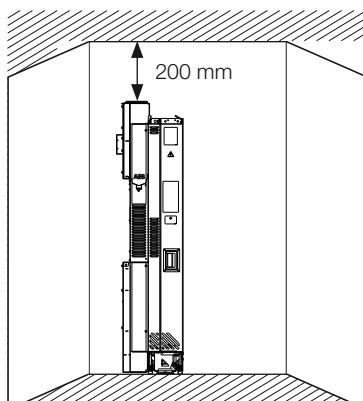
Wall-mounted ACS580-01
IP21/55



Free-standing ACS550-02
IP21



ACS580-04
IP00/IP20



* R8 is a free-standing unit.

Glandbox and installation height

Low installation sites and box installations

Due to compact size of the smaller frame sizes on ACS580 the cable clamping is done inside the drive instead of inside the glandbox as on ACS550. The required free space has remained the same on frames up to R3. Larger frames do however use the familiar glandbox design for cable clamping and require 300 mm free space below.

When replacing ACS550 with ACS580 you should consider the cabling since the absence of glandbox in ACS580 frames R3 and smaller may require you to lower the mounting points if the cable does not have sufficient stretch. Frames R6 and

larger must have 300 mm free space below the drive – measured from the fan which is higher than the free space requirement on ACS550. This might require use of longer cables.

Horizontal cabling

Also notice that while ACS550 has multiple inlets on the bottom and on the sides of glandbox ACS580 has only five inlets which are located solely under the drive. This needs to be taken into account when ACS580 is fitted to replace ACS550.

Cables

Maximum cable size (mm²)

ACS550		ACS580		
Frame size	Stranded	Solid	Stranded	Frame size
–	–	6	4	R0
R1	10	6	4	R1
R2	10	16	16	R2
R3	25	35	25	R3
R4	50	–	50	R4
R5	70	–	70	R5
R6	240	–	150	R6
		–	240	R7
		–	2×150	R8
		–	2×240	R9

Maximum size diameter (AWG)

ACS550		ACS580	
Frame size	Stranded	Stranded	Frame size
–	–	10	R0
R1	8	10	R1
R2	8	6	R2
R3	3	2	R3
R4	1/0	1	R4
R5	2/0	1/0	R5
R6	350 MCM	300 MCM	R6
		400 MCM	R7
		2×300 MCM	R8
		2×400 MCM	R9

Maximum heat dissipation

ACS550		
Type designation	Max heat dissipation (W)	Frame size
–	–	–
ACS550-01-03A3-4	40	R1
ACS550-01-04A1-4	52	
ACS550-01-05A4-4	73	
ACS550-01-06A9-4	97	
ACS550-01-08A8-4	127	
ACS550-01-012A-4	172	
ACS550-01-015A-4	232	R2
ACS550-01-023A-4	337	
ACS550-01-031A-4	457	R3
ACS550-01-038A-4	562	
ACS550-01-045A-4	667	
ACS550-01-059A-4	907	R4
ACS550-01-072A-4	1120	
ACS550-01-087A-4	1440	
ACS550-01-125A-4	1940	R5
ACS550-01-157A-4	2310	R6
ACS550-01-180A-4	2810	
ACS550-01-195A-4	3050	
ACS550-01-246A-4	3260	
ACS550-01-290A-4	3850	
ACS550-02-368A-4	6850	
ACS550-02-486A-4	7850	R8 (Free-standing unit)

