version Ev4

Control System IMCT7547D



User Manual

Version: Ev4

Document number: 0000168124

Contents

Safety instructions	1
Introduction	2
I/O Types	3
Installation	4
Configuration	5
Download	6
Troubleshooting	7

Contents

Download	1
1. Safety instructions	1
1.1. Copyright	1
1.2. Preface	1
1.3. Marking of notices	1
2. Introduction	1
2.1. Overview	
2.2. Product features	1
2.3. Technical Data	
2.4. block diagram	2
2.5. Order number	4
2.6. Product code description	
3. I/O Types	5
3.1. Overriew	5
3.2. Connector and Pins	
3.2.1. Connector 1 (60 pin)	
3.2.2. Connector 2 (90 pin)	
3.3. Schematic Diagram	
3.4. Mating Connector	
3.4.1. Mating Connector 60-positions	
3.4.2. Mating Connector 96-positions	
3.5. Specification of Inputs and Outputs	
3.5.1. Digital input	
3.5.2. Pulse input	
3.5.3. Analog Inputs	
3.5.4. Digital Output	
3.5.5. PWM	
3.6. Communication port	19
3.6.1. CAN1	
3.6.2. CAN2	
3.6.3. CAN3	
3.6.4. CAN4	
4. Installation instructions	
4.1. Pre-Installation Check	22
4.2. Physical Dimensions	22
4.3. Mounting Option	23
5. Configuration	25
5.1. Device file install	
5.1.1. Install the device files	
5.1.2. Install IO driver files	
5.1.3. The installation is complete	
5.2. Library file installation	
5.3. Creating an Application	29
5.3.1. Create a project	
5.3.2. Select Standard project	
5.3.3. Creation completed	
5.4. Communication settings	
5.4.1. RS232 mode	
5.4.2. CAN mode	
5.5. IO device configuration	
5.5.1. Internal Parameters	
5.5.2. Internal I/O mapping	
5.5.3. Library functions add	
5.6. Run and debug	
5.6.1. Login	
5.6.2. Breakpoint debugging	
5.6.3. Force assignment	
v	

	5.6.4.	Save the application with the ".app"	
6.	Downlo	ad	
(6.1. Dov	wnload via BSL mode	
	6.1.1.	Set up online	
	6.1.2.	Set the baud rate	
	6.1.3.	Connect	
	6.1.4.	Flash the application	49
(6.2. Dov	wnload the application via Login	
	6.2.1.	Select Properties	
	6.2.2.	boot application	51
	6.2.3.	save the settings	51
	6.2.4.	Auto flash	51
7.	Trouble	eshooting	52
-	7.1. har	dware failures and solutions	
-	7.2. Sof	tware failures and solutions	
	7.3. Sta	tus LED description	
		•	

User Manual ATcontroller version Ev4

VERSION OVERVIEW

Version	Date	Release	Editor	Description	
Av1	2019/8/29	N	dyj	Initial Release	
Av2	2019/11/5	N	dyj	Add wiring schematic	
Av3	2019/11/26	Y	dyj	Modify the outline drawing, add the port diagnostic function, and modify the wiring schematic diagram	
Bv1	2020/2/11	N	ldw	recension	
Bv2	2020/2/11	Y	ldw	Revise the Statement Description	
Cv1	2020/2/21	N	ldw	recension	
Cv2	2020/2/21	N	ldw	Revise port parameters and product features	
Cv3	2020/2/26	N	ldw	Modify the port detailed parameters and schematic	
Cv4	2020/3/11	N	ldw	Modify pin definitions and product briefs	
Cv5	2020/3/18	N	zdb	Modify the product code description	
Cv6	2020/3/27	N	zdb	Add parameter configuration instructions and product installation over-provisioning	
Cv7	2020/3/30	Ν	zdb	Revise port parameters, modify burn instructions, add port definition serial numbers, and correct status INDICATOR descriptions	
Cv8	2020/4/3	Y	zdb	Modify the description of the technical data	
Dv1	2020/4/22	N	zdb	recension	
Dv2	2020/4/22	Y	zdb	Change the CAN_P to CAN_H and the CAN_N to CAN_L	
Ev1	2020/5/27	N	zdb	recension	
Ev2	2020/8/25	N	zdb	Add CAN mode to connect the controller, software configuration instructions add device file installation, library file installation, writing controller, IO device configuration, etc., modify the 2M RAM controller order number, and add the plug-in installation diagram	
Ev3	2020/12/15	Ν	zdb	Revise to the plug-in manifest	
Ev4	2021/2/24	Y	zdb	Revised port detail parameters	

1. Safety instructions

1.1. Copyright

The copyright of this Manual belongs to Xuzhou MooK. According to the Copyright Law, this manual may not be reproduced in any way without the prior written permission of Xuzhou MooK. The Company shall not be liable for any patent infringement resulting from the use of the information contained in this manual.

When making any reproduction of this manual, please comply with copyright laws.

1.2. Preface

For accuracy, this manual has been validated and reviewed. The instructions and descriptions contained in this manual are accurate for the IMCT7547D controller at the time of publication. However, future IMCT7547D controllers and their manuals are subject to change without notice. Xuzhou MOOK does not assume any responsibility for damages caused directly or indirectly due to errors, omissions or discrepancies between the product and the manual.

Icon	Meaning	Detailed instructions
	DANGEROUS	It can be predicted to cause unavoidable serious injury, death or property damage
	WARNING	May result in unavoidable serious injury, death or property damage
	NOTE	This may result in minor injuries and losses
6	INSTRUCTION	Non-safety-related usage guidance and information
R	ANNOTATION	Additional instructions or usage recommendations

1.3. Marking of notices

2. Introduction

2.1. Overview

The IMCT7547D controller is designed for use under harsh conditions (e.g. extended temperature range, strong vibrations, intense electromagnetic fields etc.). It is suitable for direct installationon mobile machines used under harsh conditions. The input and output channels and their parameters are especially designed to meet these requirements. Integrated hardware and software functions (operating system, firmware etc.) offer a high degree of protection for personnel and machine.

The IMCT7547D controller complies with the IEC 61131 international standard. The aluminium housing is robust and reliable, with excellent thermal conductivity and protection class IP66/67, which is suitable for a variety of harsh industrial environments.

2.2. Product features

- > Cast aluminum housing, AMP 154 PIN waterproof connector;
- Low power mode , 380mA@12V, 290mA@24V;
- 300M Hz multi-core processor, faster processing perfomence;
- > Nonvolatile storage record operating condition information , easy to trace operation data;
- > 122 IO ,4 channels CAN, Have rich control and communication ports
- > Fault diagnosis ,such as short-circuit and open- circuit detection
- > Parameter checksum and backup , avoid the dangerous working condition under illegal parameter;
- Based on the design and simulation of FloEFD and RAM Command, reasonable layout, more reasonable heat dissipation, and more stable operation in high temperature environment;
- > Flexible I/O port, Can be configured by software.

Technical parameters Supply 8~36V DC, Rated 24V Voltage Operating -40 up to +85 °C / -40 up to +185 °F temperature Storage -40 up to +85 °C / -40 up to +185 °F temperature Quiescent <290mA@24V current Processor 32Bit 300MHz 1MB RAM or 2MB RAM optional RAM 1MB RAM:768KB Flash 2MB RAM: 1MB FRAM 32KB FRAM Status LED 2 **Protection Class** IP66/67 EN 60529 **Test standards** Implementation standard: GB/T2423.01/IEC60068-2-1 Low temperature -40 °C low temperature start test, 10 times, start normal

2.3. Technical Data

EWIC	ISO7637 immunity; ISO11452 immunity; ISO16750 immunity
EMC	IN 61000-6-2:2005;EN 61000-6-4: 2011;
	the test, and the test voltage works normally
resistance	out without electricity, and the shell, connectors and other parts have no rust after
Salt spray	In the 35 °C, 5% sodium chloride salt spray environment, the 96h test is carried
	Implementation standard: GB/T2423.17/IEC60068-2-11
Drop	Shipping status (packed in bubble bags), drop height 1000mm, 2 times
SHUCK	100g/11ms, half sine wave, three axial 100 times each axially
Shock	Implementation standard: GB/T2423.5/IEC60068-2-27
	down direction, front and back direction, left and right directions of the frequency sweep twice, lasting 24h
	Sweep the frequency 1 oct/min, according to the number of times in the up and
	20Hz~2000Hz, peak acceleration 50m/s2,
Vibration	10Hz~20Hz amplitude 3mm
	Implementation standard: GB/T2423.56/IEC60068-2-64 random vibration
	2h, a total of 8h
	Vibration (sinusoidal) 30Hz, 4g, vertical 4h, horizontal left and right, front and back
	Implementation standard: GB/T2423.10/IEC60068-2-6 sinusoidal vibration
	temperature -10 °C, 24h For one cycle, ten cycles are performed
Temperature and	High temperature 65±2 °C, 93±3%; room temperature 25±2 °C, 93±3%; low
	Implementation standard: GB/T2423.34/IEC60068-2-38
SHUCK	conversion time 3min, the number of cycles 10 times
l emperature	Low temperature -40 °C, high temperature 85 °C, high and low temperature
	Implementation standard: GB/T2423.22/IEC60068-2-14
	+85°C high temperature storage test 72h
High temperature	+85°C high temperature full load working test 16h
	Implementation standard: GB/T2423 02/IEC60068-2-2
	-40° C low temperature storage test 72b
	40 °C low tomporature working toot 16h



When the equipment is going to be welded, unplug all the controller's connectors!

2.4. block diagram

WARNING





2.5. Order number

serial No.	Order number	product name	Product model	remark
1	225636	controller	IMCT7547D	1MB SRAM
2	230205	controller	IMCT7547D	2MB SRAM

2.6. Product code description



3. I/O Types

3.1. Overriew

To enhance application flexibility, the IMCT7547D controller has an AMP 154 - pin waterproof connector

with a great variety of I/O Types.

I/O Types overall are:

- Reusable and Configurable
- Diagnostics capable

I/О Туре	Number of ports	Function	Use as (I/O Type)		
		DIH	DI DIAG Positive Logic with DIAG		
DIH / DIL / VI	42	DIL	DI DIAG Negative Logic with DIAG		
		VI	0~10V Analog Voltage Input with DIAG		
)// / DIU	7	VI	0~10V Analog Voltage Input with DIAG		
VI / DIH	1	DIH	DI Positive Logic with DIAG		
		VI	AI 0~36V Input with DIAG		
VI / DIH	2	DIH	DI DIAG Positive Logic		
		CI	0~25 mA current Input;		
CI/ VI / DIH	10	VI	AI 0~10V Input with DIAG		
		DIH	DI DIAG Positive Logic with DIAG		
		RI	AI 10 Ω~2000Ω Input with DIAG		
RI / VI / DIL	4	VI	AI 0~5V Input with DIAG		
		DIL	DI DIAG Negative Logic with DIAG		
	_	PI	1Hz~10000Hz digital inputs Input		
PI / DIL	8	DIL	DI DIAG Negative Logic		
		PI	1Hz~10000Hz digital inputs Input		
PI / DIH / AI	2	DIH	DI DIAG Positive Logic		
		VI	AI 0~36V Input with DIAG		
Output port	The number	Function	Use as (I/O Type)		
AO C / AO V		AO C	4mA~20mA analog output signal with DIAG		
DIAG	1	AO V	0.1V~5V analog output signal with DIAG		
AO V DIAG	4	AO V	0 to 90% UBP analog output signal with DIAG		
PWM / DOH	18	PWM	2.5A High-Side PWM outputs with current control with DIAG		
DIAG	10	DOH	High-Side Digital Output		
PWM / DOL	8	PWM	3A Low -Side PWM outputs with current control, 50~1000Hz		
DIAG	0	DOL	Low-Side Digital Output		
	2		4A LOW -SIDE PVVIVI OUTDUTS with current control. 50~1000Hz		

User Manual ATcontroller version Ev4

		DOL	Low-Side Digital Output
DOH	10	DOH	2.2A High-Side Digital Output
DOH	4	DOH	3.5A High-Side Digital Output

3.2. Connector and Pins

Figure on the current page shows the connector of IMCT7547D, which has 154 pins and which is divided into two segments.



