ACS880-04FXT drive module packages energy efficiency data (EU ecodesign) supplement

Code	3AXD50000790104
Revision	A
Language	EN
EFFECTIVE	2021-06-23

This data sheet is a supplement for *ACS880-04FXT drive module packages HW manual* (3AXD50000274444 [English]) and shows the energy efficiency data according to IEC 61800-9-2.

Part load losses (%)

ACS880-04FXT- ...	Output power (kVA)	Pn, IEC (kW)	IE class[1]	Stand-by losses (W)[2]	Part load losses (%)[3]							
					(90;100)	(50;100)	(0;100)	(90;50)	(50;50)	(0;50)	(50;25)	(0;25)
U_n = 3~400 V AC, 6-pulse												
1008A-3	698	560	-	843	1.4	1.1	1.0	0.7	0.6	0.6	0.5	0.4
1188A-3	823	630	-	843	1.5	1.2	1.0	0.7	0.6	0.6	0.5	0.4
1330A-3	921	710	-	843	1.5	1.2	1.1	0.8	0.7	0.6	0.5	0.4
1610A-3	1115	900	-	843	1.7	1.4	1.2	0.8	0.7	0.7	0.5	0.5
U_n = 3~500 V AC, 6-pulse												
1008A-5	873	710	-	948	1.1	0.9	0.8	0.6	0.5	0.5	0.4	0.4
1158A-5	1003	800	-	948	1.2	0.9	0.8	0.6	0.5	0.5	0.4	0.4
1310A-5	1134	900	-	948	1.2	1.0	0.9	0.6	0.6	0.5	0.4	0.4
1610A-5	1394	1000	-	948	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.4
U_n = 3~690 V AC, 6-pulse												
0808A-7	966	800	-	873	0.9	0.7	0.6	0.5	0.5	0.4	0.4	0.3
0960A-7	1147	900	-	873	0.9	0.8	0.7	0.6	0.5	0.5	0.4	0.3
1080A-7	1291	1000	-	873	1.0	0.8	0.7	0.6	0.5	0.5	0.4	0.4
1320A-7	1578	1200	-	873	1.1	0.9	0.8	0.6	0.5	0.5	0.4	0.4

1) Energy efficiency data is not provided for this cabinet-based drive. Cabinet built drives, with already conform modules, are excluded from the scope of the EU ecodesign requirements (Regulation EU/2019/1781, §2.3.e).

2) Standby losses are generated when the drive is powered up, but not providing current to the load.

3) Drive losses as a percentage of the rated apparent output power in 8 operating points (relative motor stator frequency; relative torque-producing current).

Part load losses (W)

ACS880-04FXT-...	Frame size	Part load losses (W)							
		(90;100)	(50;100)	(0;100)	(90;50)	(50;50)	(0;50)	(50;25)	(0;25)
U_n = 3~400 V AC, 6-pulse									
1008A-3	2xR11	9515	7821	6818	5076	4440	4041	3208	3003
1188A-3	2xR11	11963	9726	8423	6151	5339	4835	3765	3510
1330A-3	2xR11	14057	11397	9824	7094	6120	5526	4251	3949
1610A-3	2xR11	18798	15289	13184	9454	8180	7464	5650	5279
U_n = 3~500 V AC, 6-pulse									
1008A-5	2xR11	9629	7975	6993	5268	4648	4266	3414	3211
1158A-5	2xR11	11576	9512	8310	6135	5388	4952	3898	3659
1310A-5	2xR11	14004	11391	9852	7258	6298	5739	4461	4167
1610A-5	2xR11	19079	15324	13173	9484	8182	7432	5653	5264
U_n = 3~690 V AC, 6-pulse									
0808A-7	2xR11	8372	7081	6182	5229	4665	4277	3530	3307
0960A-7	2xR11	10611	8938	7718	6531	5759	5242	4268	3976
1080A-7	2xR11	12478	10483	9038	7583	6693	6077	4905	4559
1320A-7	2xR11	16768	13756	11881	9767	8661	7946	6325	5868

Efficiency (%)

ACS880-04FXT- ...	Efficiency (%) [1]							
	(90;100)	(50;100)	(0;100)	(90;50)	(50;50)	(0;50)	(50;25)	(0;25)
U_n = 3~400 V AC, 6-pulse								
1008A-3	98.3	97.5	95.5	98.2	97.2	94.8	96.0	92.5
1188A-3	98.2	97.4	95.3	98.1	97.1	94.7	96.0	92.6
1330A-3	98.1	97.2	95.1	98.1	97.0	94.6	96.0	92.6
1610A-3	97.9	96.9	94.6	97.9	96.8	94.0	95.6	91.9
U_n = 3~500 V AC, 6-pulse								
1008A-5	98.6	97.9	96.3	98.5	97.6	95.5	96.6	93.5
1158A-5	98.5	97.9	96.2	98.5	97.6	95.5	96.6	93.6
1310A-5	98.4	97.7	96.0	98.4	97.5	95.4	96.6	93.6
1610A-5	98.3	97.5	95.7	98.3	97.4	95.2	96.5	93.4
U_n = 3~690 V AC, 6-pulse								
0808A-7	98.9	98.3	97.0	98.6	97.8	95.9	96.8	94.0
0960A-7	98.8	98.2	96.9	98.6	97.8	95.8	96.8	93.9
1080A-7	98.8	98.2	96.8	98.5	97.7	95.7	96.7	93.8
1320A-7	98.7	98.0	96.5	98.4	97.5	95.4	96.5	93.5

[1] Efficiency of the drive is defined as Eff [%] = $P_{output, drive}$ / ($P_{output, drive}$ + $P_{losses, drive}$). $P_{output, drive}$ is output power of the drive and $P_{losses, drive}$ is power losses of the drive at operating point.

Loss determination

The losses and the IE class of a drive have been determined using the single loss determination method. All calculations have been performed according to requirements in IEC 61800-9-2. The given energy efficiency data is determined based on factory settings of the drive.

The following conditions apply in loss calculations:

1. Losses have been calculated with the following values:

Input voltage U_n	400 V / 500 V / 690 V [1]
Input frequency f_n	50 Hz
Rated output frequency f_{out}	50 Hz
Fundamental rated drive output voltage $U_{1,out}$	400 V / 500 V / 690 V [1]
Maximum output voltage at operating point 1 $U_{1,out(90;100)}$	360 V / 450 V / 621 V

[1] U_n, see the data tables.

2. The rated apparent drive output power has been calculated based on nominal output current and fundamental rated output voltage of the drive. Sn = sqrt(3)×I_n×$U_{1,out}$
3. Losses for 0% drive output frequency points have been calculated at 12 Hz.
4. The default factory setting has been used for switching frequency.
5. The stated loss values include uncertainty of used loss determination method.

6. The losses of integrated features (line filters, EMC filters, etc. - see full list below) have been included in the calculations.
7. Standby losses are determined when the drive is not supplying current to the motor but is powered up.

The loss calculation is based on basic drive configuration with no options installed. The following built-in drive components/auxiliaries/features are included in the calculations:

- two flange-mounted drive modules to be installed in an enclosure, front: IP00 (UL open type) - heatsink: IP55 (UL Type 12), flat mounting, no pedestal
- built-in input choke
- busbars for input, motor and DC connection
- ACS-AP-W assistant control panel with Bluetooth interface

There is a tool available for advanced ecodesign calculations. You can, for example, define part-load losses in user-defined operating points. See https://ecodesign.drivesmotors.abb.com (Energy efficiency data according to IEC-61800-9-2).