

File E124534  
Project 98NK33597

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REPORT

on

POWER CONVERSION EQUIPMENT

ABB Industrial Systems Inc.  
New Berlin, WI

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PRODUCT COVERED:

AC adjustable, Enclosed Type 1, R1-R4 frame size speed drives, constant torque Model ACS401, followed by 0, 1, 6, 2, 3, 4, 5, 7, 8, 9, A, B, C, D, E, F, G, H followed by 004, 005, 006, 009, 011, 016, 020, 025, 030 or 041 followed by 1, 2 or 3, followed by 2, 5 or 6.

AC adjustable, Enclosed Type 1, R1-R4 frame size speed drives, variable torque Models ACH401; followed by 0, 1, 6, 2, 3, 4, 5, 7, 8, 9, A, B, C, D, E, F, G, H followed by 004, 005, 006, 009, 011, 016, 020, 025, 030 or 041; followed by 1,2 or 3, followed by 2, 5 or 6.

General - These are enclosed type 1 AC drive controllers which convert 3-phase, 50/60 Hz input power to an adjustable AC frequency and voltage source for controlling the speed of AC induction motors. The output voltage varies proportionally with the output frequency to maintain a constant excitation value from 0 to 250 Hz. The drive includes power conversion components, power and control logic devices and regulator circuitry. The microprocessor is used to control the drive regulators and power semiconductors which generate a pulse width modulated (PWM) output wave form. Overspeed protection provided by the software.

Option Extension I/O module is internally mounted and can be installed in the field.

RATINGS:

480 V ac Types

Frame Size	Model	Drive KVA Rating	Input		Output		Nominal Rated hp	Heavy Duty Rated hp
			3 Phase 48-63 Hz 380-480 V ac		3 Phase 0-250 Hz 0 V in V ac			
			Nominal Current A	Heavy Duty Current A	Nominal Current A	Heavy Duty Current A		
R1	ACS401X0043	4	6.2	4.7	6.6	4.9	3	2
R1	ACS401X0053	5	8.3	6.2	8.8	6.6	5	3
R1	ACS401X0063	6	11.1	8.3	11.6	8.8	7.5	5
R2	ACS401X0093	9	14.8	11.1	15.3	11.6	10	7.5
R2	ACS401X0113	11	21.5	14.8	23	15.3	15	10
R3	ACS401X0163	16	29	21.5	30	23	20	15
R3	ACS401X0203	20	35	29	38	30	25	20
R4	ACS401X0253	25	41	35	44	38	30	25
R4	ACS401X0303	30	56	41	59	44	40	30
R4	ACS401X0413	41	68	56	72	59	50	40

480 V ac Types

Frame Size	Model	Drive KVA Rating	Input		Output	
			3 Phase 48-63 Hz 380-480 V ac		3 Phase 0-250 Hz 0 V in V ac	
			Nominal Current A	Nominal Current A	Nominal Rated hp	
R1	ACH401X0043	4	6.2	6.6	3	
R1	ACH401X0053	5	8.3	8.8	5	
R1	ACH401X0063	6	11.1	11.6	7.5	
R2	ACH401X0093	9	14.8	15.3	10	
R2	ACH401X0113	11	21.5	23	15	
R3	ACH401X0163	16	29	30	20	
R3	ACH401X0203	20	35	38	25	
R4	ACH401X0253	25	41	44	30	
R4	ACH401X0303	30	56	59	40	
R4	ACH401X0413	41	68	72	50	

230 V ac Types Phase I

Frame Size	Model	Drive KVA Rating	Input		Output		Nominal Rated hp	Heavy Duty Rated hp
			3 Phase 48-63 Hz 208-240 V ac		3 Phase 0-250 Hz 0 V in V ac			
			Nominal Current A	Heavy Duty Current A	Nominal Current A	Heavy Duty Current A		
R1	ACS401X0061	6	11.1	8.3	11.6	8.8	3	2
R2	ACS401X0091	9	14.8	11.1	15.3	11.6	5	3
R2	ACS401X0111	11	21.5	14.8	23.0	15.3	7.5	5
R3	ACS401X0161	16	29	21.8	30	23	10	7.5
R3	ACS401X0201	20	35	29	38	30	15	10
R4	ACS401X0301	30	56	41	59	44	20	15
R4	ACS401X0411	41	68	56	72	59	25	20

