

警告

不遵守安全说明和操作说明可导致生命危险
本简明操作说明只包含操作变频器的重要信息。若不遵守相关文档中的安全说明和操作说明，会导致人员重伤或死亡等事故。

- 遵守相关文档中的安全说明和安装说明。
- 参阅：<https://support.industry.siemens.com/cs/cn/zh/ps/25530/man>

WARNING

Danger to life if the safety instructions and operating instructions are not observed
The compact operating instructions only contain the most important information for operating the converter. If the safety instructions and operating instructions in the associated documentation are not observed, accidents involving severe injuries or death can occur.

- Observe the safety instructions and operating instructions given in the associated documentation.
- See also <https://support.industry.siemens.com/cs/cn/en/ps/25530/man>

供货范围 Scope of delivery

- 供货范围至少包括下列组件：
- 带可运行固件的即连即用的变频器（变频器由功率模块以及不可拆卸的控制单元组成）。关于固件升级和降级的方法可访问网址：<https://support.industry.siemens.com/cs/cn/zh/view/109769381>
 - 1 个可插拔的、用于连接 USS/Modbus RTU 的 RS485 连接器。
 - 1 套屏蔽连接件（仅适用于 FSA...FSG）。对于 FSD...FSG，供货范围内的屏蔽连接件仅适用于控制单元，如需功率单元的屏蔽连接件，可单独订购选件。
 - 一张与相应变频器等尺寸的纸质钻孔尺寸图（仅适用于 FSD...FSG），从而便于在安装时进行钻孔操作。
 - 变频器内包含开源软件（OSS）。OSS 授权条件保存在变频器中。

- The delivery comprises at least the following components:
- A ready-to-run converter with loaded firmware. Each converter comprises a Power Module and an undetachable Control Unit. Options for upgrading and downgrading the firmware can be found on the Internet: <https://support.industry.siemens.com/cs/cn/en/view/109769381>
 - One pluggable RS485 connector for USS/Modbus RTU connection.
 - One set of shield connection kit (for FSA ... FSG only). For FSD to FSG, the delivered shield connection kit can only be used with the Control Unit and the shield connection kit for the Power Module can be ordered as an option.
 - A printed full-size drill pattern (for FSD to FSG only), which allows easy drilling of the necessary mounting holes.
 - The converter contains open-source software (OSS). The OSS license terms are saved in the converter.

铭牌示例 Rating plate example

二维码 QR code

订货号 Article number

产品序列号 Product serial number

FS代码 FS code

电机数据 Motor data

能效等级和相对功率损耗值 (%)

防护等级 Degree of protection

净重 Net weight

SIEMENS

SINAMICS G120XA

1P 6SL3220-1YD30-0CB0

S ZVL5XY8042268

ASE43161160 FS:04

Input: 3AC 380V-440V
47-63Hz 41A

Output: 3AC 0-input V
0-550Hz 37.0A

Motor: IEC 18.5kW

IE2 2.1% 2023

IP20 FIL C3

17.9 kg

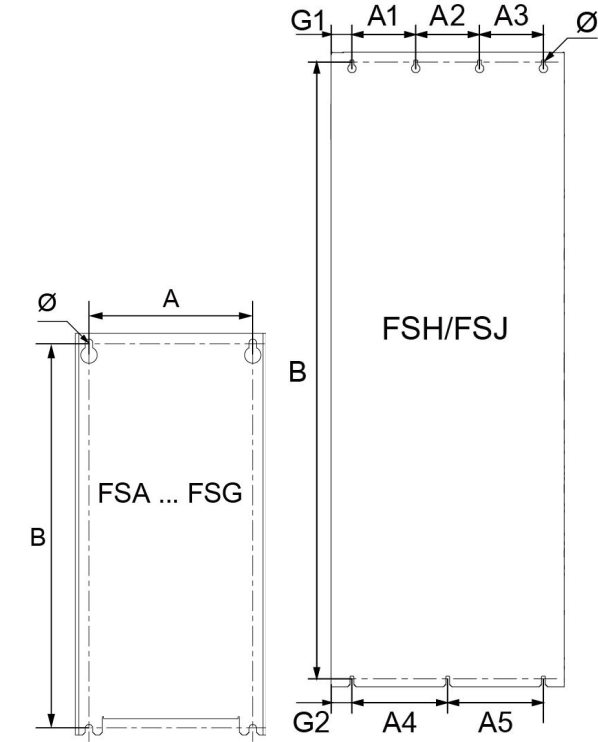


Refer to user manual
<http://support.automation.siemens.com>

Siemens AG, Frauenauracher Str.80,DE-91056 Erlangen

Made in China

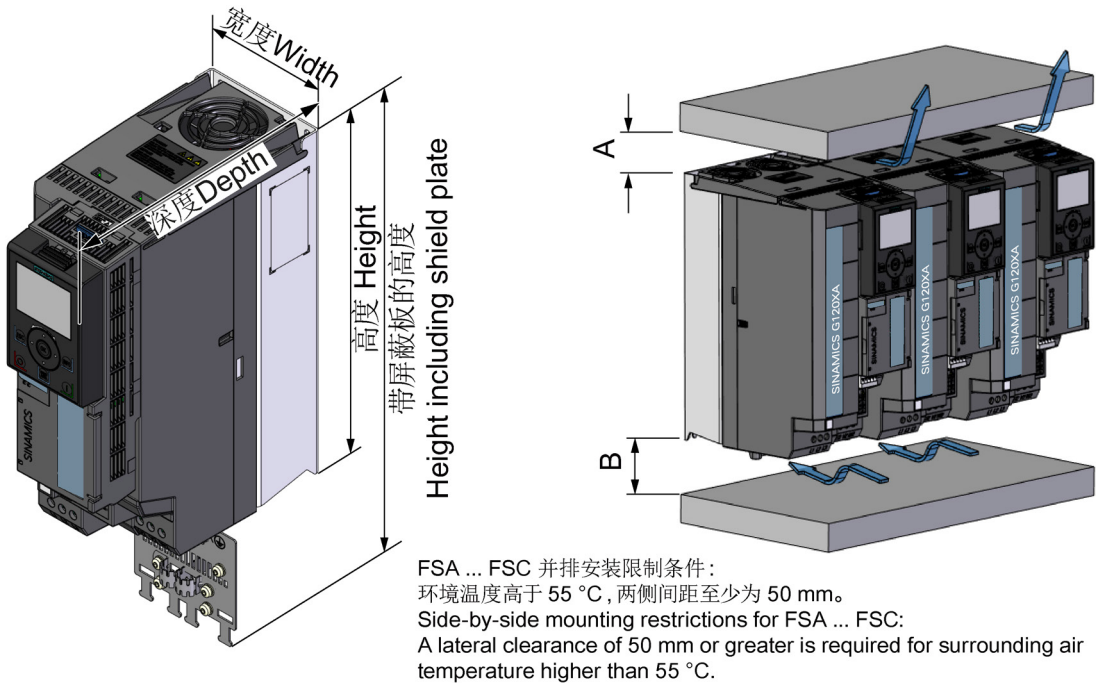
钻孔尺寸 Drill patterns



外形尺寸 Frame size	钻孔尺寸 (mm) Drilling dimensions (mm)			固定方式 Fixings	紧固扭矩 (Nm) Tightening torque (Nm)
	A	B	Ø		
FSA	55	221.5	5	4 x M4	2.5
FSB	80	265	5	4 x M4	2.5
FSC	118	283	5.5	4 x M5	2.5
FSD	170	430	6.0	4 x M5	6
FSE	230	509	6.5	4 x M6	10
FSF	270	680	8.5	4 x M8	25
FSG	265	970.5	12.0	4 x M10	50

外形尺寸 Frame size	钻孔尺寸 (mm) Drilling dimensions (mm)									固定方式 Fixings	紧固扭矩 Tightening torque (Nm)
	A1	A2	A3	A4	A5	B	G1	G2	Ø		
FSH	150	150	150	225	225	1444	49	49	8.5	7 x M8	25
FSJ	247	200	200	367	315	1399	61	60	8.5		

尺寸和间距 Dimensions and clearance distance (mm)



外形尺寸 Frame size	高度 Height	带屏蔽板 的高度 Height including shielding plate	宽度 Width	深度 Depth			间距 2) Clearance	
				不带操作面板或 G120 智能连接模块 Without Operator Panel or G120 Smart Access	带操作面板 With Operator Panel	带 G120 智能 连接模块 With G120 Smart Access	A	B
FSA	232	330	73	209	218	216	80	100
FSB	275	383	100	209	218	216	80	100
FSC	295	423	140	209	218	216	80	100
FSD	472	625 ¹⁾	200	239	248	246	300	350
FSE	551	729 ¹⁾	275	239	248	246	300	350
FSF	709	969 ¹⁾	305	360	369	367	300	350
FSG	999	1255 ¹⁾	305	360	369	367	300	350
FSH	1487	/	548	410	/	/	200	200
FSJ	1438	/	801	410	/	/	200	200