Main connector

Connector	Port	Port	Main Eurotion	Alternative	Alternative
Pin No	Pin No.	Function		Function 1	Function 2
1	P101	PGND	Power ground		
2	P102	PGND	Power ground		
3	P103	PGND	Power ground		
4	P104	+5V OUT	5V reference supply		
5	P105	+10V OUT	10V reference supply		
6	P106	AO1	Analog output, 0~90% UBP		
7	P107	AO2	Analog output 0~90% UBP		
8	P108	+5V OUT	5V reference supply		
9	P109	Al1	AI 0~36V	DIH	
10	P110	Al2	AI 0~36V	DIH	
11	P111	Al3	AI 0~10V	DIH	
12	P112	AO3	AO, 0~90% UBP		
13	P113	PWM18	HS PWM 2.5A	HS DO 2.5A	
14	P114	PWM3	HS PWM 2.5A	HS DO 2.5A	
15	P115	PWM4	HS PWM 2.5A	HS DO 2.5A	
16	P116	PGND	Power ground		
17	P117	CAN2_L	CAN 2 Low		
18	P118	CAN2_H	CAN 2 High		
19	P119	Al4	AI 0~10V	DIH	
20	P120	AI5	AI 0~10V	DIH	
21	P121	Al6	AI 0~10V	DIH	
22	P122	AI7	AI 0~10V	DIH	
23	P123	Al8	AI 0~10V	DIH	
24	P124	Al9	AI 0~10V	DIH t	
25	P125	AI10	AI 0~25 mA	AI 0~10V	DIH
26	P126	AI11	AI 0~25 mA	AI 0~10V	DIH
27	P127	AI12	AI 0~25 mA	AI 0~10V	DIH
28	P128	AI13	AI 0~25 mA	AI 0~10V	DIH

3.2.1. Connector 1 (60 pin)

User Manual ATcontroller version Ev4

29	P129	AI14	AI 0~25 mA	AI 0~10V	DIH Digital Input
30	P130	PWM22	LS PWM 3A	LS DO 3A	
31	P131	AO4	AO 0~90% UBP		
32	P132	AO5	AO 4~20mA	AO 0~5V	
33	P133	AI15	AI 0~25 mA	AI 0~10V	DIH
34	P134	AI16	AI 0~25 mA	AI 0~10V	DIH
35	P135	AI17	AI 0~25 mA	AI 0~10V	DIH
36	P136	AI18	AI 0~25 mA	AI 0~10V	DIH
37	P137	AI19	AI 0~25 mA	AI 0~10V	DIH
38	P138	AI20	AI 0~50K	AI 0~5V	DIL
39	P139	Al21	AI 0~50K	AI 0~5V	DIL
40	P140	Al22	AI 0~50K	AI 0~5V	DIL
41	P141	AI23	AI 0~50K	AI 0~5V	DIL
42	P142	RXD	RS232 RXD		
43	P143	TXD	RS232 TXD		
44	P144	PWM5	HS PWM 2.5A	HS DO 2.5A	
45	P145	PWM6	HS PWM 2.5A	HS DO 2.5A	
46	P146	AGND	Analog Ground		
47	P147	PWM7	HS PWM 2.5A	HS DO 2.5A	
48	P148	PWM8	HS PWM 2.5A	HS DO 2.5A	
49	P149	PWM9	HS PWM 2.5A	HS DO 2.5A	
50	P150	PWM10	HS PWM 2.5A	HS DO 2.5A	
51	P151	PWM11	HS PWM 2.5A	HS DO 2.5A	
52	P152	PWM12	HS PWM 2.5A	HS DO 2.5A	
53	P153	PWM13	HS PWM 2.5A	HS DO 2.5A	
54	P154	PWM14	HS PWM 2.5A	HS DO 2.5A	
55	P155	PWM15	HS PWM 2.5A	HS DO 2.5A	
56	P156	PWM16	HS PWM 2.5A	HS DO 2.5A	
57	P157	PI7	Pulse input, 1Hz~15KHz	DIL	
58	P158	PI8	Pulse input, 1Hz~15KHz	DIL	
59	P159	AGND	Analog Ground		
60	P160	PWM17	HS PWM 2.5A	HS DO 2.5A	

3.2.2. Connector 2 (90 pin)

Connector Pin No	Port Pin No.	Port Function	Main Function	Alternative Function 1	Alternative Function 2
1	P201	UBP	Power supply, max 5A		
2	P202	UBP	Power supply, max 5A		
3	P203	UBP	Power supply, max 5A		
4	P204	UBP	Power supply, max 5A		
5	P205	UBP	Power supply, max 5A		
6	P206	UBP	Power supply, max 5A		
7	P207	PWM19	LS PWM 3A	DOL 3A	
8	P208	PWM20	LS PWM 3A	DOL 3A	
9	P209	PWM21	LS PWM 3A	DOL 3A	
10	P210	DI1	DIH, 0~36V	DIL,0~36V	AI 0~10V
11	P211	DI2	DIH, 0~36V;	DIL,0~36V	AI 0~10V
12	P212	DI3	DIH, 0~36V;	DIL,0~36V	AI 0~10V
13	P213	DI4	DIH, 0~36V;	DIL,0~36V	AI 0~10V
14	P214	DI5	DIH, 0~36V;	DIL,0~36V	AI 0~10V
15	P215	DI6	DIH, 0~36V;	DIL,0~36V	AI 0~10V
16	P216	DI7	DIH, 0~36V;	DIL,0~36V	AI 0~10V
17	P217	DI8	DIH, 0~36V;	DIL,0~36V	AI 0~10V
18	P218	DI9	DIH, 0~36V;	DIL,0~36V	AI 0~10V

User Manual ATcontroller version Ev4

19	P219	DI10	DIH, 0~36V;	DIL,0~36V	AI 0~10V
20	P220	DI11	DIH, 0~36V;	DIL,0~36V	AI 0~10V
21	P221	DI12	DIH, 0~36V;	DIL,0~36V	AI 0~10V
22	P222	DI13	DIH, 0~36V;	DIL,0~36V	AI 0~10V
23	P223	DI14	DIH, 0~36V;	DIL,0~36V	AI 0~10V
24	P224	PGND	Power Ground	· ·	
25	P225	PGND	Power Ground		
26	P226	PGND	Power Ground		
27	P227	UBS	System supply, max 5A		
28	P228	DO1	HS DO 2.2A		
29	P229	DO2	HS DO 2.2A		
30	P230	DI15	DIH, 0~36V;	DIL,0~36V	AI 0~10V
31	P231	DI16	DIH, 0~36V;	DIL,0~36V	AI 0~10V
32	P232	DI17	DIH, 0~36V;	DIL,0~36V	AI 0~10V
33	P233	DI18	DIH, 0~36V;	DIL,0~36V	AI 0~10V
34	P234	DI19	DIH, 0~36V;	DIL,0~36V	AI 0~10V
35	P235	DI20	DIH, 0~36V;	DIL,0~36V	AI 0~10V
36	P236	DI21	DIH, 0~36V;	DIL,0~36V	AI 0~10V
37	P237	DI22	DIH, 0~36V;	DIL,0~36V	AI 0~10V
38	P238	DI23	DIH, 0~36V;	DIL,0~36V	AI 0~10V
39	P239	DI24	DIH, 0~36V;	DIL,0~36V	AI 0~10V
40	P240	DI25	DIH, 0~36V;	DIL,0~36V	AI 0~10V
41	P241	DI26	DIH, 0~36V;	DIL,0~36V	AI 0~10V
42	P242	DI27	DIH, 0~36V;	DIL,0~36V	AI 0~10V
43	P243	DI28	DIH, 0~36V;	DIL,0~36V	AI 0~10V
44	P244	DI29	DIH, 0~36V;	DIL,0~36V	AI 0~10V
45	P245	DI30	DIH, 0~36V;	DIL,0~36V	AI 0~10V
46	P246	DI31	DIH, 0~36V;	DIL,0~36V	AI 0~10V
47	P247	DI32	DIH, 0~36V;	DIL,0~36V	AI 0~10V
48	P248	DI33	DIH, 0~36V;	DIL,0~36V	AI 0~10V
49	P249	DI34	DIH, 0~36V;	DIL,0~36V	AI 0~10V
50	P250	DO3	HS DO 2.2A		
51	P251	PWM23	LS PWM 3A	DOL 3A	
52	P252	PWM24	LS PWM 3A	DOL 3A	
53	P253	DI35	DIH, 0~36V;	DIL 0~36V	AI 0~10V
54	P254	DI36	DIH, 0~36V;	DIL 0~36V	AI 0~10V
55	P255	DI37	DIH. 0~36V:	DIL 0~36V	AI 0~10V
56	P256	DI38	DIH. 0~36V:	DIL 0~36V	AI 0~10V
57	P257	PI1	PI 1Hz~15KHz	DIH 0~36V	AI 0~36V
58	P258	PI2			
50	D250				
60	P209				
		F14			
61	P261	PI5	PI, 1HZ~15KHZ	DIL 0~36V	
62	P262	PI6	PI, 1HZ~15KHZ	DIL 0~36V	
63	P263	CAN1_H	CAN 1 Low		
64	P264	CAN1_L	CAN 1 High		
65	P265	DGND	Digital Ground		
66	P266	BSL	Bootloader select Line		
67	P267	CAN3 H	CAN 3 Low		
68	P268	CAN3 L	CAN 4 High		
69	P269	CAN4 H	CAN 4 Low		
70	P270	CAN4 I	CAN 4 High		
71	P271	P\WM25	ISPWM 3A	DOL 3A	
70	D070				
12	F212	004	113 DU 2.2A		

User Manual ATcontroller version Ev4

73	P273	PWM26	LS PWM 3A	DOL 3A	
74	P274	PWM27	LS PWM 4A	DOL 4A	
75	P275	PWM28	LS PWM 4A	DOL 4A	
76	P276	DI39	DIH 0~36V;	DIL 0~36V	AI 0~10V
77	P277	DI40	DIH 0~36V;	DIL 0~36V	AI 0~10V
78	P278	DI41	DIH 0~36V;	DIL 0~36V	AI 0~10V
79	P279	DI42	DIH 0~36V;	DIL 0~36V	AI 0~10V
80	P280	PI9	PI, 1HZ~15KHZ	DIL 0~36V	
81	P281	PI10	PI, 1HZ~15KHZ	DIL 0~36V	
82	P282	DGND	Digital Ground		
83	P283	PWM2	HS PWM 2.5A	HS DO 2.5A	
84	P284	PWM1	HS PWM 2.5A	HS DO 2.5A	
85	P285	DO14	HS DO 3.5A		
86	P286	DO13	HS DO 3.5A		
87	P287	DO12	HS DO 3.5A		
88	P288	DO11	HS DO 3.5A		
89	P289	DO10	HS DO 2.2A		
90	P290	DO9	HS DO 2.2A		
91	P291	DO8	HS DO 2.2A		
92	P292	DO7	HS DO 2.2A		
93	P293	DO6	HS DO 2.2A		
94	P294	DO5	HS DO 2.2A		

3.3. Schematic Diagram



version Ev4



Fuse Selection Instructions:

For cable harness protection, Please choose the right fuse according to the I/O usage! The controller has a rated output current of 30A, and a fuse of less than or equal to 30A should be selected. The fuse calculation formula is:

Fuse rated current = (Number of 2.5A PWM * 2.5A + Number of 3A PWM r * 3A + Number of 4A PWM * 4A + Number of 2.2A DO * 2.2A t + Number of 3.5A DO * 3.5A) ×K.

