

Frequently asked questions • 11/2018

Several methods to prevent G120 inverter parameters from being modified by mistake

G120 parameter error modification

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1 Method of Locking the buttons on the BOP-2 panel

Press and hold the ESC + OK key on the BOP-2 panel for more than 3 seconds until the panel displays LOCKED, indicating that the panel has been locked. To unlock, press and hold the ESC + OK key for more than 3 seconds. When the panel displays UNLOCKED, it indicates that the panel has been unlocked. This function only locks the function of modifying parameters through this panel. Parameters can still be changed by using "STARTER" software or other methods.



<Figure 1-1 BOP-2 Panel Locking interface>

2 Method of activating the write protection function of frequency converter

By modifying the parameter p7761-1, the write protection function of frequency converter can be activated. After activating the write protection of frequency converter, the original parameters will change (as shown in Figure 2-1, p1120 changes to r1120). So the original P parameter cannot be modified. If p7761=0 is set again, the write protection function of frequency converter can be cancel.



<Figure 2-1 P1120 changes to r1120>



Note: activating the write protection function of the inverter can be cancel by restoring the factory settings, but all the parameters set before will be cleared.

3 Method of activating the proprietary technology protection function of G120 through "STARTER" software


The proprietary technology protection function of G120 can not only protect our set parameters from being modified, but from being copied by others. Let's introduce this function:

3.1 Create a special list that is not within the scope of proprietary technology protection

In order to facilitate G120 maintenance in the future, we can create a parameter list before activating the proprietary technology protection function. After the proprietary technology protection function is activated, the parameters in this list can still be read and written. Customers can list the parameters that they want the maintenance personnel to adjust. In the factory setting, only the password p7766 protected by proprietary technology is include in the special list.

First, we use STARTER to connect G120. Then click  and save it, offline. Determine the number of parameters required by the special list by modifying the parameter p7763, then save it and enter the on line mode. Click  and download to G120. After downloading, online, you can get the corresponding number of subscripts in parameter p7764, and then input the number to be protected into p7764

As shown in Figure 3-1, set p7763 to 5, and then there will be five subscripts from p7764[0]-p7764[4] in p7764, so you can set five parameters here.

p7763	KHP OEM exception list number of indices for p7764	5
 p7764	KHP OEM exception list	
- p7764[0]	KHP OEM exception list	7766
- p7764[1]	KHP OEM exception list	1120
- p7764[2]	KHP OEM exception list	1121
- p7764[3]	KHP OEM exception list	1001
- p7764[4]	KHP OEM exception list	1002

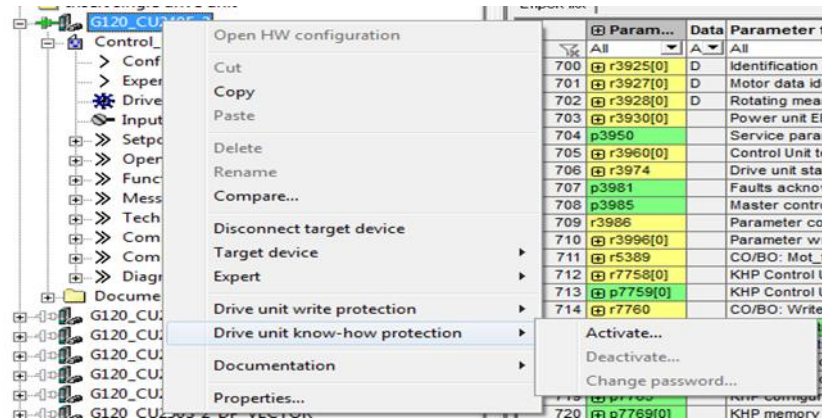
< Figure 3-1 special case list parameter table >

Special attention should be paid here: If the password p7766 is deleted from the special list, the password for proprietary technology protection cannot be entered or modified. The setting parameters of G120 can only be accessed again by drinking the factory setting of G120. When the factory setting is reset, the configuration in G120 will be lost, and G120 must be debugged again.

3.2 Activate the proprietary technology protection function of G120

After we have completed the debugging of G120 and successfully created the special list of proprietary technology protection, we can activate proprietary technology protection function of G120.

First, use STARTER software to connect the G120 device online, and right-click the mouse on the CU unit, as shown in Figure 3-2, and select Drive unit know-how protection, and then select Active.



<图 3-2 starter 激活专有技术保护界面><Figure 3-2 STARTER activate proprietary technology protection interface>

- In the pop-up dialog box, as shown in Figure 3-3, the first option, that is, by default, does not have copy protection.
- If our G120 is configured and inserted with SD card, we can choose one with basic copy protection function (bound to memory card) and another with extended copy protection function (bound to memory card and control unit)
- If you want to enable the diagnostic function when the proprietary technology protection is activated, you can activate the option "enable diagnostic function".
- Click Specify to enter the password, and select Copy RAM to ROM, save it permanently, and finally click OK, so that the proprietary technology protection function is activated.