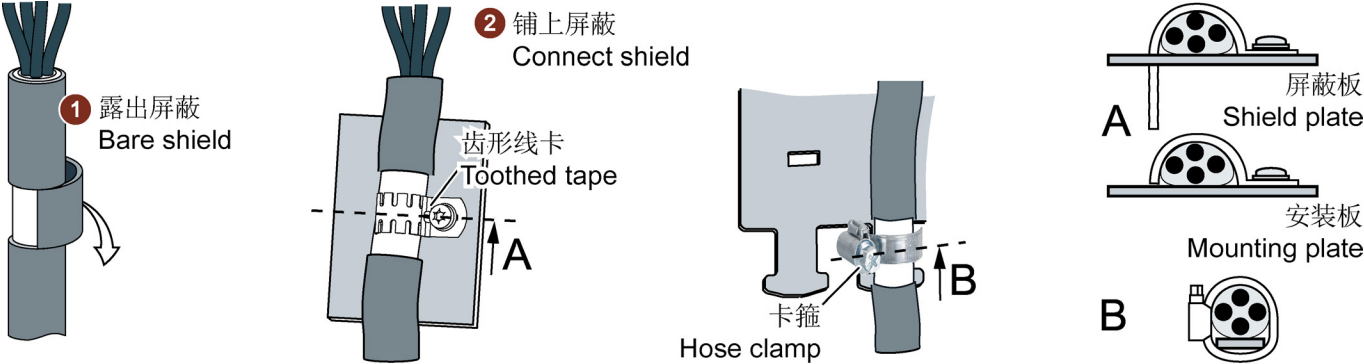
¹⁾ 变频器功率模块 FSD ... FSG 的屏蔽连接件仅作为选件提供。
The shield connection kit for the Power Modules FSD to FSG is available as an option only.

²⁾ 对于变频器 FSH/FSJ，变频器之间须保持至少 30 mm 间距，变频器正面须保持至少 100 mm 间距。
FSH and FSJ require 30 mm clearance between individual converters and 100 mm clearance at the front.

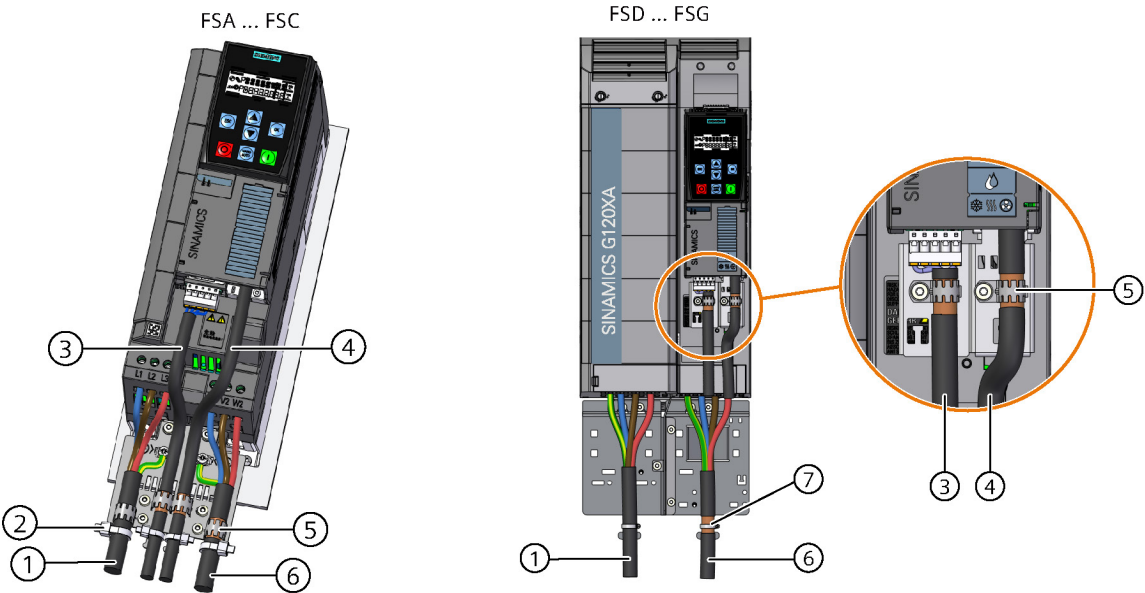
电缆横截面和紧固扭矩 Cable cross-sections and tightening torques

外形尺寸 Frame size	端子/连接器类型 Terminal/connector type		电缆横截面 (mm²) Cable cross-section (mm²)	紧固扭矩(Nm) Screw tightening torque (Nm)	剥线长度 (mm) Stripped insulation length (mm)
FSA	电源、电机和 PE Line, motor, and PE	螺钉端子 Screw-type terminals	1.5 ... 2.5	0.5	9 ... 10
FSB			1.5 ... 6	1.3	12 ... 13
FSC			1.5 ... 16	1.3	12 ... 13
FSD			10 ... 35	4.5	18
FSE			25 ... 70	10	25
FSF			DIN46234 电缆终端, 用于 M10 螺栓 Cable lug according to DIN46234 for M10 bolts	22 ... 25	/
FSG			35 ... 2 x 120	22 ... 25	/
FSH	电源、电机和 PE Line, motor, and PE	DIN46234 电缆终端, 用于 M12 螺栓 Cable lug according to DIN46234 for M12 bolts	2 x 240	50	/
	直流端子 DC link	DIN46234 电缆终端, 用于 M10 螺栓 Cable lug according to DIN46234 for M10 bolts	2 x 185	25	/
FSJ	电源、电机、PE 和 直流端子 Line, motor, PE, and DC link	DIN46234 电缆终端, 用于 M12 螺栓 Cable lug according to DIN46234 for M12 bolts	4 x 240	50	/