K is the current coefficient, the range: $1.5 \sim 2.5$.

3.4. Mating Connector

3.4.1. Mating Connector 60-positions

serial number	The management number	Description	quantity
1	510436	60-pin hole plug, 2209544-9	1
2	510430	60-pin outer shell, 2137753-1	1
3	510431	Secondary lock, 6-1355118-1	1
4	510437	Wrench, 2137752-1	1
5	509285	Hole terminal, 1241608-1	24
6	509284	Hole terminal, 968221-1	36

3.4.2. Mating Connector 96-positions

serial number	The management number	Description	quantity
1	510435	94-pin hole plug, 2209545-9	1
2	510434	94-pin outer shell, 2137755-1	1
3	510433	94-pin lock, 6-1355134-1	1
4	510432	94-pin lock, 6-1355135-1	1
5	510437	Wrench, 2137752-1	1
6	509284	Hole terminal, 1241394-1	6
7	509285	Hole terminal, 1241608-1	4
8	508984	Hole terminal, 968221-1	84
9	509289	Waterproof connector, 828905-1	6
10	509288	Blind blocking, 828922-1	up to 6

3.5. Specification of Inputs and Outputs

3.5.1. Digital input

DIH/DIL/VI	Functional description
Pin Position	94- Pin Connector : 210~223,230~249、253~256、276~279
DIHİDILİVI Diagram	
Work mode	The inputs can be individually configured by software with a pull-up/pull-down resistor to adapt them to different sensor types, Them can be configured to 3 different operation modes individually by software. Function 1: DIH 0-36V, default . Integrated Pull-down resistor for PNP sensor Function 2: DIL 0-36V, Integrated Pull-up resistor for NPN sensor Function 3: AI 0-10V
Impedance	DIH/VI: 10.6K Ω resistance to Ground

User Manual ATcontroller version Ev4

	DIL: 27K Ω resistance to power supply
Maximum voltage	36 V
Threshold Valtage	High level: Vin > 2 V
Threshold vollage	Low level: Vin < 0.7 V
Voltage Tolerance	2000V, 1.2/50us
I/O DiagnosticsWhen used as AI (0~10V), the following diagnostic functions are implement short circuit to ground: Vin < 0.5V normal operation: 0.5V~9.5V short circuit to the power supply.: Vin > 9.5V	

3.5.2. Pulse input

3	PI/ DIL

PI/DIL	parameter		
Pin Position	60- Pin Connector: 157, 158; 94- Pin Connector: 259~262, 280, 281		
PI Diagram			
Work mode	The inputs can be configured to 2 different operation modes individually by software. Function 1: PI, default . Integrated Pull- up resistor Function 2: DIL, Integrated Pull-up resistor		
High level: Vin > 4VThreshold voltageLow level: Vin < 1 V			
impedance	67.5KΩ, Pull up to 5V		
Frequency range	1Hz~10000Hz		
Maximum voltage	36 V		
Dual pulse input PI3 and PI4 can be configured as a dual pulse input port; PI5 and PI6 can be configured as a dual pulse input port			

1 **PI/DIH/VI**

PI/DIH/VI	parameter	
Pin Position	94- Pin Connector: 257, 258	
PI/DIH/VI Diagram		
Work mode	The default is PI, which also can be reused as DIL or AI (0~36V) by software. The inputs can be configured to 3 different operation modes individually by software. Function 1: PI, Integrated Pull-down resistor, default	

User Manual ATcontroller version Ev4

	Function 2: DIH 0-36V, Integrated Pull- down resistor
	Function 3: AI 0-36V
	High level: Vin > 2 V
Threshold voltage	Low level: Vin < 0.7 V
_	Threshold voltage can be configured by software
impedance	37.8K Ω, Pull down to GND
Frequency range	1Hz~10000Hz
Maximum voltage	36 V
	When used as AI (0~36V), the following diagnostic functions are implemented:
Port diagnostics	short circuit to ground: Vin < 0.5V
	normal operation: 0.5V~9.5V
	short circuit to the power supply: Vin > 9.5V
Dual pulse input	PI1 and PI2 can be configured as a dual pulse input port

3.5.3. Analog Inputs

3 VI / DIH

VI / DIH	parameter		
Pin Position	60- Pin Connector: 111, 119~124		
VI / DIH Diagram			
Work mode	Multipurpose analog inputs with 12-bit resolution, The inputs can be configured to 2 different operation modes individually by software. Function 1: VI 0-10V, Integrated Pull-down resistor , default Function 2: DIH, Integrated Pull- down resistor		
Signal range	0~10V		
Maximum voltage	36V		
impedance	28.5ΚΩ		
resolution	12bit		
Threshold voltage	When used as DIH, Vin> 4V is judged to be valid, and the Threshold voltage also can be configured by software		
Port diagnostics	When used as AI (0~10V), the following diagnostic functions are implemented: short circuit to ground: Vin < 0.5V normal operation: 0.5V~9.5V short circuit to the power supply.: Vin > 9.5V		

3 VI(0~36V)/ DIH:

VI(0~36V)/ DIH	parameter
Pin Position	60- Pin Connector: 109, 110

VI(0~36V) / DIH Diagram	
Work mode	The default is VI (0~36V), which can be reused as DIH by software.
Signal range	0~36V
Maximum voltage	36V
impedance	78.5ΚΩ
resolution	12bit
Threshold voltage	When used as DIH, Vin> 4V is judged to be valid, and It also can be configured by software
Port diagnostics	When used as AI ($0\sim36V$), Vin < 0.5V is short circuit to ground, so this port is mainly used to monitor the battery voltage.

➢ CI/VI/DIH:

CI/VI/DIH	parameter
Pin Position	60-pin connector: 125~129,133~137
CI/VI/DIH Diagram	0~25mA 0~10V MCU
Work mode	The default is CI (0-25mA), which can be reused as VI (0~10V) or DIH by software.
Signal range	0~25mA
Maximum voltage	36V
impedance	CI: 200Ω; VI: 100.2KΩ; DIH: 100.2KΩ
resolution	12bit
Threshold voltage	When used as DIH, Vin> 4V is judged to be valid, and It also can be configured by software
Port diagnostics	When used as CI, the following diagnostic functions are implemented. Short circuit to ground: 0~4mA Normal work: 4~20mA Short circuit to power supply: 20~25mA When used as AI (0~10V), the following diagnostic functions are implemented. short circuit to ground: Vin < 0.5V
	normal operation: 0.5V~9.5V short circuit to the power supply.: Vin > 9.5V
➢ RI/VI/DIL:	

RI/VI/DIL	parameter
Pin Position	60-pin connector : 138~141

RI/VI/DIL Diagram	
Work mode	The default is RI, which can be reused as VI (0~5V) or DIH by software.
Signal range	0Ω~50ΚΩ
Maximum voltage	36V
impedance	RI: 499 Ω pull-up resistor, 100K Ω pull-down resistor VI: 100K Ω to the ground DIL: 499 Ω power supply
resolution	12bit
precision	0~2KΩ: ±2%FS 2KΩ~15KΩ: ±5%FS 15KΩ~50KΩ: ±10%FS
Threshold voltage	When used as DIL, Vin < 2V is judged to be low, It also can be configured by software
Port diagnostics	When used as VI (0~5V), the following diagnostic are implemented. short circuit to ground: Vin < 0.5V normal operation: 0.5V~4.5V short circuit to the power supply.: Vin > 4.5V

3.5.4. Digital Output

DOH	parameter
Pin Position	94- Pin Connector: 2.2A output: 228, 229, 250, 272, 289 ~ 294; 3.5A output: 285~288
DOH Diagram	
Drive Capability	2.2A output : 2.2A 3.5A output : 3.5A
Free-wheel diode	Internal intergration
Float voltage	< 10V , it can be pulled down to <0.5V by a less than 10K Ω resistance load
Voltage tolerance	600V,1.2/50uS
Port diagnostics	 Short-circuit to ground Short-circuit to power supply load exceeding limit (3A, 30s) Short-circuit.
Analog outp	out

➢ AO (4~20mA or 0~5V):

parameter

(4~20mA or 0~5V)	
Pin Position	60-pin connector: 132
AO Diagram	MCU
Work mode	0.1V to 5V output voltage signal or 4mA to 20mA output current signal
Port diagnostics	1. Short circuit to power supply
	2. Short circuit to ground
	3. Output voltage deviation of more than 5%.

➢ AO (0~90%UBP):

AO (0~90%UBP)	parameter
Pin Position	60-pin connector: 106, 107, 112, 131
AO Diagram	
Work mode	0~90% UBP output signal
Port diagnostics	 Short circuit to power supply Short circuit to ground the output voltage deviates by more than 5%, because the output impedance of the module is 40KΩ with feedback circuit, so the driver load needs to be greater than 1M Ω

3.5.5. PWM

3 PWM 2.5A/DOH

PWM 2.5A/DOH	parameter
Pin Position	60- Pin Connector: 113~115、144、145、147~156、160; 94- Pin Connector: 283, 284

PWM 2.5A/DOH Diagram	
Work mode	The default is PWM , which can be reused as DOH
Drive capability	2.5A
Current feedback range	50~2000mA
Duty cycle	0 ~ 100%, adjustable
Frequency range	50~1000Hz
Current sampling accuracy	1.5% FS
Float voltage	< 10V, it can be pulled down to <0.5V by a less than 10K Ω load
Port diagnostics	 Short-circuit to ground Short-circuit to power supply load exceeding limit (2.5A, 30s)

3 PWM 3A/DOL

PWM 3A/DOL	parameter
Pin Position	60- Pin Connector: 130; 94- Pin Connector: 207~209, 251, 252, 271, 273
PWM 3A/ DOL Diagram	
Work mode	The default is PWM , which can be reused as DOL
Drive capability	3A
Current feedback range	50~2000mA
Duty cycle	0 ~ 100%, adjustable
Frequency range	50~1000Hz
Current sampling accuracy	1.5% FS
Float voltage	< 10V, it can be pulled down to <0.5V by a less than 10K Ω load
Port diagnostics	 Short-circuit to ground Short-circuit to power supply load exceeding limit (3A, 30s) Short-circuit.

3 PWM 4A/DOL:

PWM 4A/DOL	parameter
Pin Position	94- Pin Connector: 274, 275
PWM 4A/ DOL Diagram	
Work mode	The default is PWM , which can be reused as DOL
Drive capability	4A
Current feedback range	50~2000mA
Duty cycle	0 ~ 100%, adjustable
Frequency range	50~1000Hz
Current sampling accuracy	1.5% FS
Float voltage	< 10V, it can be pulled down to <0.5V by a less than 10K Ω load
Port diagnostics	 Short-circuit to ground Short-circuit to power supply load exceeding limit (4A, 30s) Short-circuit.