Maximum heat dissipation

ACS580		
Frame size	Max heat dissipation (W)	Type designation
R0	45	ACS580-01-02A6-4
	55	ACS580-01-03A3-4
	66	ACS580-01-04A0-4
	84	ACS580-01-05A6-4
R1	106	ACS580-01-07A6-4
	133	ACS580-01-09A4-4
	174	ACS580-01-12A6-4
R2	228	ACS580-01-017A-4
	322	ACS580-01-025A-4
R3	430	ACS580-01-032A-4
	525	ACS580-01-038A-4
R4	619	ACS580-01-045A-4
	835	ACS580-01-062A-4
R5	1024	ACS580-01-073A-4
	1240	ACS580-01-088A-4
R6	1510	ACS580-01-106A-4
	1476	ACS580-01-145A-4
R7	1976	ACS580-01-169A-4
	2346	ACS580-01-206A-4
R8	3336	ACS580-01-246A-4
	3936	ACS580-01-293A-4
R9	4836	ACS580-01-363A-4
	6036	ACS580-01-430A-4

Braking resistors

ACS550

Minimum braking resistor values and maximum values to get P_N and P_{HD} at braking

Type designation ACS550-x1-	Nominal use braking P (kW)	Resistor R_{min} (Ω)	Resistor R_{max} (Ω)
3-phase $U_N = 380, 400, 415, 440, 480$ V			
03A3-4	1.1	120	641
04A1-4	1.5	120	470
05A4-4	2.2	120	320
06A9-4	3	80	235
08A8-4	4	80	192
012A-4	5.5	80	128
015A-4	7.5	63	94
023A-4	11	63	63*

* Would be 61 Ohm, but 63 Ohm is the minimum resistance allowed.

ACS580

The table shows minimum and maximum resistor values for the maximum braking power

Type designation ACS580-01-	Resistor R_{min} (Ω)	Resistor R_{max} (Ω)	$P_{br,max}$ (kW)
3-phase $U_N = 400$ or 480 V (380 to 415 V, 440 to 480 V)			
02A6-4	54	690	0.6
03A3-4	54	465	0.9
04A0-4	54	313	1.3
05A6-4	54	223	1.9
07A2-4	54	153	2.6
09A4-4	54	112	3.5
12A6-4	54	83	4.9
017A-4	32	60	6.8
025A-4	23	42	10
032A-4	16	29	14
038A-4	11	21	17
045A-4	11	17	20

Common values of brake resistors for both ranges

ACS550 Braking power

Type designation ACS550-x1-	Frame size	Normal use P_N (kW)	Heavy-duty use P_{HD} (kW)
-	-	-	-
03A3-4	R1	1.1	0.75
04A1-4		1.5	1.1
05A4-4		2.2	1.5
06A9-4		3	2.2
08A8-4		4	3
012A-4		5.5	4
015A-4		7.5	5.5
023A-4	R2	11	7.5
031A-4	R3	External chopper used, not compatible with ACS580's internal chopper.	
038A-4			
045A-4			

Compatibility

Braking resistor Compatibility
New resistor required
Use existing resistor if $R < 582$
Use existing resistor if $R < 392$
Use existing resistor if $R < 279$
Use existing resistor if $R < 191$
Use existing resistor if $R < 140$
Use existing resistor if $R < 104$
New resistor required e.g. CBR-V 560 D HT 406 39R
New resistor required e.g. CBR-V 560 D HT 406 39R
New resistor required e.g. CBT-H 560 D HT 406 19R
New resistor required e.g. CBT-H 760 D HT 406 16R
New resistor required e.g. CBT-H 760 D HT 406 16R

ACS580 Braking power

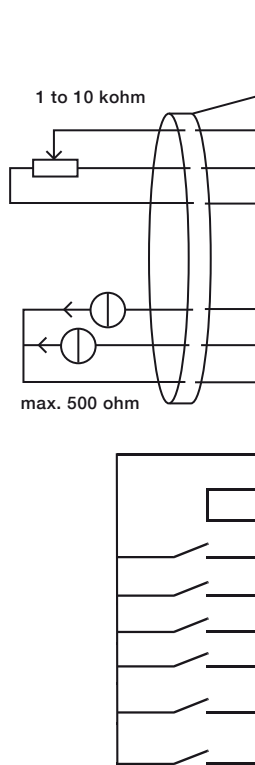
P_{BRmax} (kW)	Frame size	Type designation ACS580-01-
0.6	R0	02A6-4
0.9		03A3-4
1.4		04A0-4
2.0		05A6-4
2.9	R1	07A2-4
3.9		09A4-4
5.3		12A6-4
7.3	R2	017A-4
10		025A-4
15	R3	032A-4
20		038A-4
25		045A-4

ACS580

For larger frame sizes (R4 to R11) see HW manual, document codes: 3AXD50000018826 and 3AXD50000015497.