符合 EMC 规范的屏蔽层敷线示例 EMC shielding cable preparation

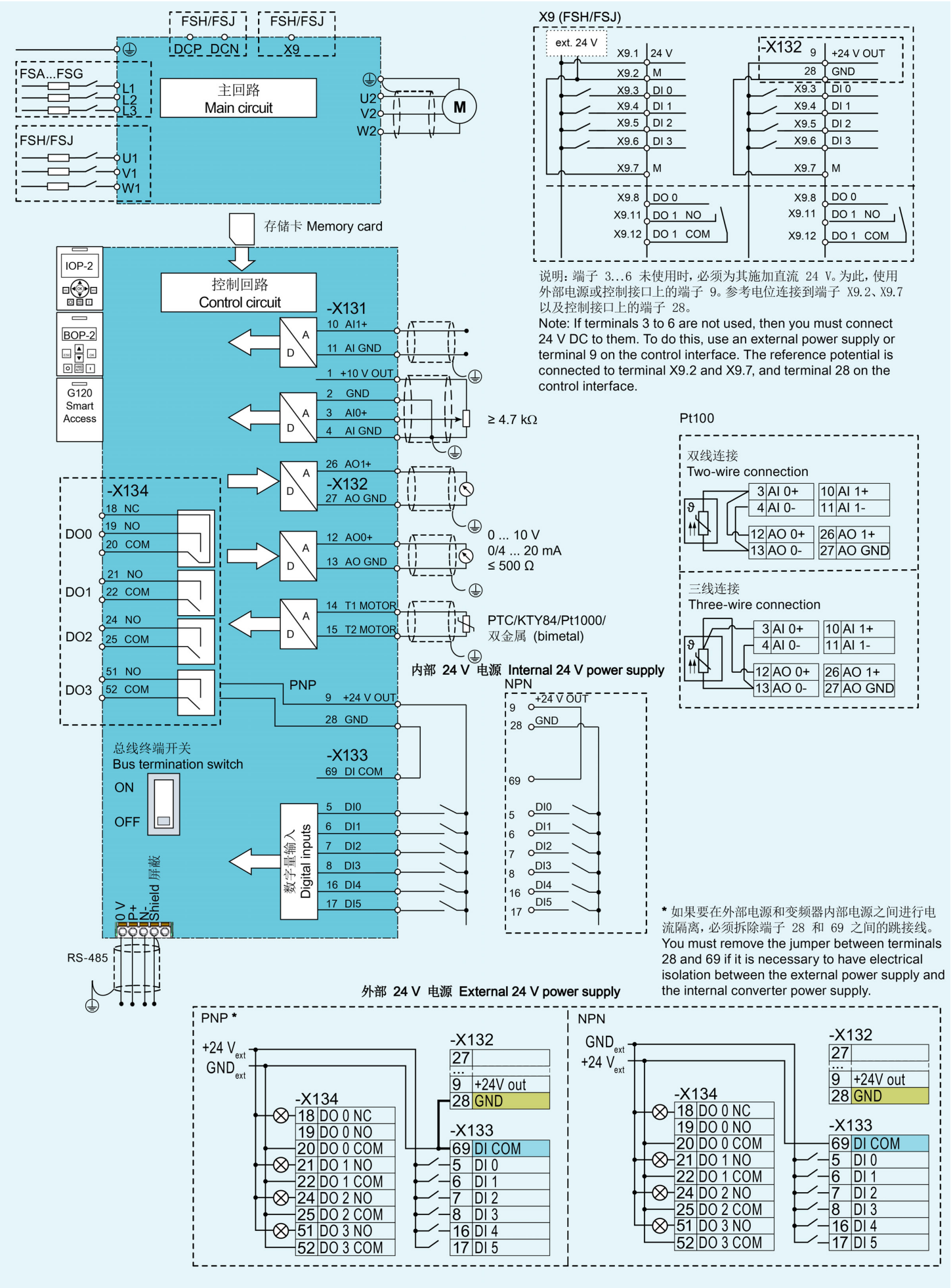


连接电缆屏蔽层示例 Examples of connecting cable shields

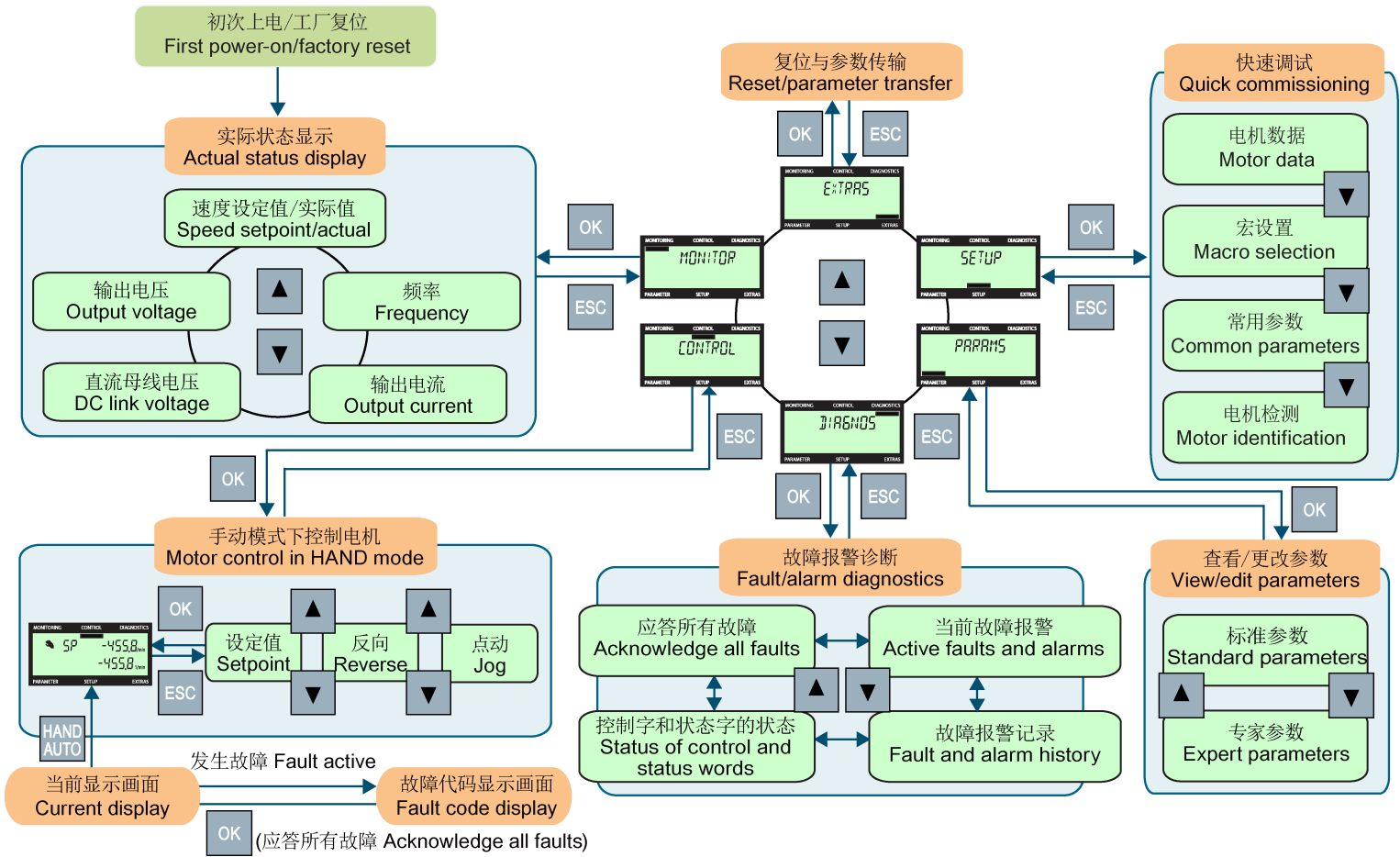


① 非屏蔽电源电缆 Unshielded line cable	⑤ 齿形线卡 Toothed tape
② 束线带 Cable tie	⑥ 屏蔽电机电缆 Shielded motor cable
③ 屏蔽通讯电缆 Shielded communication cable	⑦ 卡箍 Hose clamp
④ 屏蔽控制电缆 Shielded control cable	

电路图 Block diagram



BOP 菜单结构 BOP menu structure



宏概览 Macro overview

宏 Macro	描述 Description	
41	转速控制，带模拟量设定值（默认）	Speed control with analog setpoint (default)
42	PID 控制器，带模拟量设定值	PID controller with analog setpoint
43	双泵，带模拟量设定值	2 pumps with analog setpoint
44	三泵，带模拟量设定值	3 pumps with analog setpoint
45	转速控制，带固定转速设定值	Speed control with fixed speed setpoint
46	转速控制，带模拟量设定值，本地/远程	Speed control with analog setpoint, local/remote
47	PID 控制器，带内部固定设定值	PID controller with internal fixed setpoint
48	双泵，带内部固定设定值	2 pumps with internal fixed setpoint
49	三泵，带内部固定设定值	3 pumps with internal fixed setpoint
51	Modbus RTU 控制	Modbus RTU control
52	Modbus RTU 控制，本地/远程	Modbus RTU control, local/remote
54	USS 控制	USS control
55	USS 控制，本地/远程	USS control, local/remote
58	MOP 控制	MOP control
59	空白 I/O	Blank I/O