3.6. Communication port

CAN is a bidirectional twisted pair bus. Needs termination with 120 Ω in 2-control units, whereas the others remain unterminated.

Termination must be fit at the ends of the bus line to prevent wave reflection. Termination is necessary to enter the recessive state.

Note: A common ground (chassis) or a proper ground connection is necessary for CAN operation. In case of connecting with an external device (e.g. PC with CAN-interface for downloading software)please make sure that the maximum voltage ratings are not violated when connecting to or disconnecting from the CAN bus. The CAN interface is fully ISO 11898-2/-5 compliant.

3.6.1. CAN1



Baud rate range	50K、100K、125K、250K、500K and up to 1Mbit/s.
default baud rate	250Kbit/s
Port protection	protection functions1:CAN Line short-circuit to UB protection functions2: CAN Line short-circuit to GND.
Terminal resistance	No built-in terminal resistance

3.6.2. CAN2

CAN2	parameter
Pin Position	60-pin connector: 117, 118;
CAN Diagram	CAN2_H CAN2_L CAN2_L
Baud rate range	50K、100K、125K、250K、500K and up to 1Mbit/s.
default baud rate	250Kbit/s
Port protection	protection functions1:CAN Line short-circuit to UB protection functions2: CAN Line short-circuit to GND.
Terminal resistance	No built-in terminal resistance

3.6.3. CAN3

CAN3	parameter
Pin Position	94-pin connector: 267, 268
CAN Diagram	
Baud rate range	50K、100K、125K、250K、500K and up to 1Mbit/s.
default baud rate	250Kbit/s
Port protection	protection functions1:CAN Line short-circuit to UB protection functions2: CAN Line short-circuit to GND.
Terminal resistance	No built-in terminal resistance

3.6.4. CAN4

CAN4	parameter
Pin Position	94-pin connector : 269, 270
CAN Diagram	
Baud rate range	50K、100K、125K、250K、500K and up to 1Mbit/s.
default baud rate	250Kbit/s
Port protection	protection functions1:CAN Line short-circuit to UB protection functions2: CAN Line short-circuit to GND.
Terminal resistance	No built-in terminal resistance

4. Installation instructions

INSTRUCTION

4.1. Pre-Installation Check



Before installation, please check whether the power supply and wiring are completely corresponding, and whether the product status is intact and without bumps.

4.2. Physical Dimensions



Dimensional view of the IMCT7547D housing

4.3. Mounting Option

The IMCT7547D controller is mounted with three M6 bolts/screws. After connecting the mating connector, the overall length is 235mm, so it is recommended to reserve least 60mm of installation space at the controller interface for easy insertion:





Mounting Guideline







23

5. Configuration

The software configuration of the IMCT7547D controller is completed in the CoDeSys software.

5.1. Device file install

The device file will sets some specific parameters of the controller system, and it must be installed in the CodeSys V3.5 SP12 or newer Versions. CodeSys V3.5 is the only programmable sofware supported.

5.1.1. Install the device files

Select Tools-> Device Repository to open the installation dialog:

	Tool	s <u>W</u> indow <u>H</u> elp
	Ð	Package Manager
	1	Library Repository
		Device Repository
	-	Visualization Styles Repository
		License <u>M</u> anager
		<u>C</u> ustomize Options
🎉 Device R	epository	
Location:	System Repository	•
	(CilBra aramData) CODE	(VElDavican)

	and a second station	1. C		Install
Name		Vendor	Version	
H 11 M	liscellaneous			Uninstall
H-III F	ieldbusses			
P 🔟 P	LCs			
E	SoftMotion PLCs		0000000	Install D1M
	CODESYS Control for x64	35 - Smart Software Solutions GmbH	3.5.2.0	
- 1	CODESYS Control RTE V3	3S - Smart Software Solutions GmbH	3.5.2.0	
	CODESYS Control Win V3	35 - Smart Software Solutions GmbH	3.5.2.0	
1	CODESYS HMI	35 - Smart Software Solutions GmbH	3.5.2.0	
🗄 🔗 s	oftMotiondrives			
٠ [.W.	•	Details

Click Install and select the device required file to install

MooK, China-Tricore-Kundenspezifisch.devdesc.xml

After selecting the file, click "Open" to complete the installation, after installation, you can see the device just installed under the PLC list:



5.1.2. Install IO driver files

IO driver files are installed in the same way as device files installation. After the installation is complete, you can see the following information under the dedicated device:

立罟(L):	System Repository		_]	编辑位贵(E).
2111 (-).	(C:\ProgramData\CODESYS	Devices)		Condition (- 2 - 2
	1070			
b 装的设 [.]	备描述(v):			
String for	a fulltext search	供应商: <全部供应	商> ▼	安装(I)
名称	供	立商	版本	卸载(U)
P- 🗊 ;	与用设备			- 导出+-
(IMC_T7547D		1.0.1.6	
10 - 🛃 H	MI设备			
😐 🔟 F	'LC			
😟 🔗 s	oftMotion强区之力			
🗷 👩 3	见场总线			
< [F.	
. ⊟ - () E	: (ZK_Work'Hirschmann, China- Device "Hirschmann, China-1	Tricore-Kundenspezifisch.devde 'ricore-Kundenspezifisch" install	esc. xml led to device repository.	〔详细信息 (D)

5.1.3. The installation is complete

The installation of the controller device and the IO driver device is complete, as shown in the following figure:

🗐 🔟 Device	
무·희·PLC 逻辑	
Application	
一 🎁 库管理器	
POU (PRG)	
日 🥨 任务配置	
😑 😂 MainTask	
POU	
Trace1	
IMC T7547D	

5.2. Library file installation

Select Tools-> Library Repository to open the library management dialog:

Tool	Window Help	
•	<u>Package Manager</u>	
1	Library Repository	
	Device Repository	
	Visualization Styles Repository	
	License <u>M</u> anager	
	Scripting	۲
	<u>C</u> ustomize	
	Options	

User Manual ATcontroller version Ev4

ocation:	System	▼ E	dit Locations
	(C:\ProgramData\CODESYS\Managed Libraries)		
Installed lib	raries:		Install
Company	(All companies)		Uninstall
(I	Hiscellaneous)		
֥	LIB_CRC		
÷ ما	LIB_IIC		
<u>⊕</u> …•(
* • A	pplication		
	itern		
E IT	est Versions (not recommended)	_	
± € U	se Cases		Find
			Details
Group	by category		ependencies

Click "Install" to select the library files that need to be installed:

•	· 计算机 → 本地磁	盘 (E:) 🕨 库文件	- 4g	搜索库文件	Q
新發	主文件夹			855 🕶	
-	名称	^	修改日期	类型	大小
	🐞 Lib_CAN		2012/9/4 9:29	CODESYS library	89 KB
Ш					
-	•		ш		•
	文件名(N): Lib	_CAN		All files	•
				打开(O)	取消

Click Open to complete the installation of the library file, as shown in the following:

(Miscellaneous)	
E IB_CAN	
ELIB_CRC	
∎	

5.3. Creating an Application

5.3.1. Create a project

Select file-> New project option:

Lib	, praries				6
	ojects	Empty project H	MI project	Standard project p	Standard oroject w
project c	ontaining one device, (one application, and an emp	ity implementati	on for PLC_PR	G
project c ame	ontaining one device, o	one application, and an emp	ity implementati	on for PLC_PR	G

5.3.2. Select Standard project

set the project name and path, and click OK. Select Controller Device:

-	You are abou	ut to create a new standard project. This wizard will create the following	
	objects withi	in this project:	
	- One program - A program I - A cyclic tasl - A reference	mmable device as specified below PLC_PRG in the language specified below k which calls PLC_PRG to the newest version of the Standard library currently installed.	
	Device	MooK, China-Tricore-Kundenspezifisch (XuZhou MooK electro-hydraulic cor	~
	Device PLC_PRG in	MooK, China-Tricore-Kundenspezifisch (XuZhou MooK electro-hydraulic cor Structured Text (ST)	~ ~
	Device PLC_PRG in	MooK, China-Tricore-Kundenspezifisch (XuZhou MooK electro-hydraulic cor Structured Text (ST)	~ ~
	Device PLC_PRG in	MooK, China-Tricore-Kundenspezifisch (XuZhou MooK electro-hydraulic cor Structured Text (ST)	



NOTE

Device: Select the device to install, here is MooK, China-Tricore-Kundenspezifisch (this name may change depending on the design of the profile) ; PLC_PRG in: Select The programming mode, where Structured Text is selected.

5.3.3. Creation completed

Click OK to complete the creation of the new project, the window is as follows:



5.4. Communication settings

The IMCT7547D controller can be connected to a PC via the RS232 interface or the CAN bus.

5.4.1. RS232 mode

Double-click "Device" in the Device panel. The system automatically expands the configuration page for Device.



NOTE

Codesys needs to configure Gateway to connect to the controller. This gateway only needs to be configured once for the same controller and connection port, and does not need to change with different projects.

(1) Select communication settings interface:



File Edit View Project Buil	ld _Online _Debug _Tools _Windo × #M_%_@_% _%_%_% 6	w 🛛 Help 🖥 🎬 • 🗗 🎬 Application [Device: PLC Logic] 🔹 🧐 🕠 📄 💐	▼ ▼ [≣ 9] \$ [*] \$ [*]
Vevices	A X A Communication Settings Applications Backup and Restore Files Log PLC Settings PLC Setl Users and Groups Access Rights Symbol Rights Task Deployment Status Information <	evice X Scan Network Gateway • Device •	▼ DESKTOP-VCLBESS
Messages - Total 0 error(s), 0 warning((s), 0 message(s)	Last build: 🔷 0 😗 0 Precompile 🗸 🖓	Project user: (nobody)

(2) New Gateway:

IMCA6070_DEMO_V100		Company Colonia Mart	
Device (Hirschmann, China-Tricore-Kundenspezifisc	h) 通讯设置	Scan network Gateway • 1支留	•
□ 副 PLC 逻辑 □ ② Application	应用	网管配置	
一 🎁 库管理器	备份与还原	接口	设置
POU (PRG)	÷/4	🖃 🎟 Ca端口:	
□ 1999 任务配置	XIŦ	名称	Com<1>
🖻 😂 MainTask	日志	端口	1
一世 POU		波特率	115200
Trace1	PLC 设置		
IMC_T4775D (IMC_T4775D)	PLC外壳		
	用户和组		

(3) Click OK:

Interface Setting COM Port Name Com (5) Baudrate 115200 Port 5 Local address 27 Enable auto addressing TRUE	
Name Com<5> Baudrate 115200 Port 5 Local address 27 Enable auto addressing TRUE	
Name Com<5> Baudrate 115200 Port 5 Local address 27 Enable auto addressing TRVE	
Baudrate 115200 Port 5 Local address 27 Enable auto addressing TRVE	
Port 5 Local address 27 Enable auto addressing TRVE	
Local address 27 Enable auto addressing TRVE	
Enable auto addressing TRVE	



User Manual ATcontroller version Ev4

(4) Make sure that the controller is powered on and properly connected to the computer through the RS232 serial port cable. Double-click Gateway to scan the device, and the available controllers appear:



(5) Double-click this controller to set it as active. At this point, the controller is successfully connected.

