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Project 98NK9095A

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REPORT

on

POWER CONVERSION EQUIPMENT

ABB Industrial Systems Inc.  
New Berlin, WI

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RGS/REL:bcs  
NKDLS

A not-for-profit organization  
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committed to quality service

DESCRIPTION

PRODUCT COVERED:

\*AC adjustable speed drives, open type, Models ACS followed by 141 or 143, followed by -K18, -K25, -K37, -K75, -1K1, -1K6, -2K1, -2K7 or -4K1, -H18, -H25, -H37, -H75, -1H1 or -1H6 followed by -1, may be followed by U.

\*AC adjustable speed drives, open type, Models ACS, followed by 143, followed by -K75, -1K1, -1K6, -2K1, -2K7 or -4K1, -H75, -1H1, -1H6 or -2H1 followed by 3, may be followed by U.

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

General - These open type AC inverters convert single or 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 gate drivers and power semiconductors which generate a pulse width modulated (PWM) output waveform.

Spacings - Spacings were evaluated using UL 508C, Tables 35.1, 35.3 and 35.4 and/or UL 840 spacing per Tables 5.1 and 6.2. A conformal coating such as epoxy, R/C (QMFZ2) silicone rubber (such as RTV) or R/C (QMJU2) conformal coating is applied in accordance with the manufacturer's instructions to the points located within a dotted area indicated in ILLS. 1 through 7 of this Report.

RATINGS:

*Model	Single Phase, Input Voltage (V ac)	Input Current (A)	Output Voltage (V ac)	Output Current (Single Phase) (A)	Output kW
ACS141-X18-1	200-240	2.7	0-Vin	1.0	0.12
ACS141-X25-1	200-240	4.4	0-Vin	1.4	0.18
ACS141-X37-1	200-240	5.4	0-Vin	1.7	0.25
ACS141-X75-1	200-240	6.9	0-Vin	2.2	0.37
ACS141-1X1-1	200-240	9.0	0-Vin	3.0	0.55
ACS141-1X6-1	200-240	10.8	0-Vin	4.3	0.75
ACS141-2X1-1	200-240	14.8	0-Vin	5.9	1.1
ACS141-2X7-1	200-240	18.2	0-Vin	7.0	1.5
ACS141-4X1-1	200-240	22	0-Vin	9.0	2.2

\*"X" in the model number can be K or H.

<u>Model</u>	<u>Three Phase, Input Voltage (V ac)</u>	<u>Input Current (A)</u>	<u>Output Voltage (V ac)</u>	<u>Output Current (3-Phase) (A)</u>	<u>Output kW</u>
ACS143-X75-1	200-240	3.2	0-Vin	2.2	0.37
ACS143-1X1-1	200-240	4.2	0-Vin	3.0	0.55
ACS143-1X6-1	200-240	5.3	0-Vin	4.3	0.75
ACS143-2X1-1	200-240	7.2	0-Vin	5.9	1.1
ACS143-2X7-1	200-240	8.9	0-Vin	7.0	1.5
ACS143-4X1-1	200-240	12.0	0-Vin	9.0	2.2

<u>Model</u>	<u>Three Phase, Input Voltage (V ac)</u>	<u>Input Current (A)</u>	<u>Output Voltage (V ac)</u>	<u>Output Current (3-Phase) (A)</u>	<u>Output kW</u>
ACS143-X75-3	380-480	2.0	0-Vin	1.2	0.37
ACS143-1X1-3	380-480	2.8	0-Vin	1.7	0.55
ACS143-1X6-3	380-480	3.6	0-Vin	2.0	0.75
ACS143-2X1-3	380-480	4.8	0-Vin	2.8	1.1
ACS143-2X7-3	380-480	5.8	0-Vin	3.6	1.5
ACS143-4X1-3	380-480	7.9	0-Vin	4.9	2.2

"X" in the model number can be K or H.

## NOMENCLATURE:

\*The products are described as follows:

<u>A</u>	<u>CS</u>	<u>14</u>	<u>1</u>	-	<u>K75</u>	-	<u>1</u>	-	<u>U</u>
I	II	III	IV		V		VI		VII

I - AC Drive

II - Product Type

CS - Standard

III - ACS 140 Product Family

IV - Number of Input Phases

1 - Single phase input

3 - Three phase input

\*V - Rated Output Power in kVA

K18 - 0.18 kVA

H18 - 0.18 kVA

K25 - 0.25 kVA

H25 - 0.25 kVA

K37 - 0.37 kVA

H37 - 0.37 kVA

K75 - 0.75 kVA

H75 - 0.75 kVA

1K1 - 1.1 kVA

1H1 - 1.1 kVA

1K6 - 1.6 kVA

1H6 - 1.6 kVA

2K1 - 2.1 kVA

2H1 - 2.1 kVA

2K7 - 2.7 kVA

4K1 - 4.1 kVA

VI - Supply Voltage

1 - 200-240 V ac

3 - 380 - 480 V ac

VII - Parametrization

No Code - European defaults

U - American manual and defaults

Short Circuit Current - 65 kA rms symmetrical.

Input Frequency - 48-63 Hz.

## ENGINEERING CONSIDERATIONS (FOR ENGINEERING USE ONLY):

General - Maximum current limit is 150 percent of FLA. The solid state motor overload function was evaluated. The adjustable range is 150 percent of FLA. Drive is provided with solid state short circuit protection circuitry. This circuitry is the same throughout the series. Current sensing is accomplished by monitoring the DC bus and/or all the motor outputs.