说明 NOTE

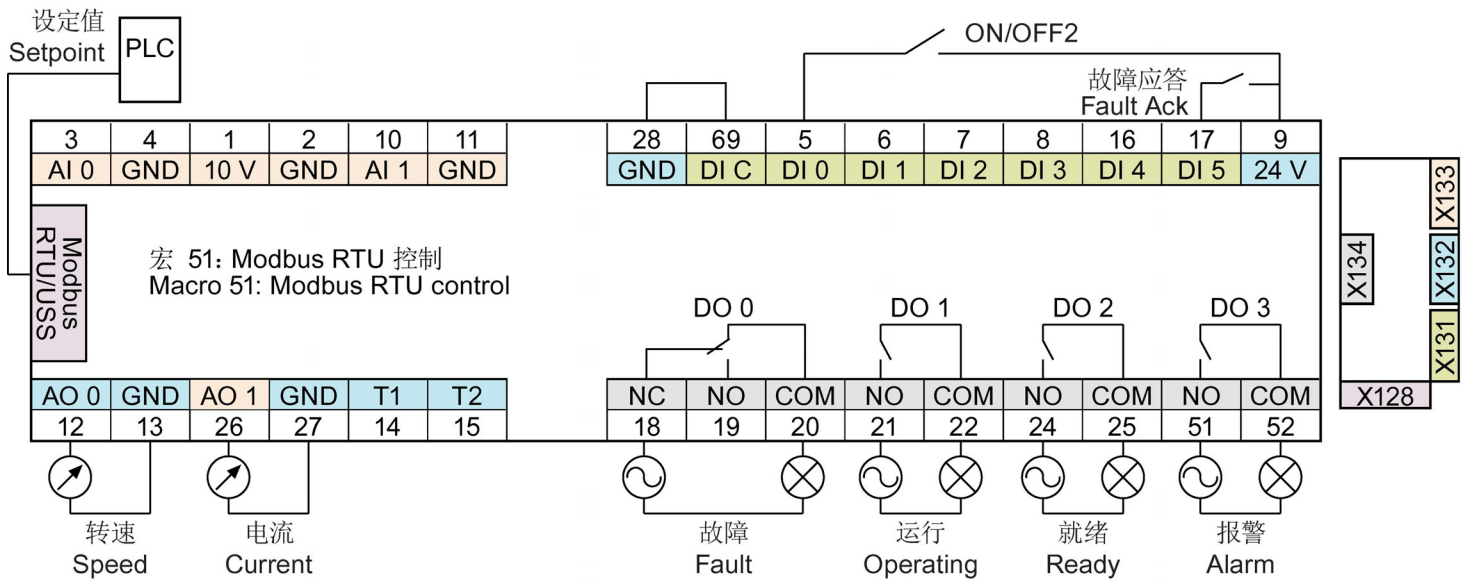
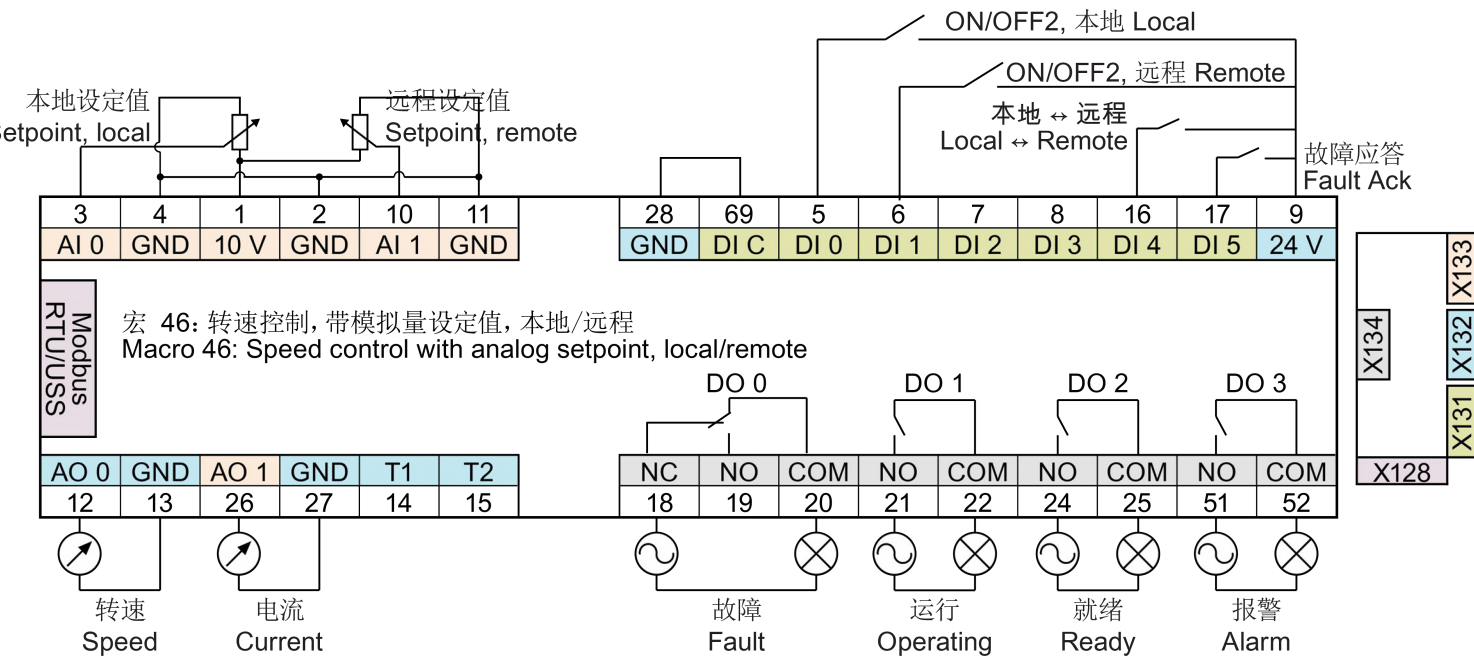
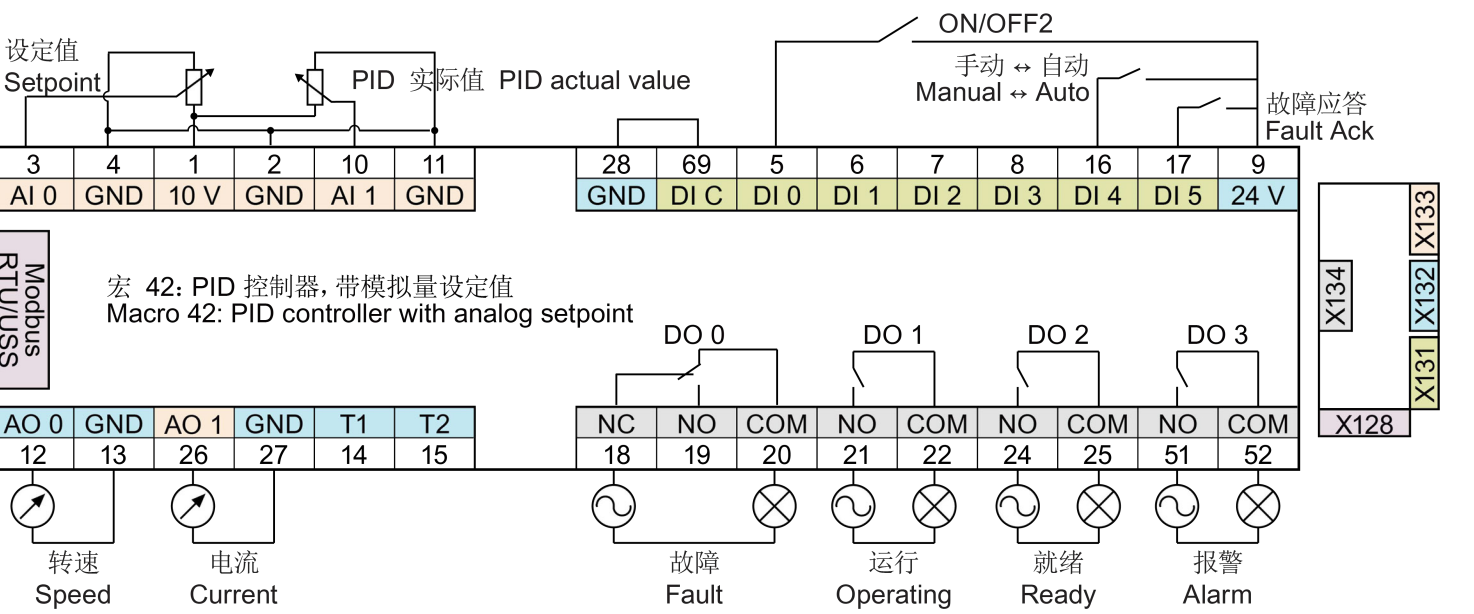
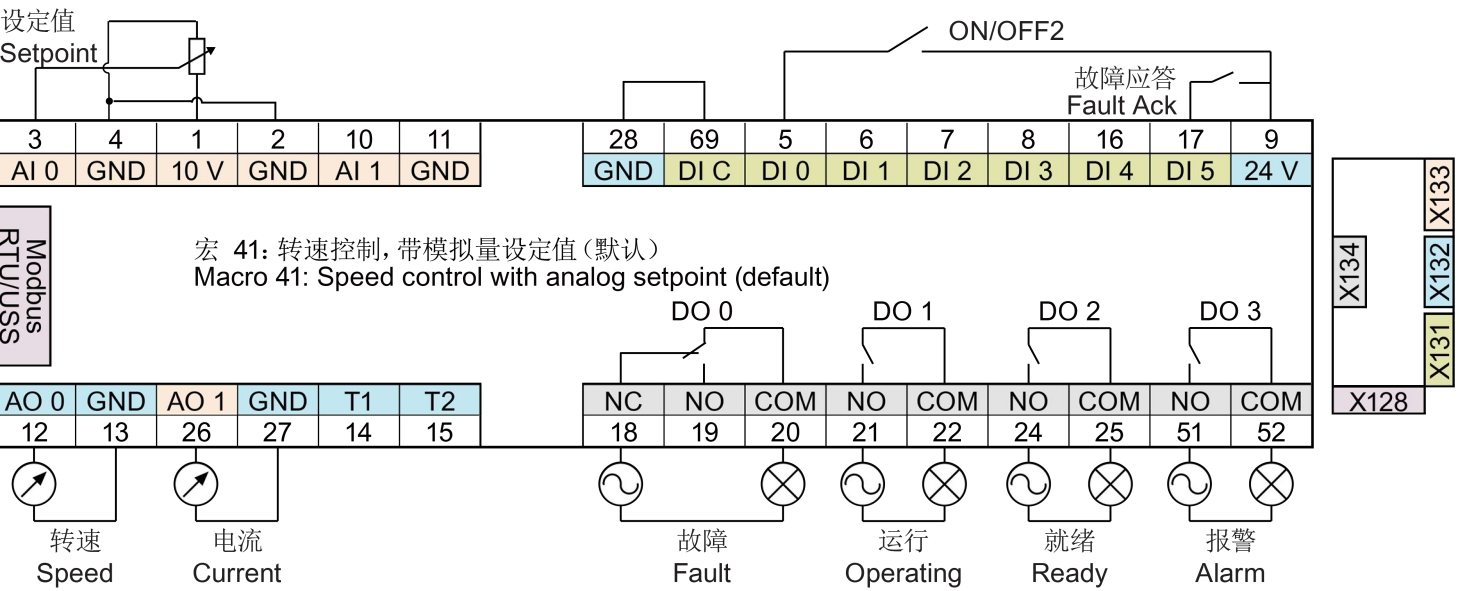
西门子建议您在切换到新的宏设置之前将变频器恢复到出厂设置。
Siemens recommends that you reset the converter to factory settings before switching it to a new macro setting.