Network Gatewa	y ▼ Device ▼	
	Gateway	
	IP-Address:	Device Name:
	localhost	MK C7547
	Port: 1217	Device Address: 0001
		Target ID: 10C3 0001
		Target Type: 4096
		Target Vendor:
		XuZhou MooK electro-hydraulic control co., LTD.
		Target Version: 3.5.13.0

5.4.2. CAN mode

5

Before you connect to controller, you need to propare a PCAN (PEAK SYSTEM) and Gateway.cfg, The controller can only be connected by PCAN, Other CAN tool not be supported. You need to replace the RS 232's Gateway.cfg with support CAN's Gateway.cfg. CAN's Gateway.cfg locate in the CoDeSys installation disk C:\ProgramData\CODESYS\CODESYSGatewayV3\A82AAFC8 folder



NOTE

Back up the Gateway .cfg file before opening it.

5.5. IO device configuration

Double-click the newly added IO device, and the system will automatically expand the configuration

Untitled3.project* - CODESYS							- 0	×
File Edit View Project Build Online	e Debug Tools Window	Help						
🛅 🚔 📓 😂 🗠 여 🕹 🐚 🛍 🗙 🕍 🎕	6 🔥 🌿 N. M. M. M. M. 🖷	🖮 - 🗋 🔛 🛛 Application [De	evice: PLC Logic] - 😋 😋 🕨	🗏 🌾 🗍 🖓 📲	¢⊒ +	I\$ ↓ 1 ₹ ₹	
Decision 1								
Pevices ¥	× <u>M MK_C/54/</u> ×							
Device (Mook China-Tricore-Kundenspezifisch	Internal Parameters	Parameter	Туре	Value	Default Value	Unit	Description	
		ModelType	WORD	4775D	4775D		MooK控制器IO模块型号	
	Internal I/O Mapping	Vendor	STRING	'XuZhou MooK'	'XuZhou MooK'		XuZhou MooK	
Library Manager	Status	ModelName	STRING	'IOECS'	'IOECS'		MooK系列控制器IO模块	
PLC PRG (PRG)		- 🔷 VI	DWORD	16#0000	16#0000		bit0~9对应AI10到AI19,0:电压1:电	充,bit
Task Configuration	Information	PWM_MASK	DWORD	16#00000000	16#00000000		0DO,1PWM bit0~27对应DO15~4	2
🖻 🥩 MainTask		PWM_PID_EN	DWORD	16#00000000	16#00000000		0PWM,1闭环恒流 bit0~27对应D	D15~
- C PRG		DIN_MASK1	DWORD	16#FFFFFFFF	16#FFFFFFFF		DIN1-32,0低有效,1高有效	
MK C7547 (MK C7547)		Ø DIN_MASK2	DWORD	16#0000FFFF	16#0000FFFF		DIN33-42,0低有效,1高有效	
		FRE1	WORD	200	200	hz	PWM1的频率	
		FRE2	WORD	200	200	hz	PWM2的频率	
		FRE3	WORD	200	200	hz	PWM3的频率	
		🔷 🖗 FRE4	WORD	200	200	hz	PWM4的频率	
		PRE5	WORD	200	200	hz	PWM5的频率	
		PRE6	WORD	200	200	hz	PWM6的频率	
		- 🗇 FRE7	WORD	200	200	hz	PWM7的频率	
		• Ø FRE8	WORD	200	200	hz	PWM8的频率	
		- 🗇 FRE9	WORD	200	200	hz	PWM9的频率	
		🔶 🖗 FRE10	WORD	200	200	hz	PWM10的频率	
		FRE11	WORD	200	200	hz	PWM11的频率	
		FRE12	WORD	200	200	hz	PWM12的频率	
		FRE13	WORD	200	200	hz	PWM13的频率	
		<)
٢	>							
POUs	<							

5.5.1. Internal Parameters

Configuration for input and output parameters that are valid at power-up of the controller and cannot be changed during operation:

≥	영 🐴 🌿 🔲 🤋 🎕 🎕 🖷 🛛	🖮 📑 🎬 Application [De	vice: PLC Logic] - 0 \$ 0§ →	≡ 4 [≡ ⊂⊒	¢ <u>∃</u> +	≡ \$ ¢ 11 1 1 /
ces 🔻 🕈	× MK_C7547 ×						
) Untitled3	Internal Parameters	Parameter	Туре	Value	Default Value	Unit	Description
Device (Mook, China-Tricore-Kundenspezitis	(CT)	ModelType	WORD	4775D	4775D		MooK控制器IO模块型号
Application	Internal I/O Mapping	Vendor	STRING	'XuZhou MooK'	'XuZhou MooK'		XuZhou MooK
Library Manager	Status	ModelName	STRING	'IOECS'	'IOECS'		MooK系列控制器IO模块
		- 🔶 VI	DWORD	16#0000	16#0000		bit0~9对应AI10到AI19,0:电压1:电流,bi
Task Configuration	Information	PWM_MASK	DWORD	16#00000000	16#00000000		0DO,1PWM bit0~27对应DO15~42
B MainTask		PWM_PID_EN	DWORD	16#00000000	16#00000000		0PWM,1闭环恒流 bit0~27对应DO15
PLC_PRG		DIN_MASK1	DWORD	16#FFFFFFFF	16#FFFFFFFF		DIN1-32,0低有效,1高有效
MK C7547 (MK C7547)		DIN_MASK2	DWORD	16#0000FFFF	16#0000FFFF		DIN33-42,0低有效,1高有效
		- • FRE1	WORD	200	200	hz	PWM1的频率
		P FRE2	WORD	200	200	hz	PWM2的频率
		- 🗭 FRE3	WORD	200	200	hz	PWM3的频率
		- • FRE4	WORD	200	200	hz	PWM4的频率
		- 🖗 FRE5	WORD	200	200	hz	PWM5的频率
		🔷 FRE6	WORD	200	200	hz	PWM6的频率
		- 🖗 FRE7	WORD	200	200	hz	PWM7的频率
		🕂 🌵 FRE8	WORD	200	200	hz	PWM8的频率
		- 🗇 FRE9	WORD	200	200	hz	PWM9的频率
		🔶 🖗 FRE10	WORD	200	200	hz	PWM10的频率
		- 🖗 FRE11	WORD	200	200	hz	PWM11的频率
		- 🖗 FRE12	WORD	200	200	hz	PWM12的频率
		- 🖗 FRE13	WORD	200	200	hz	PWM13的频率
		<					
	>						
	<u> </u>						

> Parameters:

VI: bit0~9 corresponds to AI10 to AI19, 0: voltage; 1: current 。

Bit10~13 corresponds to AI20 to AI23, 0: voltage; 1: resistance.

PWM_MASK: bit0~27对应 PWM1~PWM28 ,0为 DO;1为 PWM。

DIN_MASK1: bit0~32 corresponds to DIN1~32,0: low effective; 1: high effective.

DIN_MASK2: bit0~8 corresponds to DIN33~42,0: low effective; 1: high effective.

DO_STEN1: bit0~32 corresponds to DOST1~32 diagnosis, 0: off; 1: Open. **DO_STEN2**: bit0~8

corresponds to DOST33~42 diagnosis, 0: off; 1: Open.

ANNOTATION

PWM: FRE1~FRE16, FRE19~FRE25, REF28共28路。



The default frequency of all PWM channels is 200Hz, which can be modified by the value of the corresponding Value column, where PWM16, 17, 18, The 22 frequencies are modified together, and the PWM25, 26, and 27 frequencies are modified together. For example, if you want to set the frequency of PWM7 to 100Hz, you need to change the Value column value of FRE7 to 100.

5.5.2. Internal I/O mapping

For input and output management of devices:

Untitled3 Device (Mook, China-Tricore-Kundenspezifisch) Device (Mook,	Internal Parameters	Find						
Device (Mook, china-incore-kundenspezitisch) Device (Mook, china-incore-kunde				Filter Show	all	-		
An	Internal I/O Mapping	Variable	Mapping	Channel	Address	Type	Unit	Description
PLC_PRG (PRG)	Status			CC	%IW33	ARRAY [0.,41] OF WORD	mA	电流反馈
PLC PRG (PRG)				ADC	%IW75	ARRAY [027] OF WORD		AI
E Task Configuration	Information	H- M		PI	%ID52	ARRAY [09] OF DINT	hz	频率值
🖻 👹 MainTask		± - ×		DoublePuls	%IL31	ARRAY [03] OF LINT		双脉冲
PLC_PRG		- ×		DOST	%IB280	ARRAY [041] OF BYTE		ARRAY_DOST
MK_C7547 (MK_C7547)		18- N		ADC_EXT	%IW161	ARRAY [045] OF WORD	mV	ADC_EXT
		· →		PULS	%IL52	ARRAY [012] OF LWORD		脉冲计数值
		► Net LED_USER	***	LED	%QB0	BYTE		USER指示灯,bit0
		- *> DOUT	***	DOUT	%QL1	LWORD		!!!bit0到bit4
		🕮 - ^K ø		PWM	%QW8	ARRAY [032] OF WORD		PWM占空比,[0,9
		<						
			Reset Mappi	ng Always	s up date varia	bles Use parent device settin	Ig	
		Sus Cycle task	🍫 = Ma	p to existing v	ariable			

Digital input

Internal Parameters	Find		Filter Show	all	•			
Internal I/O Mapping	Variable	Mapping	Channel	Address	Type	Unit	Description	
Statue			DIN	%180	ARRAY [U65] OF BYTE		DIN	
status		***	DIN[0]	761DU	DTIE		DIN	
nformation	DIN2	×.	DIN[1]	9/ TP 2	DITE		DIN	
	A DING	2 2/2	DIN[2]	761D2	DITE		DIN	
		2 ***	DIN[J]	761D3	DITE		DIN	
		*		761D-T	BVTE		DIN	
	P DING	2/2	DIN[6]	761D D	BYTE		DIN	
	A DING	200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200	DIN[7]	76100	DTIC		DIN	
	MA DINO	***	DIN[7]	76107	DTIE		DIN	
		***	DIN[0]	76100	DTIE		DIN	
	A DINII	***	DIN[10]	761D9	DITE		DIN	
	A DINI1	**	DIN[10]	7610 10	DITE		DIN	
	DIN12	*	DIN[11]	76ID 11	DITE		DIN	
	A DIN13	2000 - 20	DIN[12]	761D12	BYTE		DIN	
	V DIN14	2/2 2/2	DIN[13]	761D 1.5	DITE		DIN	
	A DINIS	200 N	DIN[14]	701D 1-7	DITE		DIN	
	V DIN17	19 10 10 10 10 10 10 10 10 10 10 10 10 10 1	DIN[15]	761010	DTIC		DIN	
	DIN17	***	DIN[17]	761D 10	DTIE DVTE		DIN	
	DIN10	2 /	DIN[17]	761D17	DITE		DIN	
	A DINIO	**	DIN[10]	761D 10	DITE		DIN	
	DIN20	100 No.	DIN[20]	761019	DITE		DIN	
	A DIN21	100 N/	DIN[21]	761D2U	BYTE		DIN	
		2/2	DIN[21]	761D21	DITE		DIN	
	A DIN23	2 2/2	DIN[22]	761022	DITE		DIN	
	Ma DIN24	***	DIN[24]	761020	DITE		DIN	
			DIN[24]	761024	DITE		DIN	
		2000	DIN[25]	761020	DTIE		DIN	
	A DIN27	*	DIN[20]	761020	DITE		DIN	
	Ma DIN28	() () ()	DIN[27]	%1B2/	BILE		DIN	
	Ø DIN29		DIN[20]	7610.20	DTIE		DIN	
	*> DIN30	***	DIN[29]	%IB29	BYTE		DIN	
	* DIN31	**	DIN[30]	%IB30	BYTE		DIN	
	M DIN32	***	DIN[31]	%IB31	BYTE		DIN	
	- M DIN33	**	DIN[32]	%IB32	BYTE		DIN	
	- 🍫 DIN34	***	DIN[33]	%IB33	BYTE		DIN	
	👋 DIN35		DIN[34]	%IB34	BYTE		DIN	
	TIN36	*	DIN[35]	%IB35	BYTE		DIN	
		**	DIN[36]	%IB36	BYTE		DIN	
	🍫 DIN38	***	DIN[37]	%IB37	BYTE		DIN	
		***	DIN[38]	%IB38	BYTE		DIN	
	- * DIN40	***	DIN[39]	%IB39	BYTE		DIN	
	🍫 DIN41	***	DIN[40]	%IB40	BYTE		DIN	
	Ma DINA2	×.	DINEAR	OUTD 41	DATE		DIN	

ANNOTATION



The DIN port can be effective at the height of each port individually, and can also be used for port diagnostics.