<Figure 3-3 STARTER activate proprietary technology protection password setting interface>

3.3 Cancellation of proprietary technology protection function

Connect the G120 device online, right-click on the CU unit, select "Drive unit know-how protection" in the pop-up dialog box and select "De-activate" from the menu, and then the menu as shown in the figure 3-4 will pop up.

If you select temporary, that is to say, after the power is restarted, the proprietary technology protection function of G120 is still effective. If you select permanent and click "Copy RAM to ROM", G120 will delete the password and cancel the proprietary technology protection function.

After selection, enter the correct password in the "Password" and click the "OK" button to cancel the proprietary technology protection function.



<Figure 3-4 STARTER activate proprietary technology protection password cancel interface>

3.4 Modifying the password for proprietary technology protection

Connect G120 device online. In the drive unit know-how protection menu, select change password to modify the password.

For more information on the protection of the know-how of G120, you can view the introduction to know how protection is in selection 7.6 of the G120 perating manual or click the link below to view more details.

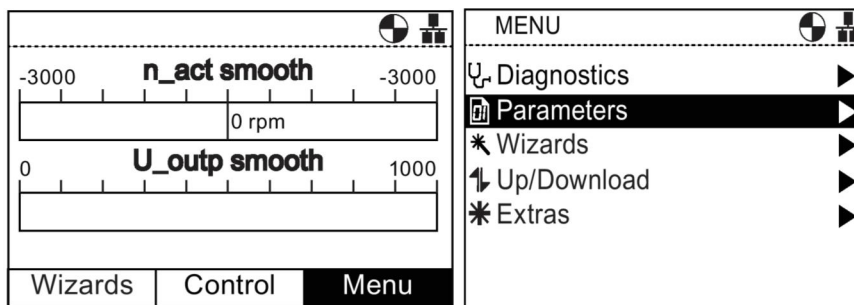
<http://www.ad.siemens.com.cn/download/docMessage.aspx?ID=6852>

4 Method of activate the proprietary technology protection function of G120 by IOP panel

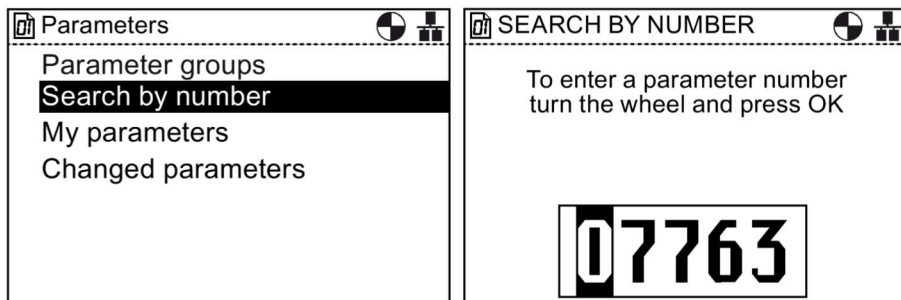
The proprietary technology protection function of G120 can not only be activated by STARTER software, but also be activated by the IOP panel to protect the parameters we set from being modified and checked. Here we will introduce this function:

4.1 Using IOP to create a special list that does not belong to the scope of proprietary technology protection

First, we use IOP to select "Menu" from the main screen, as shown in Figure 4-1, and then click "search by number" as shown in Figure 4-2. Then input 7763, click "OK", and enter p7763 parameter. By modifying the value of parameter p7763, we can determine the number of parameters required in the special list, and then select parameter p7764 to input the special parameter into p7764.



<Figure 4-1 IOP key interface>



<Figure 4-2 parameter display interface>

Special attention should be paid here: if the password p7766 is deleted from the special list, the password of proprietary technology protection can no longer be entered or modified. You must restore the factory settings of G120 before you can access the setting parameters of G120 again. When the factory settings are restored, the configuration in G120 will be lost and the G12 must be debugged again.

4.2 Using IOP to activate the proprietary technology protection function of G120

After we have completed the debugging of G120 and successfully created the special list of proprietary technology protection, we can activate the proprietary technology protection function of G120.

First step To complete the configuration of proprietary technology protection

Get to the parameter p7765 according to the above method. For the meaning of parameter p7765, see the following figure:

位	信号名称	1 信号	0 信号
00	扩展复制保护与存储卡和控制单元绑定	是	否
01	基本复制保护与存储卡绑定	是	否
02	允许用于诊断的跟踪和测量功能	是	否

<Figure 4-3 the meaning of parameter p7765>

If G120 is configured and inserted with SD card, you can choose to set bit 0 to 1. Select the function with extended copy protection (binding memory card and control unit), or you can choose to set bit 1 to 1 and select the function with basic copy protection (binding memory card only). If you want to allow the use of G120 diagnostic and monitoring curve functions, you need to set bit 2 to 1.