宏设置 Macro settings (p0015)

端子 Terminal		41	42	43	44	45	46	47	48
5	DI 0	ON/OFF2	ON/OFF2	ON/OFF2	ON/OFF2	ON/OFF2	ON/OFF2 本地 ON/OFF2 local	ON/OFF2	ON/OFF2
6	DI 1	-	-	维修泵 1 Service pump 1	维修泵 1 Service pump 1	固定设定值 1 Fixed setpoint 1	ON/OFF 2 远程 ON/OFF2 remote	-	维修泵 1 Service pump 1
7	DI 2	-	-	维修泵 2 Service pump 2	维修泵 2 Service pump 2	固定设定值 2 Fixed setpoint 2	-	-	维修泵 2 Service pump 2
8	DI 3	-	-	-	维修泵 3 Service pump 3	固定设定值 3 Fixed setpoint 3	-	-	-
16	DI 4	-	手动↔自动 Manual↔Auto	手动↔自动 Manual↔Auto	手动↔自动 Manual↔Auto	-	本地↔远程 Local↔Remote	-	手动↔自动 Manual↔Auto
17	DI 5	应答故障 Acknowledge fault	应答故障 Acknowledge fault	应答故障 Acknowledge fault	应答故障 Acknowledge fault	应答故障 Acknowledge fault	应答故障 Acknowledge fault	应答故障 Acknowledge fault	应答故障 Acknowledge fault
18...20	DO 0	故障 Fault	故障 Fault	故障 Fault	故障 Fault	故障 Fault	故障 Fault	故障 Fault	故障 Fault
21,22	DO 1	运行 Operation	运行 Operation	运行 Operation	泵 1 Pump 1	运行 Operation	运行 Operation	运行 Operation	运行 Operation
24,25	DO 2	运行就绪 Ready for operation	运行就绪 Ready for operation	泵 1 Pump 1	泵 2 Pump 2	运行就绪 Ready for operation	运行就绪 Ready for operation	运行就绪 Ready for operation	泵 1 Pump 1
51,52	DO 3	报警 Alarm	报警 Alarm	泵 2 Pump 2	泵 3 Pump 3	报警 Alarm	报警 Alarm	报警 Alarm	泵 2 Pump 2
3	AI 0	设定值 Setpoint	设定值 Setpoint	设定值 Setpoint	设定值 Setpoint	-	设定值，本地 Setpoint local	-	-
10	AI 1	-	PID 实际值 PID actual value	PID 实际值 PID actual value	PID 实际值 PID actual value	-	设定值，远程 Setpoint remote	PID 实际值 PID actual value	PID 实际值 PID actual value
12	AO 0	转速实际值 Speed actual value	转速实际值 Speed actual value	转速实际值 Speed actual value	转速实际值 Speed actual value	转速实际值 Speed actual value	转速实际值 Speed actual value	转速实际值 Speed actual value	转速实际值 Speed actual value
26	AO 1	电流实际值 Current actual value	电流实际值 Current actual value	电流实际值 Current actual value	电流实际值 Current actual value	电流实际值 Current actual value	电流实际值 Current actual value	电流实际值 Current actual value	电流实际值 Current actual value
端子 Terminal		49	51	52	54	55	58	59	
5	DI 0	ON/OFF2	ON/OFF2	ON/OFF2 本地 ON/OFF2 local	ON/OFF2	ON/OFF2 本地 ON/OFF2 local	ON/OFF2	ON/OFF2	
6	DI 1	维修泵 1 Service pump 1	-	ON/OFF 2 远程 ON/OFF2 remote	-	ON/OFF 2 远程 ON/OFF2 remote	MOP 升速 MOP up	-	
7	DI 2	维修泵 2 Service pump 2	-	-	-	-	MOP 降速 MOP down	-	
8	DI 3	维修泵 2 Service pump 3	-	-	-	-	-	-	
16	DI 4	手动↔自动 Manual↔Auto	-	本地↔远程 Local↔Remote	-	本地↔远程 Local↔Remote	-	-	
17	DI 5	应答故障 Acknowledge fault	应答故障 Acknowledge fault	应答故障 Acknowledge fault	应答故障 Acknowledge fault	应答故障 Acknowledge fault	应答故障 Acknowledge fault	-	
18...20	DO 0	故障 Fault	故障 Fault	故障 Fault	故障 Fault	故障 Fault	故障 Fault	-	
21,22	DO 1	泵 1 Pump 1	运行 Operation	运行 Operation	运行 Operation	运行 Operation	运行 Operation	-	
24,25	DO 2	泵 2 Pump 2	运行就绪 Ready for operation	运行就绪 Ready for operation	运行就绪 Ready for operation	运行就绪 Ready for operation	运行就绪 Ready for operation	-	
51,52	DO 3	泵 3 Pump 3	报警 Alarm	报警 Alarm	报警 Alarm	报警 Alarm	报警 Alarm	-	
3	AI 0	-	-	设定值，本地 Setpoint local	-	设定值，本地 Setpoint local	-	-	
10	AI 1	PID 实际值 PID actual value	-	-	-	-	-	-	
12	AO 0	转速实际值 Speed actual value	转速实际值 Speed actual value	转速实际值 Speed actual value	转速实际值 Speed actual value	转速实际值 Speed actual value	转速实际值 Speed actual value	-	
26	AO 1	电流实际值 Current actual value	电流实际值 Current actual value	电流实际值 Current actual value	电流实际值 Current actual value	电流实际值 Current actual value	电流实际值 Current actual value	-	

宏接线示意图 Examples of macro wiring diagrams

以宏 41、42、46 和 51 的接线图为例。
The wiring diagrams for macro 41, 42, 46, and 51 are selected as examples.



质保 Warranty

SINAMICS G120XA USS 的质保期最长可达 7.5 年：

The warranty period for the SINAMICS G120XA USS is up to 7.5 years:

- 24 个月标准质保 24-month standard warranty
- 网络注册额外赠送 6 个月质保 Extra 6-month warranty after online registration
- 付费延长 3 年或 5 年质保 Extended 3-year or 5-year paid warranty

注册网址 Registration Web site: <https://myregistration.siemens.com/startup>



更多文档 Further documentation

扫描二维码获取与 SINAMICS G120XA USS 变频器相关的更多文档、视频教程以及常见问题。

Scan the QR code to access further documentations, video tutorials and FAQs of SINAMICS G120XA USS converters.



功率损耗数据符合欧盟生态设计法规 2019/1781 以及 IEC 61800-9-2

Data regarding the power loss in accordance with Ecodesign Regulation (EU) 2019/1781 and IEC 61800-9-2

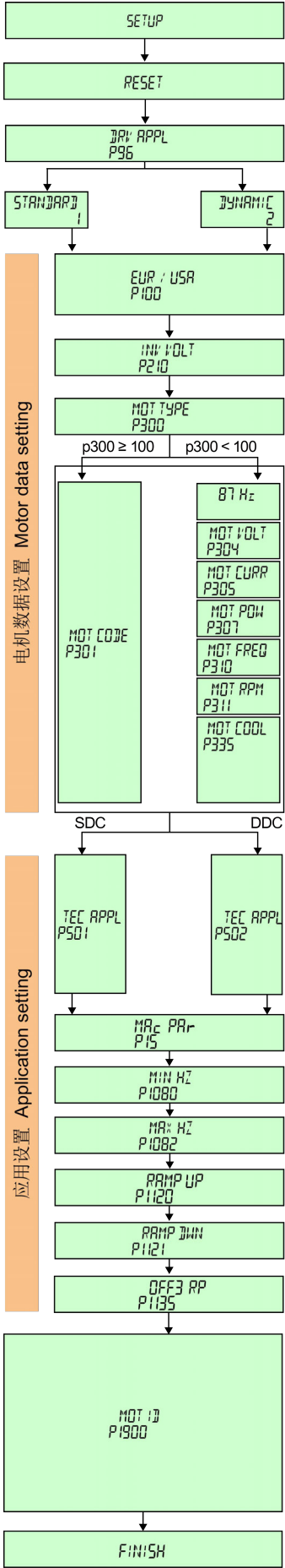
我们产品的相关功率损耗数据请访问网址：

You can find data regarding power loss on the Internet:

<https://support.industry.siemens.com/cs/ww/en/view/94059311>



快速调试 Quick commissioning



¹⁾ 有关“专家”应用等级的详细信息，参见操作说明。 For information about application class "expert", see Operating Instructions.
²⁾ 有关 1LE0 电机的信息，参见“1LE0 电机映射表”。 For information about 1LE0 motor, see "1LE0 motor mapping table".
³⁾ 如果选择检测电机数据，电机会在 JOG 时运行。 If motor identification is selected, the motor will rotate when jogging.
⁴⁾ 如果未连接电机，设 p1900 为 0。 Set p1900 to 0 if no motor is connected.