Analog input

Includes voltage, current, resistance three basic analog inputs, system voltage, 5V and 10V voltage input feedback:

nternal Param <mark>e</mark> ters	Find		Filter Show	all	•		
nternal I/O Mapping	Variable	Mapping	Channel	Address	Туре	Unit	Description
			DIN	%IB0	ARRAY [065] OF BYTE		DIN
Status	🕀 - 🏘		CC	%IW33	ARRAY [041] OF WORD	mA	电流反馈
oformation	₽- ₩		ADC	%IW75	ARRAY [027] OF WORD		AI
in officiation	ᡟ AI1	***	ADC[0]	%IW75	WORD		AI
	- 🁋 AI2	***	ADC[1]	%IW76	WORD		AI
		***	ADC[2]	%IW77	WORD		AI
	ᡟ AI4	***	ADC[3]	%IW78	WORD		AI
	🍫 AI5	***	ADC[4]	%IW79	WORD		AI
	🍫 AI6	**	ADC[5]	%IW80	WORD		AI
	ᡟ AI7	**	ADC[6]	%IW81	WORD		AI
	ᡟ AI8	***	ADC[7]	%IW82	WORD		AI
	ᡟ AI9	***	ADC[8]	%IW83	WORD		AI
	ᡟ AI 10	***	ADC[9]	%IW84	WORD		AI
	- 🏘 AI11	**	ADC[10]	%IW85	WORD		AI
	- ᡟ AI12	***	ADC[11]	%IW86	WORD		AI
	- ᡟ AI13	***	ADC[12]	%IW87	WORD		AI
	- ᡟ AI14	***	ADC[13]	%IW88	WORD		AI
	ᡟ AI15	×ø	ADC[14]	%IW89	WORD		AI
	ᡟ AI 16	***	ADC[15]	%IW90	WORD		AI
	ᡟ AI 17	***	ADC[16]	%IW91	WORD		AI
	🎽 AI 18	***	ADC[17]	%IW92	WORD		AI
	ᡟ AI 19	***	ADC[18]	%IW93	WORD		AI
	ᡟ AI20	***	ADC[19]	%IW94	WORD		AI
	🍎 AI21	***	ADC[20]	%IW95	WORD		AI
	- 🍫 AI22	***	ADC[21]	%IW96	WORD		AI
	- 🏘 AI23	×	ADC[22]	%IW97	WORD		AI
	PT1V ST	****	ADC[23]	%IW98	WORD		AT

	ANNOTATION
R [®]	Al port input, where Al1 and Al2 are 0~36V input, the unit is mv, Al3~Al9 Input is 0~10V, unit mv, Al10~Al19 is 0 ~10V and 4~20mA inputs, units depending on the configured mode (mV and mA), Al20 ~Al23 is 0~5V and resistive port input, the unit depends on the configuration mode (mV vs Ohm); Pl1_ST and Pl2_ST are Pl1, 2 multiplexed as analog ports, 0~10V, unit mv; VUBP: System voltage feedback, unit mV; VOUT5_ST: 5V output feedback, unit mV; VOUT10_ST: 10V output feedback in mV.

1 Current feedback

User Manual ATcontroller version Ev4

MK_C7547 X Find Filter Show all • Internal Parameters Variable Description ^ Mapping Channel Address Type Unit Internal I/O Mapping %IW33 ARRAY [0..41] OF WORD 电流反馈 **.** 4 CC mA Status 🍬 CC1 *• CC[0] %IW33 WORD mA 电流反馈 V CC2 **• CC[1] %IW34 WORD mA 电流反馈 Information * CC3 ** CC[2] %IW35 WORD 电流反馈 mA 🏘 CC4 CC[3] %IW36 WORD mA 电流反馈 ** * CC5 ** %IW37 电流反馈 CC[4] WORD mA 🏷 CC6 * CC[5] %IW38 WORD mA 电流反馈 * CC7 *• CC[6] %IW39 WORD mA 电流反馈 * CC8 **• CC[7] %IW40 WORD 电流反馈 mA 🏘 CC9 %IW41 * CC[8] WORD mA 电流反馈 * CC10 ** CC[9] %IW42 WORD mA 电流反馈 * CC11 %IW43 * CC[10] WORD mA 电流反馈 * CC12 ** CC[11] %IW44 WORD mA 电流反馈 * CC13 * CC[12] %TW45 WORD mA 电流反馈 🍬 CC14 ** CC[13] %IW46 WORD mA 电流反馈 🍬 CC15 CC[14] %IW47 WORD mA 电流反馈 **• * CC16 ** CC[15] %TW48 电流反馈 WORD mA * CC17 4 CC[16] %IW49 WORD mA 电流反馈 * CC18 ** CC[17] %IW50 WORD mA 电流反馈 * CC19 ** CC[18] %IW51 WORD 电流反馈 mA 🍫 CC20 CC[19] %IW52 *** WORD mA 电流反馈 * CC21 ** CC[20] %IW53 WORD mA 电流反馈 🍫 CC22 CC[21] %IW54 ** WORD mA 电流反馈 🏘 CC23 *• CC[22] %IW55 WORD mA 电流反馈 * CC24 ** CC[23] %IW56 WORD mA 电流反馈 🍫 CC25 *• CC[24] %IW57 WORD mA 电流反馈 🏘 CC26 ** CC[25] %IW58 WORD mA 电流反馈 * CC27 **• CC[26] %IW59 mA 电流反馈 WORD 🍫 CC28 " CC[27] %IW60 WORD mA 电流反馈 * CC29 * CC[28] %IW61 WORD mA 电流反馈 🍫 CC30 ** CC[29] %IW62 WORD 电流反馈 mA 🍫 CC31 CC[30] %IW63 WORD 电流反馈 ** mA * CC32 *• CC[31] %IW64 WORD mA 电流反馈 🍫 CC33 CC[32] %IW65 WORD mA 电流反馈 * 🍫 CC34 ** CC[33] %IW66 WORD mA 电流反馈 * CC35 ** CC[34] %IW67 WORD 电流反馈 mA 🍫 CC36 %IW68 WORD ** CC[35] mA 电流反馈 * CC37 *• CC[36] %IW69 WORD mA 电流反馈 🍫 CC38 CC[37] %IW70 WORD 电流反馈 * mA 🏷 CC39 \$ CC[38] %IW71 WORD mA 电流反馈 * CC40 %IW72 ۵, CC[39] WORD mA 电流反馈 🍫 CC41 CC[40] %IW73 WORD mA 电流反馈 ۵ 牧 CC42 CC[41] %IW74 WORD mA 电流反馈 6

ANNOTATION



DO1~DO42 current feedback, unit mA, range 0~2500mA.

User Manual ATcontroller version Ev4

2 Frequency input

Internal Parameters	Find		Filter Show	r all			
Internal I/O Mapping	Variable	Mapping	Channel	Address	Type	Unit	
Status			CC	%IW33	ARRAY [041] OF WORD	mA	电流反馈
	÷ *		ADC	ADC %IW75	ARRAY [027] OF WORD		AI
Information	i - Ng		PI	%ID52	ARRAY [09] OF DINT	hz	频率值
	🁋 PI1	***	PI[0]	%ID52	DINT	hz	频率值
	*> PI2	***	PI[1]	%ID53	DINT	hz	频率值
	- ᡟ PI3	***	PI[2]	%ID54	DINT	hz	频率值
	ᡟ PI4	***	PI[3]	%ID55	DINT	hz	频率值
	- 🁋 PI5	***	PI[4]	%ID56	DINT	hz	频率值
	👋 PI6	***	PI[5]	%ID57	DINT	hz	频率值
	ᡟ PI7	***	PI[6]	%ID58	DINT	hz	频率值
	ᡟ PI8	***	PI[7]	%ID59	DINT	hz	频率值
	ᡟ PI9	***	PI[8]	%ID60	DINT	hz	频率值
		***	PI[9]	%ID61	DINT	hz	频率值

3 Double pulse and pulse count

Internal Parameters	Find		Filter Show all				
Internal I/O Mapping	Variable ⊕∴*≱	Mapping	Channel DIN	Address %IB0	Type ARRAY [065] OF BYTE	Unit	Description DIN
Status	🛓 🏘		CC	%IW33	ARRAY [041] OF WORD	mA	电流反馈
enger som	👾 🏘		ADC	%IW75	ARRAY [027] OF WORD		AI
Information	😟 🦄		PI	%ID52	ARRAY [09] OF DINT	hz	频率值
	🛱 - 🦄		DoublePuls	%IL31	ARRAY [03] OF LINT		双脉冲
	* DoublePuls1	**	DoublePuls[0]	%IL31	LINT		双脉冲
	- MoublePuls2	**	DoublePuls[1]	%IL32	LINT		双脉冲
	🍫 DoublePuls3	***	DoublePuls[2]	%IL33	LINT		双脉冲
	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	***	DoublePuls[3]	%IL34	LINT		双脉冲

B Digital output

🍫 DOUT	**	DOUT	%QL1	LWORD	0	!!!bit0到bit41对应(



ANNOTATION

DO1~DO42 output, bit0-bit41 corresponds to DO1~DO42, 1: output; 0 : Shutdown.

