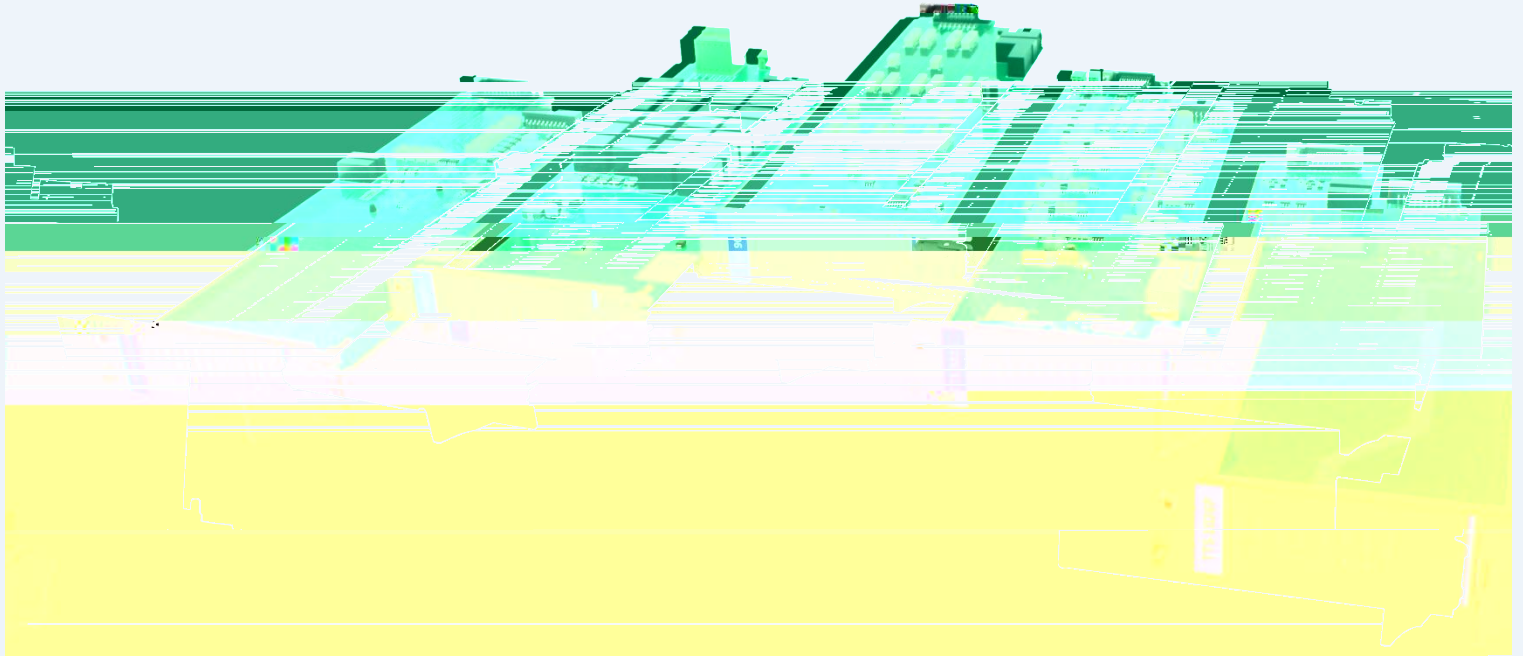
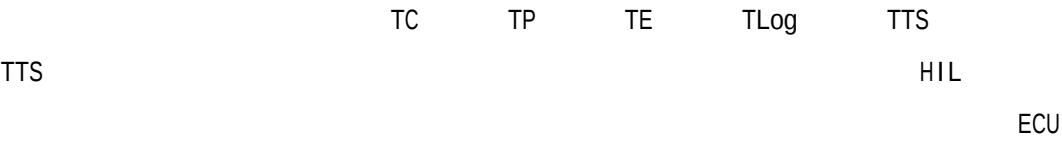




1288 9
4849 14-17

“ ”

TTS



TTS

TTS0001	TTS9011	TTS9015	TTS9021
TTS9036	TTS9045	TTS1018	TTS1026P
TTS1034	TTS1016 Pro	TTS8012	TTS8920
TTS8516	TTS9036A	TTS8013PX	TTS1013
TTS1015P	TTS9027		

- TTS
- TTS
CAN/LIN/FlexRay
- / TTS /
PWM
- TTS TSMaster TSMaster
- ...