1LE0 电机映射表 1LE0 motor mapping table

电机类型：1LE0 异步电机（p0300 = 161） Motor type: 1LE0 induction motor (p0300 = 161)

电机代码 Motor code (p0301)	订货号 Article number	电机代码 Motor code (p0301)	订货号 Article number	电机代码 Motor code (p0301)	订货号 Article number
16100	1LE0003-0DA22-1...	16134	1LE0003-1DD23-3...	16168	1LE0003-3AA53-3...
16101	1LE0003-0DA32-1...	16135	1LE0003-1DD33-3...	16169	1LE0003-3AA63-3...
16102	1LE0003-0DB22-1...	16136	1LE0003-1DD43-3...	16170	1LE0003-3AA73-3...
16103	1LE0003-0DB32-1...	16137	1LE0003-1EA23-3...	16171	1LE0003-3AB03-3...
16104	1LE0003-0DC32-1...	16138	1LE0003-1EB23-3...	16172	1LE0003-3AB23-3...
16105	1LE0003-0EA02-1...	16139	1LE0003-1EB43-3...	16173	1LE0003-3AB53-3...
16106	1LE0003-0EA42-1...	16140	1LE0003-1EC43-3...	16174	1LE0003-3AB63-3...
16107	1LE0003-0EB02-1...	16141	1LE0003-1ED43-3...	16175	1LE0003-3AB73-3...
16108	1LE0003-0EB42-1...	16142	1LE0003-2AA43-3...	16176	1LE0003-3AC03-3...
16109	1LE0003-0EC02-1...	16143	1LE0003-2AA53-3...	16177	1LE0003-3AC23-3...
16110	1LE0003-0EC42-1...	16144	1LE0003-2AB43-3...	16178	1LE0003-3AC53-3...
16111	1LE0003-1AA42-1...	16145	1LE0003-2AC43-3...	16179	1LE0003-3AC63-3...
16112	1LE0003-1AB42-1...	16146	1LE0003-2AC53-3...	16180	1LE0003-3AD03-3...
16113	1LE0003-1AB52-1...	16147	1LE0003-2AD53-3...	16181	1LE0003-3AD23-3...
16114	1LE0003-1AC42-1...	16148	1LE0003-2BA23-3...	16182	1LE0003-3AD53-3...
16115	1LE0003-1BA23-3...	16149	1LE0003-2BB03-3...	16183	1LE0003-3AD63-3...
16116	1LE0003-1BB23-3...	16150	1LE0003-2BB23-3...	16184	1LE0003-3BA23-3...
16117	1LE0003-1BC22-1...	16151	1LE0003-2BC23-3...	16185	1LE0003-3BA33-3...
16118	1LE0003-1CA03-3...	16152	1LE0003-2BD03-3...	16186	1LE0003-3BA53-3...
16119	1LE0003-1CA13-3...	16153	1LE0003-2BD23-3...	16187	1LE0003-3BA63-3...
16120	1LE0003-1CB03-3...	16154	1LE0003-2CA23-3...	16188	1LE0003-3BB23-3...
16121	1LE0003-1CB23-3...	16155	1LE0003-2CB23-3...	16189	1LE0003-3BB33-3...
16122	1LE0003-1CC02-1...	16156	1LE0003-2CC23-3...	16190	1LE0003-3BB53-3...
16123	1LE0003-1CC23-3...	16157	1LE0003-2CD23-3...	16191	1LE0003-3BB63-3...
16124	1LE0003-1CC33-3...	16158	1LE0003-2DA03-3...	16192	1LE0003-3BC23-3...
16125	1LE0003-1CD02-1...	16159	1LE0003-2DA23-3...	16193	1LE0003-3BC33-3...
16126	1LE0003-1CD22-1...	16160	1LE0003-2DB03-3...	16194	1LE0003-3BC43-3...
16127	1LE0003-1DA23-3...	16161	1LE0003-2DB23-3...	16195	1LE0003-3BC53-3...
16128	1LE0003-1DA33-3...	16162	1LE0003-2DC03-3...	16196	1LE0003-3BC63-3...
16129	1LE0003-1DA43-3...	16163	1LE0003-2DC23-3...	16197	1LE0003-3BD23-3...
16130	1LE0003-1DB23-3...	16164	1LE0003-2DD03-3...	16198	1LE0003-3BD33-3...
16131	1LE0003-1DB43-3...	16165	1LE0003-2DD23-3...	16199	1LE0003-3BD53-3...
16132	1LE0003-1DC23-3...	16166	1LE0003-3AA03-3...	17100	1LE0003-3BD63-3...
16133	1LE0003-1DC43-3...	16167	1LE0003-3AA23-3...		

参数列表 Parameters list

● 模拟量输入和输出相关参数 Analog input and output parameters

参数 Parameter	描述 Description	
p0756[0...3]	CU 模拟量输入类型	CU analogue inputs type
	0 单极电压输入（0...+10 V）	Unipolar voltage input (0 to +10 V)
	1 单极电压输入带断线监控（2...10 V）	Unipolar voltage input monitored (2 to 10 V)
	2 单极电流输入（0...20 mA）	Unipolar current input (0 to 20 mA)
	3 单极电流输入带断线监控（4...20 mA）	Unipolar current input monitored (4 to 20 mA)
	4 双极电压输入（-10 ...+10 V）	Bipolar voltage input (-10 to +10 V)
p0757[0...3]	CU 模拟量输入特性曲线的值 x1	CU analog inputs characteristic value x1
p0758[0...3]	CU 模拟量输入特性曲线的值 y1	CU analog inputs characteristic value y1
p0759[0...3]	CU 模拟量输入特性曲线的值 x2	CU analog inputs characteristic value x2
p0760[0...3]	CU 模拟量输入特性曲线的值 y2	CU analog inputs characteristic value y2
p0761[0...3]	CU 模拟量输入断线监控响应阈值	CU analog inputs wire breakage monitoring response threshold
p0771[0...2]	CU 模拟量输出信号源	CU analog outputs signal source
p0773[0...2]	CU 模拟量输出滤波时间常数	CU analog outputs smoothing time constant
p0775[0...2]	CU 模拟量输出绝对值计算激活	CU analog outputs activate absolute value generation
p0776[0...2]	CU 模拟量输出类型	CU analog outputs type
p0777[0...2]	CU 模拟量输出特性曲线的值 x1	CU analog outputs characteristic value x1
p0778[0...2]	CU 模拟量输出特性曲线的值 y1	CU analog outputs characteristic value y1
p0779[0...2]	CU 模拟量输出特性曲线的值 x2	CU analog outputs characteristic value x2
p0780[0...2]	CU 模拟量输出特性曲线的值 y2	CU analog outputs characteristic value y2

● 电机控制参数 Motor control parameters

参数 Parameter	描述 Description	
p0342[0...n]	总转动惯量和电机转动惯量的比例	Ratio between the total and motor moment of inertia
p1113[0...n]	BI: 设定值取反	BI: Setpoint inversion
p1230[0...n]	BI: 直流制动激活	BI: DC braking activation
p1231[0...n]	配置直流制动	DC braking configuration
p1232[0...n]	直流制动的制动电流	DC braking braking current
p1233[0...n]	直流制动的持续时间	DC braking time
p1234[0...n]	直流制动启用转速	Speed at the start of DC braking
p1300[0...n]	开环/闭环控制运行方式	Open-loop/closed-loop control operating mode
p1452[0...n]	转速控制器转速实际值滤波时间（无编码器）	Speed controller actual speed smoothing time (sensorless)
p1470[0...n]	转速控制器无编码器运行时的 P 增益	Speed controller encoderless operation P-gain
p1472[0...n]	转速控制器无编码器运行时的积分时间	Speed controller encoderless operation integral time
p1496[0...n]	加速度前馈定标	Acceleration precontrol scaling
p1960	旋转检测选择（需脱开电机轴端负载）	Rotating measurement selection
p3856[0...n]	复合制动电流	Compound braking current