Electrical data

ACS550 I/O terminals



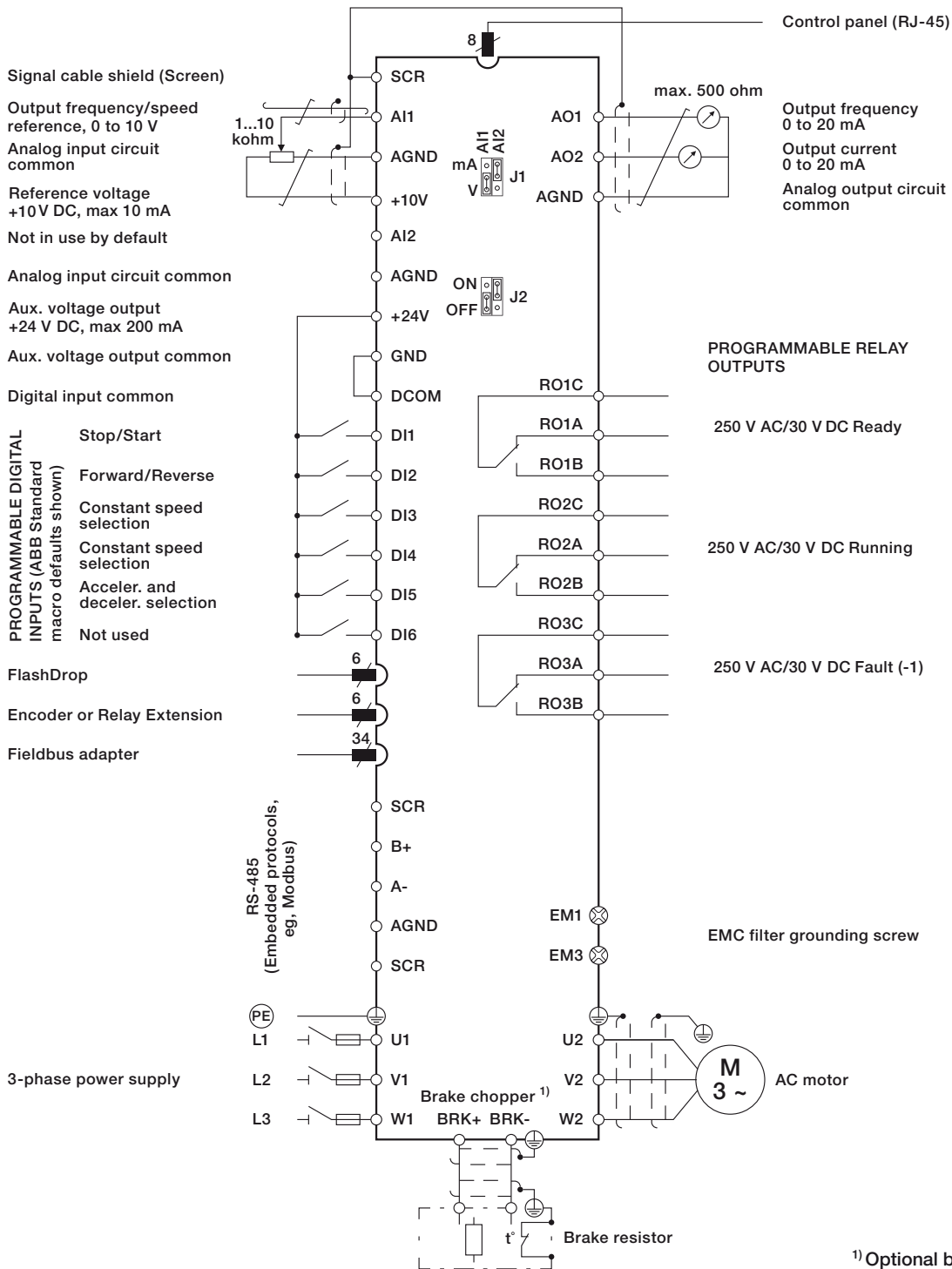
Terminal	Meaning	Default macro connections
X Reference voltage and analog inputs and outputs		
1	SCR	Signal cable shield (screen)
2	AI1	External frequency reference 1: 0 to 10 V
3	AGND	Analog input circuit common
4	+10 V	Output reference voltage 10 V DC
5	AI2	Not used
6	AGND	Analog input circuit common
7	AO1	Output frequency: 0 to 20 mA
8	AO2	Output current: 0 to 20 mA
9	AGND	Analog output circuit common
X2 & X3 Aux. voltage output and programmable digital inputs		
10	+24 V	Auxiliary voltage output +24 V DC
11	GND	Auxiliary voltage output common
12	DCOM	Digital input common for all
13	DI1	Start/Stop: Activate to start
14	DI2	Fwd/Rev: Activate to reverse rotation direction
15	DI3	Constant speed selection
16	DI4	Constant speed selection
17	DI5	Ramp pair selection: Activate to select second acc/dec ramp pair
18	DI6	Not used
X6, X7, X8 Relay outputs		
19	RO1C	Relay output 1, programmable Default operation: Ready => 19 connected to 21
20	RO1A	
21	RO1B	
22	RO2C	Relay output 2, programmable Default operation: Running => 22 connected to 24
23	RO2A	
24	RO2B	
25	RO3C	Relay output 3, programmable Default operation: Fault (-1) => 25 connected to 27 (Fault => 25 connected to 26)
26	RO3A	
27	RO3B	
X1 EIA-485 Modbus RTU		
28	SCR	Not used
29	B+	Built-in Modbus RTU fieldbus interface
30	A-	
31	AGND	
32	SCR	Not used