Step two Enter a new password


Get to the parameter p7767. There are 0-29, 30 subscripts in p7767. When setting, enter according to ASC code comparison table (see the figure below). The default value in each subscript is 42, which means "*". p7767[29] needs to be set to 0 after password input, indicating that password input is completed.

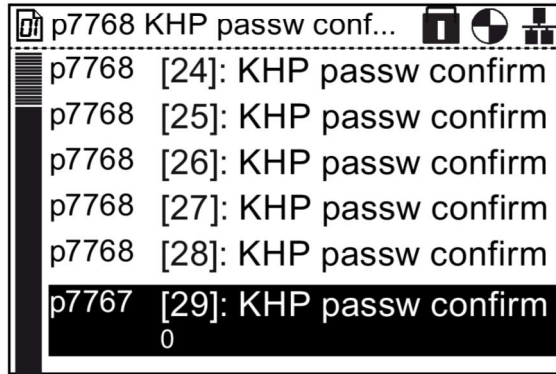
Code	Char	Code	Char	Code	Char
32	Space	64	@	96	`
33	!	65	A	97	a
34	"	66	B	98	b
35	#	67	C	99	c
36	\$	68	D	100	d
37	%	69	E	101	e
38	&	70	F	102	f
39	'	71	G	103	g
40	(	72	H	104	h
41	)	73	I	105	i
42	*	74	J	106	j
43	+	75	K	107	k
44	,	76	L	108	l
45	-	77	M	109	m
46	.	78	N	110	n
47	/	79	O	111	o
48	0	80	P	112	p
49	1	81	Q	113	q
50	2	82	R	114	r
51	3	83	S	115	s
52	4	84	T	116	t
53	5	85	U	117	u
54	6	86	V	118	v
55	7	87	W	119	w
56	8	88	X	120	x
57	9	89	Y	121	y
58	:	90	Z	122	z
59	;	91	[	123	{
60	<	92	\	124	|
61	=	93	]	125	}
62	>	94	^	126	~
63	?	95	_		

<Figure 4-4 ASC code comparison table>

For example: enter the password "MaC", as shown in Figure 4-4, P7767[0]=77, P7767[1]=97, P7767[2]=67. Finally, let P7767[29]=0, and then the new password is successfully entered.

Step three Confirm the new password and activate the proprietary technology protection function

According to the above method, enter the same value in P7768 parameter as in P7767 parameter, and when P7768[29]=0 is set, the password is confirmed and the proprietary technology protection is successfully activated. After successfully activation, the icon  will appear on the IOP panel, as shown in Figure 4-5. For example: input P7768[0]=77, P7768[1]=97, P7768[2]=67. Finally, let P7768[29]=0 and the proprietary technical protection function is activated.



<Figure 4-5 Activation interface of proprietary technology protection>

4.3 Cancel proprietary technology protection function with IOP

Get to the parameter P7766 and enter the correct password in p7766. Finally, set P7766[29]=0. When it is confirmed, the protection function of proprietary technology is canceled. But it should be noted that this is only temporary cancellation. After the device is powered off and powered on again, the proprietary technology protection is still activated. If you want to cancel completely, you need to enter the correct password in P7766, then delete the password in P7767, set the corresponding parameter value to 0, delete and confirm the password in P7768, then the proprietary technology protection is completely canceled. For example, P7767[0]=0, P7767[1]=0, P7767[2]=0, P7767[29]=0. P7768[0]=0, P7768[1]=0, P7768[2]=0, P7768[29]=0.

4.4 Modifying the password protected by proprietary technology with IOP

Get to the parameter P7766 and enter the correct password. Then enter the new password in P7767 and confirm it in P7768. At this time, the new password takes effect.

Note that the proprietary technology protection function of G120 activated by STARTER software and activated by IOP panel are interconnected. The essence of its modification falls into the corresponding parameters. Therefore, the proprietary technology protection functions activated in any way can be canceled and password modified through IOP or STARTER.

Details of proprietary technology protection using IOP to activate G120 can be found in section 7.9 of the IOP manual.

<https://support.industry.siemens.com/cs/us/en/view/109736312/zh>

Note to activate the proprietary function, IOP-2 setting method is the same as IOP.

5 Comparison of several methods to prevent G120 parameter from being modified by mistake

- 1) Set BOP-2 to prevent parameters from being modified by mistake. This method is relatively simple to operate, but the protection level of this method is relatively low. Other people can modify parameters by using software and other methods.
- 2) Activation of write protection to prevent parameters from being modified by mistake. This method is relatively simple in operation and comprehensive in protection, but its security level is not enough.
- 3) Compared with the other two methods, this method has the highest protection level. If the customer has an SD card, it can also bind the corresponding SD card to prevent the parameters from being copied by others. The function can be activated through STARTER software or IOP panel. Activation with STARTER software is more convenient and fast, while using IOP panel is relatively complex and the operation is more complicated.