User Manual ATcontroller

version Ev4

3	PWM					
E	^K ø		PWM	%QW8	ARRAY [034] OF WORD	PWM占空比,[0,9999]
	^K @ PWM1	***	PWM[0]	%QW8	WORD	PWM占空比,[0,9999]
	- 🖗 PWM2	***	PWM[1]	%QW9	WORD	PWM占空比,[0,9999]
	🔷 PWM3	***	PWM[2]	%QW10	WORD	PWM占空比,[0,9999]
	^K PWM4	***	PWM[3]	%QW11	WORD	PWM占空比,[0,9999]
	- K PWM5	**	PWM[4]	%QW12	WORD	PWM占空比,[0,9999]
	WM6	**	PWM[5]	%QW13	WORD	PWM占空比,[0,9999]
	PWM7	***	PWM[6]	%QW14	WORD	PWM占空比,[0,9999]
	🍫 PWM8	***	PWM[7]	%QW15	WORD	PWM占空比,[0,9999]
	- Ko PWM9	***	PWM[8]	%QW16	WORD	PWM占空比,[0,9999]
	* PWM10	***	PWM[9]	%QW17	WORD	PWM占空比,[0,9999]
		*	PWM[10]	%QW18	WORD	PWM占空比,[0,9999]
		***	PWM[11]	%QW19	WORD	PWM占空比,[0,9999]
	^K @ PWM13	***	PWM[12]	%QW20	WORD	PWM占空比,[0,9999]
	• PWM14	***	PWM[13]	%QW21	WORD	PWM占空比,[0,9999]
	^K @ PWM15	***	PWM[14]	%QW22	WORD	PWM占空比,[0,9999]
	^K PWM16	***	PWM[15]	%QW23	WORD	PWM占空比,[0,9999]
	- * PWM17	***	PWM[16]	%QW24	WORD	PWM占空比,[0,9999]
	PWM18	**	PWM[17]	%QW25	WORD	PWM占空比,[0,9999]
	- ^K PWM19	**	PWM[18]	%QW26	WORD	PWM占空比,[0,9999]
	- * PWM20	***	PWM[19]	%QW27	WORD	PWM占空比,[0,9999]
	* PWM21	**	PWM[20]	%QW28	WORD	PWM占空比,[0,9999]
	- Ko PWM22	***	PWM[21]	%QW29	WORD	PWM占空比,[0,9999]
	- K PWM23	***	PWM[22]	%QW30	WORD	PWM占空比,[0,9999]
	PWM24	***	PWM[23]	%QW31	WORD	PWM占空比,[0,9999]
	- K PWM25	***	PWM[24]	%QW32	WORD	PWM占空比,[0,9999]
	PWM26	***	PWM[25]	%QW33	WORD	PWM占空比,[0,9999]
	PWM27	**	PWM[26]	%QW34	WORD	PWM占空比,[0,9999]
	** PWM28	***	PWM[27]	%QW35	WORD	PWM占空比,[0,9999]
	^K @ AO1	***	PWM[28]	%QW36	WORD	PWM占空比,[0,9999]
	^K @ AO2	**	PWM[29]	%QW37	WORD	PWM占空比,[0,9999]
	AO3	***	PWM[30]	%QW38	WORD	PWM占空比,[0,9999]
	- ^K Ø AO4	**	PWM[31]	%QW39	WORD	PWM占空比,[0,9999]
	[*] @ AO5	***	PWM[32]	%QW40	WORD	PWM占空比,[0,9999]
	PI_REF1	***	PWM[33]	%QW41	WORD	PWM占空比,[0,9999]
	PI_REF2	*	PWM[34]	%QW42	WORD	PWM占空比,[0,9999]



ANNOTATION

PWM1~PWM28: PWM type port output, range 0-9999; AO1~AO4: Analog output, 0-90% UBP, range 0-9999; AO5: Analog output, 4~20mA, or 0.1~5V, software switching, range 0~9999.

NOTE

To assign a value to PWM, set the duty cycle corresponding to PWM, [0,9999] corresponding to 0% to 99.99%!

5 User LED					
VIED_USER	**	LED	%QB0	BYTE	USER指示灯,bit0蓝色,bit1-绿色,bit2-红色

2 ADC Expanded port

-	- 1		ADC_EXT	%IW161	ARRAY [045] OF WORD	mV	ADC_EXT
	DIN1_V	***	ADC_EXT[0]	%IW161	WORD	mV	ADC_EXT
	DIN2 V	*	ADC EXT[1]	%IW162	WORD	mV	ADC EXT
	DIN3_V	×	ADC_EXT[2]	%IW163	WORD	mV	ADC_EXT
	N DIN4 V	*	ADC EXT[3]	%IW164	WORD	mV	ADC EXT
	DIN5 V	*	ADC EXT[4]	%IW165	WORD	mV	ADC EXT
	NO V	×	ADC EXT[5]	%IW166	WORD	mV	ADC EXT
	DIN7 V	×	ADC EXT[6]	%IW167	WORD	mV	ADC EXT
	N DIN8 V	*	ADC EXT[7]	%IW168	WORD	mV	ADC EXT
	N DIN9 V	*	ADC EXT[8]	%IW 169	WORD	mV	ADC EXT
	* DIN10 V	*	ADC EXT[9]	%IW170	WORD	mV	ADC EXT
	N DIN11 V	*	ADC EXT[10]	%IW171	WORD	mV	ADC EXT
		*	ADC EXT[11]	%IW172	WORD	mV	ADC EXT
	DIN13 V	***	ADC EXT[12]	%IW173	WORD	mV	ADC EXT
	- * DIN14 V	*	ADC EXT[13]	%IW174	WORD	mV	ADC EXT
	* DIN15 V	*	ADC EXT[14]	%IW175	WORD	mV	ADC EXT
	NIN 16 V	*	ADC EXT[15]	%IW176	WORD	mV	ADC EXT
	* DIN17 V	*	ADC EXT[16]	%IW177	WORD	mV	ADC EXT
	* DIN 18 V	***	ADC_EXT[17]	%IW178	WORD	mV	ADC EXT
		*	ADC_EXT[18]	%IW179	WORD	mV	ADC EXT
		*	ADC EXT[19]	%IW 180	WORD	mV	ADC EXT
	A DIN21 V	×.	ADC_EXT[20]	%IW181	WORD	mV	ADC EXT
		*	ADC_EXT[21]	%IW182	WORD	mV	ADC EXT
	DIN23 V	*	ADC_EXT[22]	%IW183	WORD	mV	ADC EXT
	DIN24 V	*	ADC_EXT[23]	%IW 184	WORD	mV	ADC EXT
	M DIN25 V	***	ADC EXT[24]	%IW 185	WORD	mV	ADC_EXT
- mail		*	ADC EXT[25]	%IW 186	WORD	mV	ADC EXT
		***	ADC_EXT[26]	%IW187	WORD	mV	ADC EXT
	M DIN28 V	*	ADC EXT[27]	%TW 188	WORD	mV	ADC EXT
		***	ADC_EXT[28]	%TW/189	WORD	m\/	
	* DIN20_V	*	ADC_EXT[20]	96TW 100	WORD	mV	ADC_EXT
	+ binoo_v	Ŷ	ADG_EXT[22]	10111150	World	inv	
	DIN25_V		ADC_EXT[24]	%IW185	WORD	mV	ADC_EXT
	DIN26_V		ADC_EXT[25]	%IW186	WORD	mV	ADC_EXT
	DIN27_V		ADC_EXT[26]	%IW187	WORD	mV	ADC_EXT
	→ DIN28_V		ADC_EXT[27]	%IW188	WORD	mV	ADC_EXT
	DIN29_V	100 A	ADC_EXT[28]	%IW189	WORD	mV	ADC_EXT
	DIN30_V	() ()	ADC_EXT[29]	%IW190	WORD	mV	ADC_EXT
	DIN31_V		ADC_EXT[30]	%IW191	WORD	mV	ADC_EXT
	DIN32_V		ADC_EXT[31]	%IW192	WORD	mV	ADC_EXT
	DIN33_V	100 A	ADC_EXT[32]	%IW193	WORD	mV	ADC_EXT
	DIN34_V		ADC_EXT[33]	%IW194	WORD	mV	ADC_EXT
	DIN35_V	100 A	ADC_EXT[34]	%IW195	WORD	mV	ADC_EXT
	DIN36_V	2 (A)	ADC_EXT[35]	%IW196	WORD	mV	ADC_EXT
	DIN37_V	** @	ADC_EXT[36]	%IW197	WORD	mV	ADC_EXT
	* DIN38_V	** @	ADC_EXT[37]	%IW198	WORD	mV	ADC_EXT
	DIN39_V	**	ADC_EXT[38]	%IW199	WORD	mV	ADC_EXT
	DIN40_V	**	ADC_EXT[39]	%IW200	WORD	mV	ADC_EXT
	DIN41_V	**	ADC_EXT[40]	%IW201	WORD	mV	ADC_EXT
	DIN42_V	**	ADC_EXT[41]	%IW202	WORD	mV	ADC_EXT
	AO_ST5	***	ADC_EXT[42]	%IW203	WORD	mV	ADC_EXT
	VTEMP	×.	ADC_EXT[43]	%IW204	WORD	mV	ADC_EXT
	REF_PI1	***	ADC_EXT[44]	%IW205	WORD	mV	ADC_EXT
	REF_PI2	***	ADC_EXT[45]	%IW206	WORD	mV	ADC_EXT

ANNOTATION

P D

DIN1 V to DIN42 V: Feedback voltage value in mV when the DIN port is multiplexed to
an analog quantity.
AO_ST1~AO_ST5: AO port feedback voltage value, unit mV;
REF_PI1 and REF_PI2: PI threshold voltage feedback values.

5.5.3. Library functions add

Double-click The Library Manger under Application to bring up the Library Manger dialog.

Devices 🗸 🗸 🗙	MK_C7547 Minager 🗙		
🖃 🎒 Untitled3 💌	🗄 Add Library 🗙 Delete Library 🛛 😁 Properties 🐞 Details 🛛 🛒 Placeholders 🏼 🎁 Libra	ry Repository	🚺 Icon legend
Device (MooK, China-Tricore-Kundenspezifisch)	Name	Namespace	Effective version
Application	Control Subcense = Subcense, 3.5.14.0 (35 - Smart Software Solutions cm0H) De BreakpointLogging = Breakpoint Logging Functions, 3.5.5.0 (35 - Smart Software Solutions GmbH) De International = IoStandard, 3.5.1.3.0 (System)	_3S_LICENSE BPLog IoStandard	3.5.14.0 3.5.5.0 3.5.13.0
← 副 PLC_PRG (PRG) □ 媛 Task Configuration □ 愛 MainTask → 倒 PLC_PRG MK_C7547 (MK_C7547)	Standard = Standard, 3.5. 15.0 (System)	Standard	3.5.15.0

Click "Add Library" and the following dialog will appear.

Untitled3	Add Library X Delete Library Pro	perties 🟐 Details 🛛 🗐 Placeholders 🏼 🎁 Libra	ary Repository	D Icon legend
Device (MooK, China-Tricore-Kundenspezifisch)	Name		Namespace	Effective version
	🖶 💟 3SLicense = 3SLicense, 3.5.14.0 (3S - Sma	rt Software Solutions GmbH)	_3S_LICENSE	3.5.14.0
	🕮 📙 BreakpointLogging = Breakpoint Logging Fu	nctions, 3.5.5.0 (3S - Smart Software Solutions GmbH)	BPLog	3.5.5.0
Library Manager	😟 📙 IoStandard = IoStandard, 3.5.13.0 (System	n)	IoStandard	3.5.13.0
FLC_PRG (PRG)	Standard = Standard, 3.5.15.0 (System)		Standard	3.5.15.0
Ask Conliguration	Add Library		×	
	String for a fulltext search			
	Library	Company		
	Application			
	Docs			
	Use Cases			
	(Miscellaneous)			
	CAN_Send_STD	МооК		
	Lib_CAN	MooK		
		МооК		
		МооК		
	Lib_PID_Control_Para	МооК		
		МооК		
		МооК		
	Remote_ID	МооК		
	Advanced	0K.	Cancel	

Select the library you want to add and click the OK.

Add Library

brary	Company	
Application		
Docs		
Use Cases		
(Miscellaneous)		
CAN_Send_STD	МооК	
Lib_CAN	МооК	
LIB_CRC	MooK	
	MooK	
Lib_PID_Control_Para	MooK	
[LIB_SYS	MooK	
	MooK	
Remote_ID	MooK	
Advanced		OK Cancel

After the library is added, it is shown in the following figure.