Electrical data

ACS580 I/O terminals

Terminal	Meaning	Default macro connections
S1	AI1 U/I	Voltage/Current selection for analog input
S2	AI2 U/I	Voltage/Current selection for analog input
XI Reference voltage and analog inputs and outputs		
1	SCR	Signal cable shield (screen)
2	AI1	External frequency reference 1: 0 to 10 V
3	AGND	Analog input circuit common
4	+10 V	Output reference voltage 10 V DC
5	AI2	Not used
6	AGND	Analog input circuit common
7	AO1	Output frequency: 0 to 20 mA
8	AO2	Output current: 0 to 20 mA
9	AGND	Analog output circuit common
S3	AO1 I/U	Voltage/Current selection for analog output
X2 & X3 Aux. voltage output and programmable digital inputs		
10	+24 V	Auxiliary voltage output +24 V DC
11	DGND	Auxiliary voltage output common
12	DCOM	Digital input common for all DI
13	DI1	Start/Stop: Activate to start
14	DI2	Fwd/Rev: Activate to reverse rotation direction
15	DI3	Constant speed selection
16	DI4	Constant speed selection
17	DI5	Ramp pair selection: Activate to select second pair
18	DI6	Not used
X6, X7, X8 Relay outputs		
19	RO1C	Ready 250 V AC/30 V DC 2 A
20	RO1A	
21	RO1B	
22	RO2C	Running 250 V AC/30 V DC 2 A
23	RO2A	
24	RO2B	
25	RO3C	Fault (-1) 250 V AC/30 V DC 2 A
26	RO3A	
27	RO3B	
X5 EIA-485 Modbus RTU		
29	B+	Built-in Modbus RTU fieldbus interface
30	A-	
31	DGND	
S4	TERM	Serial data link termination switch
S5	BIAS	Serial data link bias resistors switch
X4 Safe torque off		
34	OUT1	Safe torque off. Both circuits must be closed for the drive to start. The circuits are closed with jumper wires in the standard delivery.
35	OUT2	
36	SGND	
37	IN1	
38	IN2	
X10 24 V AC/DC		
40	24 V	AC/DC-in. Ext. 24 V AC/DC input to power up the control unit when the main supply is disconnected [R6...R11 frame size only]
41	24 V	AC/DC+in. [R6...R11 frame size only]

