

Supplement ACS880 drives with ABB motors in explosive atmospheres

Introduction

This supplement describes the necessary parameter settings for an ACS880 drive type when it is used with an ABB motor for explosive atmospheres (Ex). For other parameter settings, see *ACS880 primary control program firmware manual* (3AUA0000085967 [English]).



Parameter settings

Use the control panel or the Drive composer PC tool to make the parameter settings.

- Set the following parameters that are common to motors in explosive atmospheres and ACS880 drive combinations:

Parameter no.	Parameter name	Bit	Name	Value	Description
95.15	Special HW settings	0	Ex motor	1 = Yes	Used with Ex motor

Example of the Ex parametrization:

Local	↻ ACS880	1500.0 rpm
95 HW configuration		
95.04	Control board supply Internal 24V	
95.08	DC switch monitoring	Disable
95.09	Fuse switch control	Disable
95.15	Special HW settings	0000 0000 0000 0001
Back	15:55	Edit

Local	↻ ACS880	1500.0 rpm
95.15 Special HW settings		
0	EX motor	=No
1	ABB Sine filter	=No
2	High speed mode	=No
Cancel	15:55	Save

Local	↻ ACS880	1500.0 rpm
95.15 Special HW settings		
0	EX motor	=Yes
1	ABB Sine filter	=No
2	High speed mode	=No
Cancel	15:55	Save

Motor and VSD rating plates

Standard IEC motor rating plate is used to program parameter group 99 within the ACS880 drive and motor's variable speed drive (VSD) plate is used to set-up limits and protections of the drive.

99.04 Motor control mode to DTC

The figure below shows an example of motor rating plate.

ABB Oy, Motors and Generators Vaasa, Finland						
CE IE2 Ex II 3G						
3 ~ Motor M3GP 160MLA 6 IMV6/IM1031						
Ex nA II C T3 Gc						
871486-1 2014 No. 3GF14192428						
Ins. cl. F IP 55						
V	Hz	kW	r/min	A	cos φ	Duty
690 Y	50	7.5	968	9.2	0.78	S1
400 D	50	7.5	968	15.8	0.78	S1
415 D	50	7.5	969	15.3	0.77	S1
IE2-87.7%(100%)-89.2%(75%)-89.6%(50%)						
Prod. code 3GGP163410-ADH066163180						
LCIE 12 ATEX 1008 X / IECEx LCI 09.0012X						
Manual: 3GZF500730-47 Nmax r/min						
6309/C3 6309/C3 220 kg						
ABB IEC 60034-1						

99.07 Motor nominal voltage

99.08 Motor nominal frequency

99.10 Motor nominal power

99.09 Motor nominal speed

99.06 Motor nominal current

99.11 Motor nominal cos φ

Carry out the ID run as normal.

The figure below shows an example of the motor's customer specific VSD plate.

ABB						
3~ Motor M3GP 160MLA 6 IMV6/IM1031						
No. 3GF14192428						
CONVERTER SUPPLY						
FC Type ACS880/DTC						
Switc.freq.: 2 kHz						
F.W.P. 400VD 50Hz						
V	Hz	kW	r/min	A	Nm	Duty
400 D	51.3	6.1	1000	14	58.2	S9
QUADRATIC TORQUE 0-1500rpm						

Mandatory:

Ensure minimum switching frequency is adhered to by setting: par. 95.15 Bit 0 = 1

Recommended:

Set power limits in par. 30.26 and par. 30.27 at the nominal voltage.

Recommended:

Set current limit in par. 30.17 Current x 01.05 gives some hysteresis for the control.

Mandatory:

Hexagonal field weakening shall be disabled if this function is available.

Recommended:

Set speed limits in par. 30.11 and par.30.12.

Note: If standard VSD plate is used, the values need to be converted to motor specific data.

ACS880 Ex mode derating tables

When Ex mode is activated, dimensioning the drive correctly requires derating the continuous drive output current (motor current). This is very important in order to reach a safe and reliable solution. DriveSize tool calculates this automatically. Derating tables can be found from Drive specific HW manual.