5.6. Run and debug

5.6.1. Login

After the programming is compiled without errors, you can click Online-> Login (or press the shortcut key Alt+F8) to login:

<u>O</u> nlir	ne	Debug	Tools	Window	<u>H</u> elp
uş.	Lo	gin			Alt+F8
ž,	Lo	<u>go</u> ut			Ctrl+F8
	Cr	eate boot	t applica	tion	

 \times

At this point, CoDeSys will check the contents of the controller, if it not run, it will prompt that this is a new program, if it already run, it will prompt:

CoDeSys	×
?	Warning: An unknown version of the application 'Application' is currently in RUN mode on the PLC. However, do you want to download the latest code and replace the existing application?
	Yes No Details

Click the "Yes" button to continue, after the download is completed, the system enters the Stop state by default:

	L_PRG		
Expression	Туре	Value	1
¢ cy1	BYTE	0	
< [•
1 💿 cy1 0:=cy	y10+1;	₹	
3 DOUT H	0 .0 FALSE :	=1;	
4 • ELSE			
5 O DOUT_H	0 . 0 FALSE	:=0;	
6 END_IF			
7 • RETURN			

Click the menu Debug->start or press the shortcut F5 to run the program:



5.6.2. Breakpoint debugging

In order to debug the code while the program is running, we need to debug line by line, or stop in a certain line, then we need to use the CoDeSys breakpoint.

Click the menu Debug->Toggle Breakpint at the line of code where you want to set the breakpoint:

Product model IMCT7547D		User Manual ATcontroller	version	Ev4
		<u>Tools W</u> indow Start Stop Shift Single <u>C</u> ycle Ctrl Wew Breakpoint	Help F5 :+F8 !+F5 F9	
1 cy1237:=cy123 2 ○ IF cy1237 >127 3 ○ DOUT_H 4 ○ ELSE 5 ○ DOUT_H 6 END_IF 7 ○ RETURN	7]+1; THEN 1	.0 TRUE :=1; .0 TRUE :=0;		

After the program is paused at the breakpoint, you can press shortcut keys such as F10, F8, Ctrl+F10 to debug.

Deb	ug	Tools	Window	<u>H</u> elp
•	≦t	art		F5
38	St	ор	Shif	t+F8
	Sir	ngle <u>C</u> yd	e Ct	rl+F5
徆	Ne	w Break	point	
	То	ggle <u>B</u> re	akpoint	F9
Ç≣	St	ep <u>O</u> ver	S.	F10
⊊ ≣	St	ep <u>I</u> nto		F8
₫ <u>∎</u>	St	ep Out	Shift	+F10
*≣	Ru	in to Cur	sor	
\$	Se	t ne <u>x</u> t S	tatement	
⇔	Sh	ow next	Statemen	t
	W	rite value	es Ct	rl+F7
	Eo	rce valu	es	F7
	Un	force va	alues Al	t+F7
	Flo	w Contr	ol	
	Dis	splay Mo	de	×.

ANNOTATION

0

=



5.6.3. Force assignment

Deb	ug <u>T</u> ools <u>W</u> indow <u>H</u> elp
	Start F5
	Stop Shift+F8
	Single Cycle Ctrl+F5
T	New Breakpoint
	Toggle Breakpoint F9
Gi	Step Over F10
φŢ	Step Into F8
¢_	Step Out Shift+F10
•≣	Run to Cursor
\$	Set next Statement
¢	Show next Statement
	Write values Ctrl+F7
	Eorce values F7
	Unforce values Alt+F7

ANNOTATION

ß

Write value(Ctrl+F7) and Force value(F7) functions are forced assignments, except that Write value can be changed by the control program the next time it is executed, Force value Refers to the value that is still mandatory at the next execution, and cannot be changed until it is released (Release force).

5.6.4. Save the application with the ".app"

Select "Online" and click "Create boot application":

Product model IMCT7547D User Manual ATcontroller version Ev4

Create boot application

Enter the file name, click "Save", the application is saved successfully.

				· · · · · ·			
组织 ▼ 新建文件夹						i≡ - ?	
/ 📃 此电脑	名称 ^	修改日期	类型	大小	x .	^	
> 🧊 3D 对象	360downloads	2021/6/10 22:24	文件夹				
> 💿 A360 Drive	2345Downloads	2021/6/9 0:46	文件夹				
> 📕 初55	17551856f5c32ec000669b60f6512a21	2021/7/25 0:16	文件夹				
	AD_6.9_CR	2022/4/13 23:52	文件夹				
	AliWangWang	2022/4/13 17:04	文件夹				
	BaiduNetdiskDownload	2022/4/14 23:53	文件夹				
> 🔸 下载		2021/5/27 14:39	文件夹				
> 🁌 音乐	🔄 Download	2021/6/9 0:45	文件夹				
> 🛄 桌面		2022/4/29 18:47	文件夹				
> 🏪 OS (C:)	KEIL	2022/5/4 18:49	文件夹				
> DATA (D:)	📙 Licenses	2019/8/3 23:38	文件夹				
	linux	2022/4/14 9:35	文件夹				
> 🤿 网络 🗸 🗸 🗸	MDK_PROJECT	2022/5/4 19:09	文件夹				5
文件名(N): APP.p	roject					~	
保存类型(T): Projec	ct files (*.project)					~	Ĩ

6. Download

The IMCT7547D controller has a total of four CAN communication interfaces that can be restarted by shorting the BSL to ground , Download the application through the CAN1 port.

263	CAN1_H	CAN1, high signal
264	CAN1_L	CAN1, low signal

It is also possible to Download the application to the controller by logging without grounding the BSL port.

142	RXDIN	RS232 serial port reception
143	TXDOUT	RS232 serial port transmission

6.1. Download via BSL mode

This download method requires the controller to connect the computer through the CAN device and use the "MOOK IMC_T Tool V001" software. The specific Download method is as follows:

6.1.1. Set up online

Config	联机读取参数		
	写入参数		
ad Program	Open_Bsp Open_App		
sult	💀 Reset MCU — 🗆	×	
	Please reset your target board ! ! !		Start Pause
	OK		Clear
			Reset
			Exit
			Help



6.1.2. Set the baud rate

Set the baud rate used by Bootloader, the current system defaults to 500k.

Bootloader for C/54/ @MG	DOK			- U
Config	联机	读取参数		
		写入参数		
Load Program	🛃 ComSetting	- 🗆	×	
	UART Setting			
Result	Port COM5	~		
	Baud			St
	115200	~		Pa
				Cl
	OK	Cancel	al	Re
				E
				н

6.1.3. Connect

Short-circuit the BSL to ground and turn off the CodeSys Gateway before powering up, then power it on, After connecting, the system displays a success message in the information display area:

ootloader for C7547 @N	ЛооК		22-		×
Config	联机	读取参数			
		写入参数			
Load Program					
D: \MUUK\MK_C7547_Bsp_SP	B_V2UU_Buili Upen_Bsp	Upen_App			
Result					
Interface opened!				Start	
Communication setup! Loader2 transferred!				Pause	
Loader3 transferred!				Clear	
				Reset	
				Exit	
				Help	
					_
					-

6.1.4. Flash the application

Click the "Open_App" button and select the app file you want to download:

WINA INIC_T TOOL VOI	01	- 0
MCV selection	Flash Selection	
TC1798	PFLASH V 联机	读取App
BootStrap Mode	Boot Interface PCAN	
Load Bsp	写入参数	
Result		
		- Sta Pau
		Cle
		Res
		Ex

Click Open and then click the start button and start downloading:

After successful download, the information area will prompt: "Successfully flashed":

	add for crost emoor		, _ _	Ц
	Config 联机	读取参数		
oad	Program	写入参数		
: \Vs	ers\Admin\Desktop\Application.	Open_Bsp Open_App		
esul	t			
<u></u>	from OxAO810E00 to OxAO810EFF :	ОК	^	Start
	from OxAO810F00 to OxAO810FFF :	ОК		
<u>64</u> - }	from OxAO811000 to OxAO8110FF :	ОК		Pause
<u>Sa</u> - 1	from OxAO811100 to OxAO8111FF :	ОК		2
8				
<u> </u>	from OxAO811200 to OxAO8112FF :	OK		Clear
_	from 0xA0811200 to 0xA08112FF : from 0xA0811300 to 0xA08113FF :	OK OK		Clear
_	from 0xA0811200 to 0xA08112FF : from 0xA0811300 to 0xA08113FF : from 0xA0811400 to 0xA08114FF :	ОК ОК ОК		Clear Reset
	<pre>from 0xA0811200 to 0xA08112FF : from 0xA0811300 to 0xA08113FF : from 0xA0811400 to 0xA08114FF : from 0xA0811500 to 0xA08115FF :</pre>	ОК ОК ОК ОК		Clear Reset Exit
	<pre>from 0xA0811200 to 0xA08112FF : from 0xA0811300 to 0xA08113FF : from 0xA0811400 to 0xA08114FF : from 0xA0811500 to 0xA08115FF : from 0xA0811600 to 0xA08116FF :</pre>	ОК ОК ОК ОК ОК		Clear Reset Exit
 	<pre>from 0xA0811200 to 0xA08112FF : from 0xA0811300 to 0xA08113FF : from 0xA0811400 to 0xA08114FF : from 0xA0811500 to 0xA08115FF : from 0xA0811600 to 0xA08116FF : am Transfer Finished!</pre>	ОК ОК ОК ОК		Clear Reset Exit Help
	<pre>from 0xA0811200 to 0xA08112FF : from 0xA0811300 to 0xA08113FF : from 0xA0811400 to 0xA08114FF : from 0xA0811500 to 0xA08115FF : from 0xA0811600 to 0xA08116FF : am Transfer Finished! eclapse : 16576ms</pre>	ок ок ок ок		Clear Reset Exit Help

6.2. Download the application via Login

This flash method needs to be implemented through Codesys software, and flash is completed when login. Because it takes a long time to erase flash every time, this method is not recommended for code debug.

6.2.1. Select Properties

(1) Right-click Application while offline and select Properties.



6.2.2. boot application

(2) Check Create implicit boot application on download at the pop-up Boot application page



6.2.3. save the settings

(3) Click OK to save the settings.

6.2.4. Auto flash

(4) The application will be automatically written to the flash the next time the login is made.



NOTE

Do not always use the "Login to the controller" operation during normal debugging, and should use this operation after the program debugging is basically free!

7. Troubleshooting

7.1. hardware failures and solutions

number	questions	solution
1	The port has no output when powered on	First check whether the power supply is normal, if the power supply is normal, please contact our service staff to communicate and solve.
2	The port does not collect a signal after power-on	First check whether the signal voltage is normal, if it is normal, please contact our service staff to communicate and solve.
3	CAN communication failure after power-on	First of all, check whether the external CAN cable is connected correctly, if the connection is normal, please contact our service staff to solve the problem.

7.2. Software failures and solutions

number	frequently asked questions	Workaround
1	CodeSys failed to come online	 (1) Please confirm whether the CAN device or serial port driver has been installed; (2) Please confirm whether the CAN device or serial port is occupied, if it is occupied, close the application software and restart the Gateway; (3) Please replace the Gateway .cfg file under the correct path.
2	The controller stops running after loading the App program	Please confirm that there is no division or out-of-bounds in the application, if there is a PLC program will stop, and query the Device log for the error message "May be div 0 or Overflow".

7.3. Status LED description

status LED indicates controller operating status:

LED status	description
All light off	No power is available
White light on	The controller is in Boot mode with BLS grounding or a control panic
Green light Flashing	The system is functioning normally
Red light Flashing	There is no App program
Blue light flashing	CAN1 port failure or warning

> The ERR indicator can be controlled by the customer according to their own requirement.