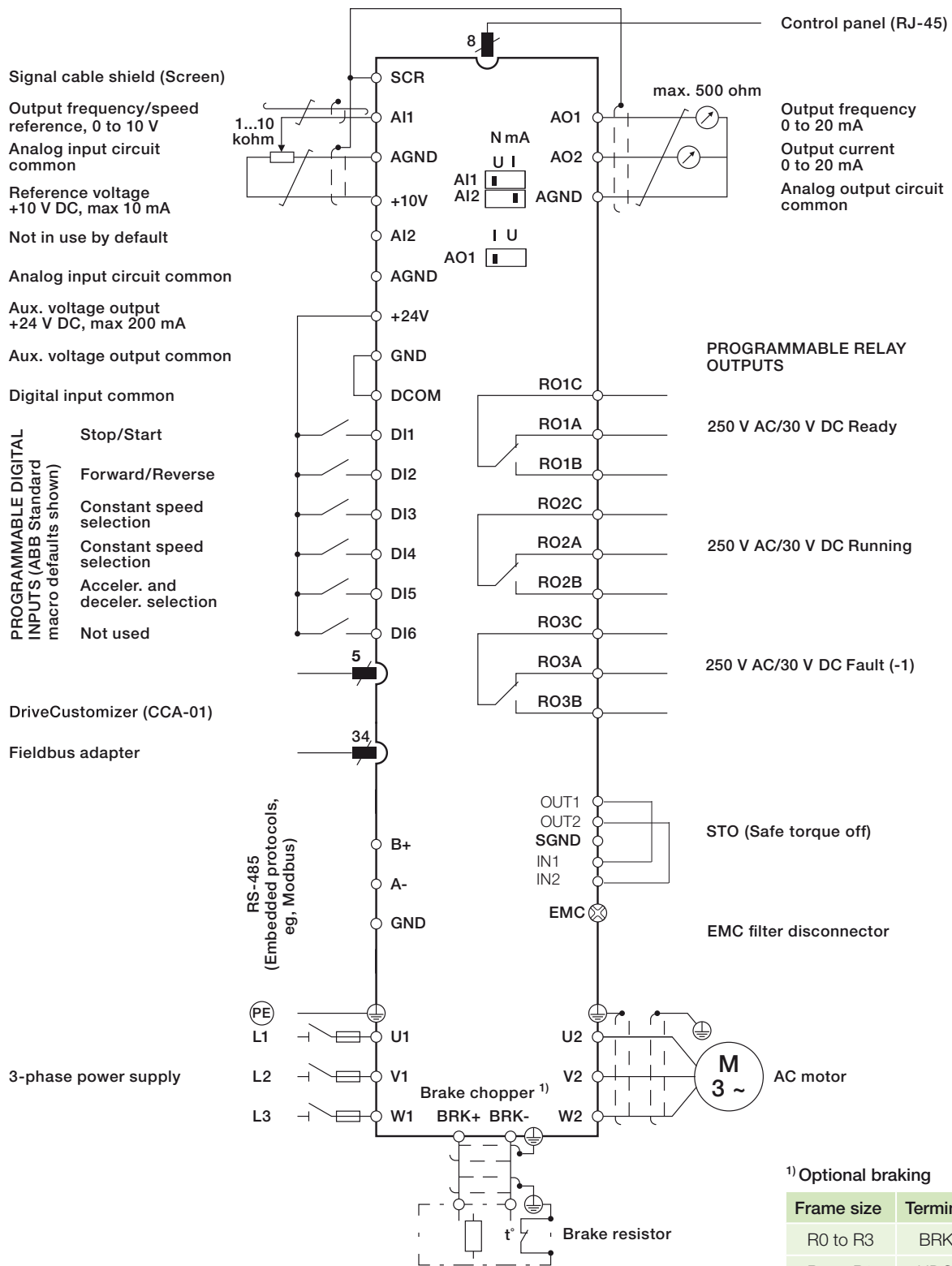
Default macro ACS550



¹⁾ Optional braking

Frame size	Terminal labels
R1 to R2	BRK+, BRK-
R3 to R8	UDC+, UDC-

Default macro ACS580



Parameter groups

ACS580

01	Actual values	Basic signals for monitoring the drive.
03	Input references	Values of references received from various sources.
04	Warnings and faults	Information on warnings and faults that occurred last.
05	Diagnostics	Various run-time-type counters and measurements related to drive maintenance.
06	Control and status words	Drive control and status words.
07	System info	Drive hardware and firmware information.
10	Standard DI, RO	Configuration of digital inputs and relay outputs.
11	Standard DIO, FI, FO	Configuration of the frequency input.
12	Standard AI	Configuration of standard analog inputs.
13	Standard AO	Configuration of standard analog outputs.
-	-	-
15	I/O extension module	Configuration of the I/O extension module installed in slot 2.
-	-	-
19	Operation mode	Selection of local and external control location sources and operating modes.
20	Start/stop /direction	Start/stop/direction and run/start/jog enable signal source selection; positive/negative reference enable signal source selection.
21	Start/stop mode	Start and stop modes; emergency stop mode and signal source selection; DC magnetization settings.
22	Speed reference selection	Speed reference selection; motor potentiometer settings.
23	Speed reference ramp	Speed reference ramp settings (programming of the acceleration and deceleration rates for the drive).
24	Speed reference conditioning	Speed error calculation; speed error window control configuration; speed error step.
25	Speed control	Speed controller settings.

ACS550

01	OPERATING DATA	This group contains drive operating data, including actual signals. The drive sets the values for actual signals, based on measurements or calculations.