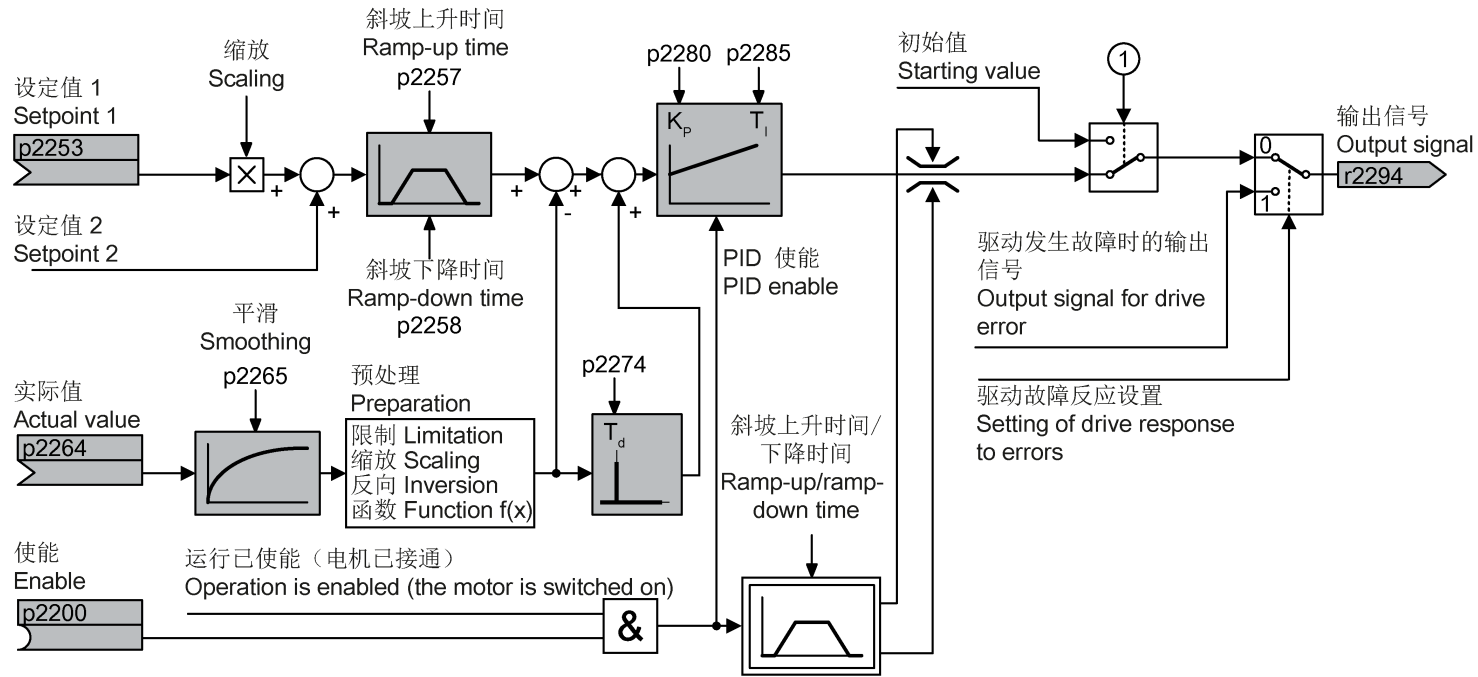
● 命令数据组和传动数据组参数 CDS and DDS parameters

功能 Function	参数 Parameter	描述 Description	设置 Setting
参数组拷贝 Parameter set copying	p0809[0...2]	复制 CDS Copy CDS	下标: Index: [0]: 指令数据组被拷贝源 Source Command Data Set [1]: 指令数据组拷贝目标 Target Command Data Set [2]: 开始复制（1: 开始复制; 0: 复制完成） Start copying (1: start copying; 0: copying completed)
	p0819[0...2]	复制 DDS Copy DDS	下标: Index: [0]: 驱动数据组被拷贝源 Source Drive Data Set [1]: 驱动数据组拷贝目标 Target Drive Data Set [2]: 开始复制（1: 开始复制; 0: 复制完成） Start copying (1: start copying; 0: copying completed)
参数组选择 Parameter set selection	p0810 & p0811	CDS 选择 CDS selection	选择指令数据组位 1 和位 2 的信号源。 Sets the signal source to select the Command Data Set, bit 1 & bit 2.
	p0820 & p0821	DDS 选择 DDS selection	选择驱动数据组位 1 和位 2 的信号源。 Sets the signal source to select the Drive Data Set, bit 1 & bit 2.

● I/O 命令/二进制 I/O 参数 I/O commands/binary I/O parameters

参数 Parameter	描述 Description							
r0050.0...1	CO/BO: 指令数据组 CDS 有效				CO/BO: Command Data Set CDS effective			
r0051.0...1	CO/BO: 驱动数据组 DDS 有效				CO/BO: Drive Data Set DDS effective			
	位 Bit	信号 Signal	1 信号 1 signal	0 信号 0 signal	位 Bit	信号 Signal	1 信号 1 signal	0 信号 0 signal
	00	DDS 有效位 0 DDS effective bit 0	是 Yes	否 No	01	DDS 有效位 1 DDS effective bit 1	是 Yes	否 No
r0052.0...15	CO/BO: 状态字 1 Status word 1							
	连接器输出，显示状态字 1				Display and connector output for status word 1			
	位 Bit	信号 Signal	1 信号 1 signal	0 信号 0 signal	位 Bit	信号 Signal	1 信号 1 signal	0 信号 0 signal
	00	接通就绪 Ready for switching on	是 Yes	否 No	01	运行就绪 Ready	是 Yes	否 No
	02	运行使能 Operation enabled	是 Yes	否 No	03	存在故障 Fault present	是 Yes	否 No
	04	正在自由停车中（OFF2） Coast down active (OFF2)	否 No	是 Yes	05	正在快速停车中（OFF3） Quick Stop active (OFF3)	否 No	是 Yes
	06	禁止运行 Switching on inhibited active	是 Yes	否 No	07	存在报警 Alarm present	是 Yes	否 No
	08	设定/实际转速偏差 Setpoint/actual speed deviation	否 No	是 Yes	09	PLC 控制中 Control request	是 Yes	否 No
	10	达到最大转速 Maximum speed reached	是 Yes	否 No	11	达到电流/扭矩极限 Current/torque limit reached	否 No	是 Yes
	13	电机过热报警 Alarm motor overtemperature	否 No	是 Yes	14	电机正向旋转 Motor rotates forwards	是 Yes	否 No
	15	变频器过载报警 Converter overload alarm	否 No	是 Yes				
r0722.0...12	CO/BO: 数字量输入状态				CO/BO: Digital input status			
p0730	BI: CU 端子 DO 0 的信号源				BI: CU signal source for terminal DO 0			
	仅列出参数 p0730 的常用设置。 Note that only frequently used settings for p0730 are listed.							
	关于设定值 52.0...52.14 的详细信息，参见参数 r0052.0...15。 For more information about settings 52.0...52.14, see r0052.0...15.							
	52.0		52.1		52.2		52.3	
	52.5		52.6		52.7		52.9	
	52.10		52.11		52.12		52.13	
	53.0	直流制动生效			DC braking active			
	53.1	实际转速 > p1226 (静态检测的转速阈值)			Actual speed > p2167 (Threshold for zero speed detection)			
	53.2	实际转速 > p1080 (最小转速)			Actual speed > p1080 (Minimum speed)			
	53.3	实际电流 > p2170 (电流阈值)			Actual current > p2170 (Current threshold)			
	53.4	实际转速 > p2155 (转速阈值 2)			Actual speed > p2155 (Speed threshold 2)			
	53.5	实际转速 ≤ p2155 (转速阈值 2)			Actual speed ≤ p2155 (Speed threshold 2)			
	53.6	实际转速 ≥ r1119 (斜坡函数发生器输入上的设定值)			Actual speed ≥ r1119 (Ramp-function generator setpoint at the input)			
	53.10	PID 输出在最低限幅			PID output at the lower limit			
	53.11	PID 输出在最高限幅			PID output at the upper limit			
p0731	BI: CU 端子 DO 1 的信号源				BI: CU signal source for terminal DO 1			
	此参数的含义与 p0730 的相同。更多信息，见 p0730。 The meaning of this parameter is the same as that of p0730. For more information, see p0730.							
p0732	BI: CU 端子 DO 2 的信号源				BI: CU signal source for terminal DO 2			
	此参数的含义与 p0730 的相同。更多信息，见 p0730。 The meaning of this parameter is the same as that of p0730. For more information, see p0730.							
p0733	BI: CU 端子 DO 3 的信号源				BI: CU signal source for terminal DO 3			
	此参数的含义与 p0730 的相同。更多信息，见 p0730。 The meaning of this parameter is the same as that of p0730. For more information, see p0730.							

● PID 控制参数 PID control parameters



- ① 同时满足以下条件时, 变频器才会采用初始值:
- PID 提供主设定值 (p2251 = 0)。
 - PID 的斜坡函数发生器输出端还没有到达初始值。
- The converter uses the starting value when all the following conditions are simultaneously satisfied:
- The PID supplies the main setpoint (p2251 = 0).
 - The ramp-function generator output of the PID has not yet reached the starting value.

参数 Parameter	描述 Description	
p2200[0...n]	BI: PID 使能	BI: PID enable
p2253[0...n]	CI: PID 设定值 1	CI: PID setpoint 1
p2254[0...n]	CI: PID 设定值 2	CI: PID setpoint 2
p2255	PID 设定值 1 比例系数	PID setpoint 1 scaling
p2256	PID 设定值 2 比例系数	PID setpoint 2 scaling
p2257	PID 斜坡上升时间	PID ramp-up time
p2258	PID 斜坡下降时间	PID ramp-down time
p2264[0...n]	CI: PID 实际值	CI: PID actual value
p2265	PID 实际值滤波器时间常数	PID actual value filter time constant
p2269	PID 增益实际值	PID gain actual value
p2274	PID 差分的时间常数	PID differentiation time constant
p2280	PID 比例增益	PID proportional gain
p2285	PID 积分时间	PID integral time
r2294	CO: PID 输出信号	CO: PID output signal

● 通讯参数 Communication parameters

参数 Parameter	描述 Description	
p2000	参考转速/参考频率	Reference speed reference frequency
p2002	参考电流	Reference current
p2010	调试接口波特率	Communication interface baud rate
	设定通讯接口 (USS, RS232) 的波特率。	Sets the baud rate for the commissioning interface (USS, RS232).
p2011	调试接口地址	Communication interface address
p2021	现场总线接口地址	Fieldbus interface address
p2023	现场总线接口 USS PKW 数量	Fieldbus interface USS PKW count
	在 USS 报文的 PKW 部分设置现场总线 16 位字的数量。	Sets the number of 16-bit words in the PKW part of the USS telegram for the fieldbus interface.
	0 PKW 0 字 PKW 0 words	3 PKW 3 字 PKW 3 words
	4 PKW 4 字 PKW 4 words	12 PKW 不定长度 7 PKW variable