230 V ac Types (Phase I)

Frame Size	Model	Drive KVA Rating	Input		Output	
			3 Phase 48-63 Hz 208-240 V ac Nominal Current A		3 Phase 0 - 250 Hz 0 V in V ac	
			Nominal Current A	Nominal Current A	Nominal Rated Hp	
R1	ACH401X0061	6	11.1	11.6	7.5	
R2	ACH401X0091	9	14.8	15.3	10	
R2	ACH401X0111	11	21.5	23.0	15	
R3	ACH401X0161	16	29	30	20	
R3	ACS401X0201	20	35	38	25	
R4	ACH401X0301	30	56	59	40	
R4	ACH401X0411	41	68	72	50	

230 V ac Types (Phase 2)

Frame Size	Model	Drive KVA Rating	Input		Output		Nominal Rated Hp	Heavy Duty Rated Hp
			3 Phase 48-63 Hz 208-240 V ac		3 Phase 0-250 Hz 0-V in V ac (0 to 240 V ac)			
			Nominal Current A	Heavy Duty Current A	Nominal Current A	Heavy Duty Current A		
R1	ACS401X0042	4	10.6	7.5	10.6	7.5	3	2
R1	ACS401X0052	5	16.7	10.6	16.7	10.6	5	3
R2	ACS401X0062	6	24.2	16.7	24.2	16.7	7.5	5
R2	ACS401X0092	9	30.8	24.2	30.8	24.2	10	7.5
R3	ACS401X0112	11	46.2	30.8	46.2	30.8	15	10
R3	ACS401X0162	16	59.4	46.2	59.4	46.2	20	15
R4	ACS401X0202	20	74.8	59.4	74.8	59.4	25	20
R4	ACS401X0302	30	88	74.8	88	74.8	30	25
R4	ACS401X0412	41	114	88	114	88	40	30

230 V ac Types

Frame Size	Model	Drive KVA Rating	Input		Output	
			3 phase 48-63 Hz 208-240 V ac		3 Phase 0-250 Hz 0-Vin (0 to 240 V ac)	
			Nominal Torque Current (A)	Heavy Duty Torque Current (A)	Nominal Torque Current (A)	Squared Torque Rated Hp
R1	ACH401X0042	4	10.6		10.6	3
R1	ACH401X0052	5	16.7		16.7	5
R2	ACH401X0062	6	24.2		24.2	7.5
R2	ACH401X0092	9	30.8		30.8	10
R3	ACH401X0112	11	46.2		46.2	15
R3	ACH401X0162	16	59.4		59.4	20
R4	ACH401X0202	20	74.8		74.8	25
R4	ACH401X0302	30	88		88	30
R4	ACH401X0412	41	114		114	40

Short Circuit Rating - 65 kA rms symmetrical.

Environmental - 40°C at rated current, de-rated current for 41°C to 50°C. All drives meet plenum rating requirements and can be placed in HVAC air handling ductwork.

NOMENCLATURE:

<u>AC</u>	<u>S</u>	<u>4</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>006</u>	<u>3</u>	<u>2</u>
I	II	III	IV	V	VI	VII	VIII	IX

I. AC Drive

II. Product Type

S - Standard

H - HVAC

III. ACS 400 Product Family

IV. Input Bridge

0 - 6 pulse rectifier

V. Enclosure Type

1 - Wall mounted

VI. Options

0 - No operator panel, European plate

1 - No panel, US conduit plate

6 - Operator panel, US conduit plate

2 - No operation panel + Spanish documentation + US conduit plate

3 - No operator panel + German documentation + US conduit plate

4 - No operator panel + French documentation + US conduit plate

5 - No operator panel + Portugese documentation + US conduit plate

7 - Operator panel + Spanish documentation + US conduit plate

8 - Operator panel + German documentation + US conduit plate

9 - Operator panel + French documentation + US conduit plate

A - Operator panel + Portugese documentation + US conduit plate

B - Op panel + Am English doc + Landis & Staefa firmware, US conduit box

C - Op panel + Am Eng doc + Johnson Control firmware, US conduit plate

D - Not used

E - Op panel + no docs + euro conduit plate + RFI-filter IF22-3

F - Op panel + no docs + euro conduit plate + Footprintfilter

G - Op panel + no docs + euro conduit plate + Johnson Control firmware

H - Op panel + SE/User Manual + euro cond. Plate + ABB Vent parameters

V - OP panel + User Manual + euro cond plate + ABB Ventilation

Parameters + Footprintfilter + ACS400 HVAC Sticker

VII. Rated Output Power in kVA

004	009	020	041
005	011	025	
006	016	030	

VIII. Supply Voltage

- 1 - 208/240 V ac
- 3 - 380/480 V ac
- 2 - 208/240 V ac Phase II

IX. Enclosure Class

- 2 - Enclosed type 1 (IP21)
- 5 - Enclosed type 1 (IP54)
- 6 - Enclosed type 1 (IP55)