03	FB ACTUAL SIGNALS	This group monitors fieldbus communications.
04	FAULT HISTORY	This group stores a recent history of the faults reported by the drive.
-	-	-
-	-	-
-	-	-
10	START/STOP/ DIR	<ul style="list-style-type: none"> – defines external sources (EXT1 and EXT2) for commands that enable start, stop and direction changes – locks direction or enables direction control.
11	REFERENCE SELECT	<ul style="list-style-type: none"> – how the drive selects between command sources – characteristics and sources for REF1 and REF2.
12	CONSTANT SPEEDS	This group defines a set of constant speeds.
13	ANALOG INPUTS	This group defines the limits and the filtering for analog inputs.
14	RELAY OUTPUTS	This group defines the condition that activates each of the relay outputs.
15	ANALOG OUTPUTS	This group defines the drive's analog (current signal) outputs.
16	SYSTEM CONTROLS	This group defines a variety of system level locks, resets and enables.
-	-	-
20	LIMITS	This group defines minimum and maximum limits to follow in driving the motor – speed, frequency, current, torque, etc.
21	START/ STOP	This group defines how the motor starts and stops. The ACS550 supports several start and stop modes.
22	ACCEL/ DECEL	This group defines ramps that control the rate of acceleration and deceleration. You define these ramps as a pair, one for acceleration and one for deceleration. You can define two pairs of ramps and use a digital input to select one or the other pair.
23	SPEED CONTROL	This group defines variables used for speed control operation.
24	TORQUE CONTROL	This group defines variables used for torque control operation.
25	CRITICAL SPEEDS	This group defines up to three critical speeds or ranges of speeds that are to be avoided due, for example, to mechanical resonance problems at certain speeds.