● 变频器及电机监视参数 Converter and motor monitoring parameters

参数 Parameter	描述 Description	
r0018	控制单元固件版本	Control Unit firmware version
r0021	CO: 经过滤波的转速实际值	CO: Actual speed smoothed
r0025	CO: 经过滤波的输出电压	CO: Output voltage smoothed
r0026	CO: 经过滤波的直流母线电压	CO: DC link voltage smoothed
r0027	CO: 经过滤波的电流实际值	CO: Absolute actual current smoothed
r0031	经过滤波的转矩实际值	Actual torque smoothed
r0032	CO: 经过滤波的有功功率实际值	CO: Active power actual value smoothed
r0035	CO: 电机温度	CO: Motor temperature
r0067	CO: 最大输出电流	CO: Output current maximum
r0076	CO: 磁通电流实际值	CO: Current actual value field-generating
r0077	CO: 转矩电流设定值	CO: Current setpoint torque-generating
r0079	CO: 转矩设定值	CO: Torque setpoint
r0080[0...1]	CO: 扭矩实际值	CO: Torque actual value
r0206[0...4]	功率单元额定功率	Rated power unit power
r0207[0...4]	功率单元额定电流	Rated power unit current
r0208	功率单元的额定输入电压	Rated power unit line supply voltage
r0209[0...4]	功率单元的最大电流	Power unit maximum current
r0752[0...3]	CO: CU 模拟输入当前输入电压/电流	CO: CU analog inputs input voltage/current actual
r0755[0...3]	CO: CU 模拟输入当前值 %	CO: CU analog inputs actual value in percent
r0774[0...2]	CU 模拟输出当前输出电压/电流	CU analog outputs output voltage/current actual

● 故障/报警/监控参数 Faults/warning/monitoring parameters

参数 Parameter	描述 Description	
r0947[0...63]	故障历史记录	Fault history
r2110[0...63]	报警历史记录	Warning history

● 选件参数 Option parameters

参数 Parameter	描述 Description	
p0230	驱动: 输出滤波器类型	Drive filter type motor side
	有关适用的滤波器选件, 参见 SINAMICS G120XA USS 变频器《操作说明》“可选组件” 章节。 For more information about available filters, see Chapter “Optional components” in the <i>SINAMICS G120XA USS Operating Instructions</i> .	
	0 无滤波器 No filter	1 输出电抗器 Output reactor
	2 dv/dt 滤波器 dv/dt filter	3 西门子正弦滤波器 Sine-wave filter Siemens
	4 第三方制造商正弦滤波器 Sine-wave filter third-party	

● 固定频率参数 Fixed frequency parameters

选择模式 Selection mode	描述 Description	
p1016	转速固定设定值选择模式	Fixed speed setpoint select mode
	= 1 直接选择 在此模式中通过转速固定设定值 p1001 ... p1004 给定设定值。 通过将各转速固定设定值相加能得到最多 16 个不同的设定值。	Direct selection In this mode, the setpoint is entered via the fixed speed setpoints p1001 ... p1004. Up to 16 different setpoints are obtained by adding the individual fixed speed setpoints.
	= 2 二进制编码选择 在此模式中通过转速固定设定值 p1001 ... p1015 给定设定值。	Binary coded selection In this mode, the setpoint is entered via the fixed speed setpoints p1001 ... p1015.

● 其他变频器及电机特性参数 Other converter and motor feature parameters

参数 Parameter	描述 Description		
p0003	访问级别		Access level
	= 3: 专家 Expert		
	= 4: 维修 Service		
p0308[0...n]	电机额定功率因数		Rated motor power factor
p0309[0...n]	电机额定效率		Rated motor efficiency
p0335[0...n]	电机冷却方式		Motor cooling type
	0	自冷却	Natural ventilation
	1	外部冷却	Forced cooling
	2	水冷	Liquid cooling
	128	无风扇	No fan
p0340[0...n]	自动计算电机/闭环控制参数		Automatic calculation motor/control parameters
	0	不计算 No calculation	1 全部计算 Complete calculation
	2	计算等效电路图参数 Calculation of equivalent circuit diagram parameters	3 计算闭环控制参数 Calculation of closed-loop control parameters
	4	计算控制器参数 Calculation of controller parameters	5 计算工艺限制和阈值 Calculation of technological limits and threshold values
p0604[0...n]	电机温度模型 2/传感器报警阈值		Mot_temp_mod 2/sensor alarm threshold
p0640[0...n]	电流极限		Current limit
p1035[0...n]	BI: 增加电动电位器设定值		BI: Increase motorized potentiometer setpoint
p1036[0...n]	BI: 降低电动电位器设定值		BI: Decrease motorized potentiometer setpoint
p1040[0...n]	电动电位器初始值		Motorized potentiometer starting value
r1050	CO: 电动电位器在斜坡函数发生器后的设定值		CO: Motorized potentiometer setpoint after ramp-function generator
p1055[0...n]	BI: JOG 位 0		BI: Jog bit 0
p1056[0...n]	BI: JOG 位 1		BI: Jog bit 1
p1058[0...n]	JOG 1 转速设定值		Jog 1 speed setpoint
p1059[0...n]	JOG 2 转速设定值		Jog 2 speed setpoint
p1135[0...n]	OFF3 斜坡下降时间		OFF3 ramp-down time
p1310[0...n]	连续电压提升的电流 Starting current (voltage boost) permanent		这三个参数与 p0305（电机额定电流）相关。更多参数信息，参见 SINAMICS G120XA USS 变频器《操作说明》“参数列表” 章节。 The three parameters are related to p0305 (rated motor current). For more information about the parameters, see Chapter "Parameter list" in the <i>SINAMICS G120XA USS Operating Instructions</i> .
p1311[0...n]	加速电压提升的电流 Starting current (voltage boost) when accelerating		
p1312[0...n]	启动电压提升的电流 Starting current (voltage boost) when starting		
p1800[0...n]	脉冲频率设定值		Pulse frequency setpoint
p1900	电机数据检测及旋转检测		Motor data identification and rotating measurement
	0	不检测电机数据 No identification	1 静态和动态电机数据检测 Identify motor data at standstill and with motor rotating
	2	静态电机数据检测 Identify motor data at standstill	3 动态电机数据检测 Identify motor data with motor rotating
	11	静态和动态电机数据检测，切换到运行 Identify motor data at standstill and with motor rotating, switch to operation	12 静态电机数据检测，切换到运行 Identify motor at standstill, switch to operation

故障与报警 Faults and alarms

● 故障列表 Fault list

故障 Fault	描述 Description	故障 Fault	描述 Description
F01030	主控制模式下主站监控信号出错 Sign-of-life failure for master control	F07901	驱动：电机转速过快 Drive: Motor overspeed
F01910	现场总线接口设定值超时 Fieldbus interface setpoint timeout	F07902	驱动：电机失步 Drive: Motor stalled
F03505	模拟量输入端断线 Analog input wire breakage	F07950	电机参数错误 Motor parameter incorrect
F07011	驱动：电机过热 Drive: Motor overtemperature	F07990	驱动：电机数据检测出错 Drive: Incorrect motor data identification
F07080	驱动：闭环控制参数出错 Drive: Incorrect control parameter	F30001	功率单元：过电流 Power unit: Overcurrent
F07320	驱动：自动重启中断 Drive: Automatic restart interrupted	F30002	功率单元：直流母线过电压 Power unit: DC link voltage overvoltage
F07445	PID 自动优化中断 PID autotuning canceled	F30003	功率单元：直流母线欠压 Power unit: DC link voltage undervoltage
F07801	驱动：电机过电流 Drive: Motor overcurrent	F30004	功率单元：散热器过热 Power unit: Heat sink overtemperature
F07802	驱动：整流单元或者功率单元未就绪 Drive: Infeed or power unit not ready	F30005	功率单元：I²t 过载 Power unit: Overload I²t
F07807	驱动：检测出短路/接地 Drive: Short-circuit/ground fault detected	F30011	功率单元：主电路中存在断相 Power unit: Line phase failure in main circuit
F07860	外部故障 1 External fault 1	F30017	功率单元：硬件电流限制响应过于频繁 Power unit: Hardware current limit has responded too often
F07861	外部故障 2 External fault 2	F30021	功率单元：接地故障 Power unit: Ground fault
F07862	外部故障 3 External fault 3	F30022	功率单元：U-ce 监控（IGBT U-ce 异常，最可能为 IGBT 短路） Power unit: Monitoring U_ce
F07900	驱动：电机堵转 Drive: Motor blocked		

● 报警列表 Alarm list

报警 Alarm	描述 Description	报警 Alarm	描述 Description
A05006	功率单元：热模型过热 Power unit: Overtemperature thermal model	A07805	驱动：功率单元过载 I²t Drive: Power unit overload I²t
A07321	驱动：自动重启激活 Drive: Automatic restart active	A07910	驱动：电机过热 Drive: Motor overtemperature
A07400	驱动：最大直流母线电压控制器生效 Drive: DC link voltage maximum controller active	A07929	驱动：检测不出电机 Drive: No motor detected
A07401	驱动：最大直流母线电压控制器关闭 Drive: DC link voltage maximum controller deactivated	A07980	驱动：旋转检测激活 Drive: Rotating measurement activated
A07402	驱动：最小直流母线电压控制器生效 Drive: DC link voltage minimum controller active	A07991	驱动：电机数据检测激活 Drive: Motor data identification activated
A07409	驱动：U/f 控制电流限值控制器生效 Drive: U/f control, current limiting controller active	A07994	驱动：未执行电机数据检测 Drive: motor data identification not performed
A07444	PID 自动优化激活 PID autotuning is activated	A30016	功率单元：加载电源关闭（直流母线电压过低） Power unit: Load supply switched off (DC link voltage too low)