AC330 Self-learning process

reference column：

1）If it is closed loop mode, please monitor the value of C00.29. If the motor shaft is turned manually and C00.29 has no value, it means the parameter is not set correctly or the encoder wire is not connected correctly.

2）If the site is an auxiliary reluctance motor, it is recommended that F03.85 = 0, otherwise the operation effect is not good

一、Set motor parameters according to motor nameplate

Parameter	Name	Content	explain
F01.00	Motor control	Synchronous reluctance motor control mode： 16：SynRM-SVC　Open-loop vector control 17：SynRM-FVC　Closed-loop vector control	
F02.01	Number of motor poles	Set the number of motor poles	
F02.02	Rated power	Set the rated power of the motor.	
F02.03	Rated frequency	Set the rated frequency of the motor.	
F02.04	Rated rotate speed	Set the rated rotate speed of the motor.	
F02.05	Rated voltage	Set the rated voltage of the motor.	
F02.06	Rated current	Set the rated current of the motor	
F02.30	Speed feedback encoder type	0: Normal ABZ encoder (extension port EX_B) 1:rotary transformer(connected to the expansion port EX_B)	
F02.31	Encoder direction	0: the same direction　1: the opposite direction	
F02.33	ABZ encoder line number	Set the number of ABZ encoder lines.	
F02.34	Number of resolver poles	Set the number of resolver poles.	
F01.10	Maximum frequency	The maximum frequency that the frequency converter can set.	
F01.12	Upper limit frequency digital setting	Upper limit frequency given channel when F01.11 is set to 0	
F02.07	Motor parameter self-tuning selection	After the parameter self-tuning is finished, the value of [F02.07] will be automatically set to "0". 0: No operation 1: Rotary self-learning 2: Static self-learning	

for example：

F02.07=2，appear T -00 Press the green key run to start self-learning and return to the monitoring interface.

二、Fault Check

Common fault types

Fault Code	Fault name	Solutions
E.TE03	Motor self-learning three-phase unbalance	1、Check the motor three-phase stator resistance balance 2、check the motor with the load, reset the fault re-learning 3、Confirm whether the motor parameters are correct
E.OLF2	V-phase output is out of phase	1、Check the motor wiring, confirm whether the wiring is solid, whether short circuit, whether broken 2、Change the thousand bits of F02.60 =B### to B (default is 3)
E.0U2	Deceleration overvoltage	1、Increase F01.23 deceleration time 2、Monitor C00.03 and C00.04, the two monitoring values are similar, reduce F03.31 weak magnetic control gain 3、C00.03 and C00.04 two monitoring values are similar, heavy load C00.11 bus voltage drops to about 500V, F03.33 will be raised to 100%
E.0U3	Constant speed overvoltage	1、Monitor C00.03 and C00.04, the two monitoring values are similar, reduce F03.31 weak magnetic control gain 2、C00.03 and C00.04 two monitoring values are similar, heavy load C00.11 bus voltage drops to about 500V, F03.33 will be raised to 100%
E.0C3	Constant speed overcurrent	1、constant speed overcurrent fault is basically the same as the cause of overvoltage, the motor into the weak magnetic, control instability leads to current fluctuations caused by overcurrent fault

E.SPD	Loss of speed control	1、increase F03.02 speed loop gain, decrease F03.03 speed loop integration gain 2、Reduce F10.13 overvoltage suppression gain
Poor energy efficiency	High load current	1、closed-loop control (F01.00 = 17) under light load output current is high, reduce F03.20 low frequency pull-in current 2、open-loop control (F01.00=16) output current is high under light load, reduce F03.21 high frequency pull-in current 3、Output current is high under heavy load, adjust F03.80MTPA gain

三、Common reluctance motor commissioning parameters

Function Code	Function Code Comments	Some experience values, need to be adjusted according to site conditions
F03.02 Speed loop gain	It is recommended to increase this parameter when the system response is too low, which leads to speed failure, and to decrease this parameter when the response is too fast, which causes DQ axis current oscillation.	4
F03. 04 Speed loop integration time	It is recommended to reduce this parameter when the system response is too low, resulting in a speed failure, and to increase this parameter when the response is too fast, resulting in DQ axis current oscillation.	0.5
F03. 10 D-axis current loop gain	When monitoring the D-axis current waveform oscillation through the virtual oscilloscope, it is recommended to lower this parameter slightly and observe the waveform at the same time until the waveform is stable.	3
F03. 12 Q-axis current loop gain	When monitoring the Q-axis current waveform oscillation with a virtual oscilloscope, it is recommended to lower	0.5

	this parameter slightly and observe the waveform at the same time until the waveform stabilizes.	
F03.20 Low frequency pull-in current	When the motor starts abnormally, it is recommended to increase this parameter, usually the default prevails, when the open-loop low-frequency light-load operation requires energy saving, or when the closed-loop high-frequency light-load operation, it is recommended to reduce this parameter	50
F03. 21 High frequency pull-in current	When the open-loop high frequency light load operation needs energy saving, or closed-loop high frequency light load operation, it is recommended to reduce this parameter; when the speed fluctuation of high frequency heavy load operation is too large, it is recommended to increase this parameter, usually the default prevails.	50
F03.31 Weak magnetic control gain	When the motor enters weak magnetism, it is recommended to reduce this parameter, usually the default is used.	10
F03.33 Weak magnetic voltage coefficient	When the motor enters into weak magnetism and the output voltage is insufficient it is recommended to adjust this parameter to 100	97
F03.80 MTPA Coefficient	When the motor needs to save energy without entering the weak magnetism, it is recommended to increase this parameter, if there is no improvement, reverse the adjustment and observe the change of output current.	66
F03.81 MTPA Filtering time	Based on default parameters	2