Parameter groups

ACS580			ACS550		
26	Torque reference chain	Settings for the torque reference chain.	26	MOTOR CONTROL	This group defines variables used for motor control.
28	Frequency reference chain	Settings for the frequency reference chain.	-	-	-
-	-	-	29	MAINTENANCE TRIG	This group contains usage levels and trigger points. When usage reaches the set trigger point, a notice displayed on the control panel signals that maintenance is due.
30	Limits	Drive operation limits.	30	FAULT FUNCTIONS	This group defines situations that the drive should recognize as potential faults and defines how the drive should respond if the fault is detected.
31	Fault functions	Configuration of external events; selection of behavior of the drive upon fault situations.	31	AUTOMATIC RESET	This group defines conditions for automatic resets.
32	Supervision	Configuration of signal supervision functions 1...6.	32	SUPERVISION	This group defines supervision for up to three signals from Group 01: OPERATING DATA.
-	-	-	33	INFORMATION	This group provides access to information about the drive's current programs: versions and test date.
34	Timed functions	Configuration of the timed functions.	34	PANEL DISPLAY	This group defines the content for control panel display (middle area), when the control panel is in the Output mode.
35	Motor thermal protection	Motor thermal protection settings such as temperature measurement configuration, load curve definition and motor fan control configuration.	35	MOTOR TEMP MEAS	This group defines the detection and reporting for a particular potential fault – motor overheating, as detected by a temperature sensor.
36	Load analyzer	Peak value and amplitude logger settings.	36	TIMED FUNCTIONS	This group defines the timed functions.
37	User load curve	Settings for user load curve.	37	USER LOAD CURVE	This group defines supervision of user adjustable load curves (motor torque as a function of frequency). The curve is defined by five points.
40	Process PID set 1	Parameter values for process PID control.	40	PROCESS PID SET1	This group defines a set of parameters used with the Process PID (PID1) controller.
41	Process PID set 2	A second set of parameter values for process PID control.	41	PROCESS PID SET2	Parameters of this group belong to PID parameter set 2.
-	-	-	42	EXT/TRIM PID	This group defines the parameters used for the second PID controller (PID2), which is used for the External/Trimming PID.
43	Brake chopper	Settings for the internal brake chopper.	-	-	-
44	Mechanical brake control	Configuration of mechanical brake control.	-	-	-
45	Energy efficiency	Settings for the energy saving calculators.	45	ENERGY SAVING	This group defines the setup of calculation and optimization of energy savings.
46	Monitoring/scaling settings	Speed supervision settings; actual signal filtering; general scaling settings.	-	-	-
47	Data storage	Data storage parameters that can be written to and read from using other parameters' source and target settings.	-	-	-
49	Panel port communication	Communication settings for the control panel port on the drive.	-	-	-
50	Fieldbus adapter (FBA)	Fieldbus communication configuration.	50	ENCODER	This group defines the setup for encoder use.
51	FBA A settings	Fieldbus adapter A configuration.	51	EXT COMM MODULE	This group defines setup variables for a fieldbus adapter (FBA) communication module.

Parameter groups

ACS580		
52	FBA A data in	Selection of data to be transferred from drive to fieldbus controller through fieldbus adapter A.
53	FBA A data out	Selection of data to be transferred from fieldbus controller to drive through fieldbus adapter A.
58	Embedded fieldbus	Configuration of the embedded fieldbus (EFB) interface.
-	-	-
71	External PID1	Configuration of external PID.
76	PFC configuration	PFC (Pump and fan control) and Autochange configuration parameters. See also section Pump and fan control (PFC) on page 114.
77	PFC maintenance and monitoring	PFC (Pump and fan control) and Autochange configuration parameters. See also section Pump and fan control (PFC) on page 114.
-	-	-
95	HW configuration	Various hardware-related settings.
96	System	Language selection; access levels; macro selection; parameter save and restore; control unit reboot; user parameter sets; unit election.
97	Motor control	Switching frequency; slip gain; voltage reserve; flux braking; anti-cogging (signal injection); IR compensation.
98	User motor parameters	Motor values supplied by the user that are used in the motor model.
99	Motor data	Motor configuration settings.

ACS550		
52	PANEL COMM	This group defines the communication settings for the control panel port on the drive.
53	EFB PROTOCOL	This group defines set-up variables used for an embedded fieldbus (EFB) communication protocol.
-	-	-
64	LOAD ANALYZER	This group defines the load analyzer, which can be used for analyzing the customer's process and sizing the drive and the motor.
-	-	-
-	-	-
-	-	-
81	PFC CONTROL	This group defines a Pump-Fan Control (PFC) mode of operation.
-	-	-
-	-	-
-	-	-
98	OPTIONS	This group configures for options, in particular, enabling serial communication with the drive.
99	START-UP DATA	This group defines special startup data required to: <ul style="list-style-type: none"> - set up the drive - enter motor information.

Commissioning ACS580 after ACS550 replacement

All information regarding the control of your application should be gathered from the ACS550 prior the actual replacement.

At the first startup of your new ACS580 you should have the following information from your old ACS550 at hand to complete the first start assistant:

- are you using international or imperial units (meters or feet)
- what are the units you want to use (kilowatts or horsepower)
- date and time
- name of the drive (if any) so that the new drive can be identified in a larger system, for example in panel bus daisy chain
- the nominal values of the motor

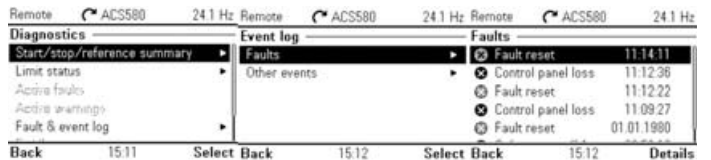
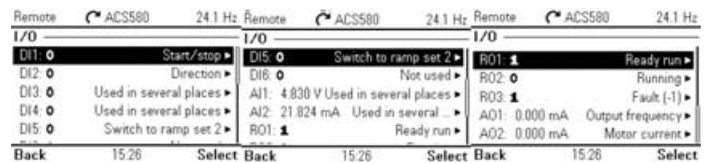
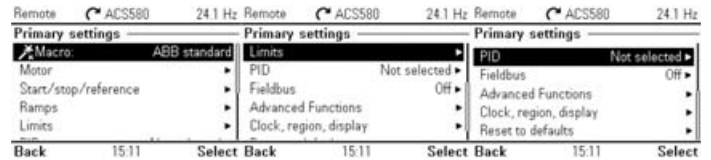
All other information is setup afterwards (still needs to be known beforehand):

Checklist

- where is the reference coming to
- where is the start/stop (and direction change) coming from and coming to
- are there any other control or reference sources
- are there any digital commands which change ramp times etc.
- how relays are configured
- which fieldbuses or extensions are used and how they are configured
- is emergency stop configured
- is the drive running in scalar or vector mode

Primary settings menu

The Primary settings menu on the ACS580 simplifies the use of the drive and holds in all the most important settings so the user can avoid using the full parameter list.



User can see all the relevant information from the Primary settings menu, such as motor nominal values, control location and references, ramps, limits and fieldbus settings as well as clock, region and display settings.

If problem occurs, user can define the terminal's logic from the I/O menu for diagnostics and troubleshooting.

The Diagnostics menu summarizes valuable information from the drive and if something is limiting the drive's operation. Other information, such as summary from start, stop, direction and reference location, as well as log of faults and events is shown as well.

Contact us

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3AUA0000172684 REV B EN 10.2.2016