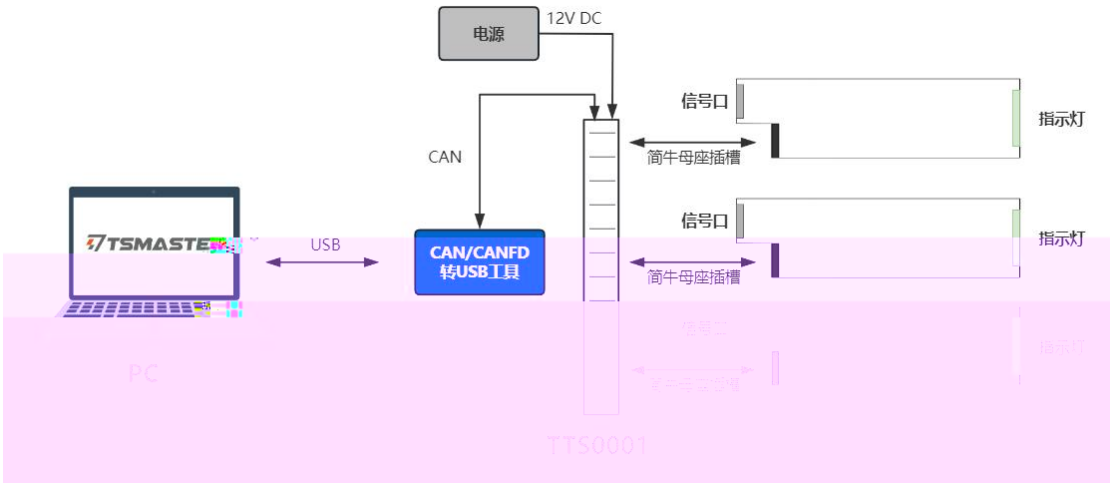


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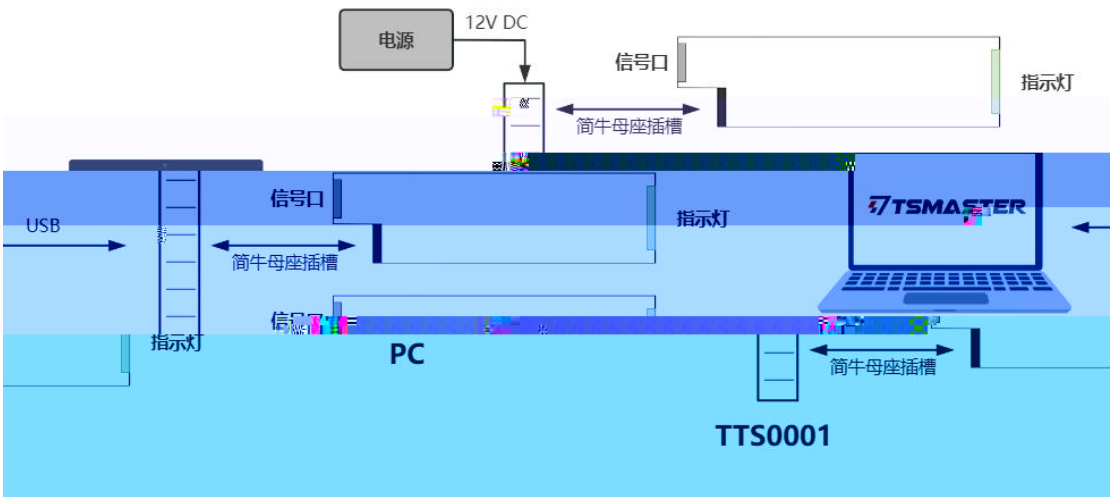
邮箱:

TTS

		TTS9011	TTS9015	TTS9021	TTS9036	TTS9045
TTS0001	TTS0001	TTS0001	CAN			CAN/CANFD
USB	CAN/CANFD		CAN			



		TTS1018	TTS1026P	TTS1034	TTS1016 Pro
TTS0001			TTS0001		TTS0001
USB					



目录

关于手册

产品选型

检查和维护

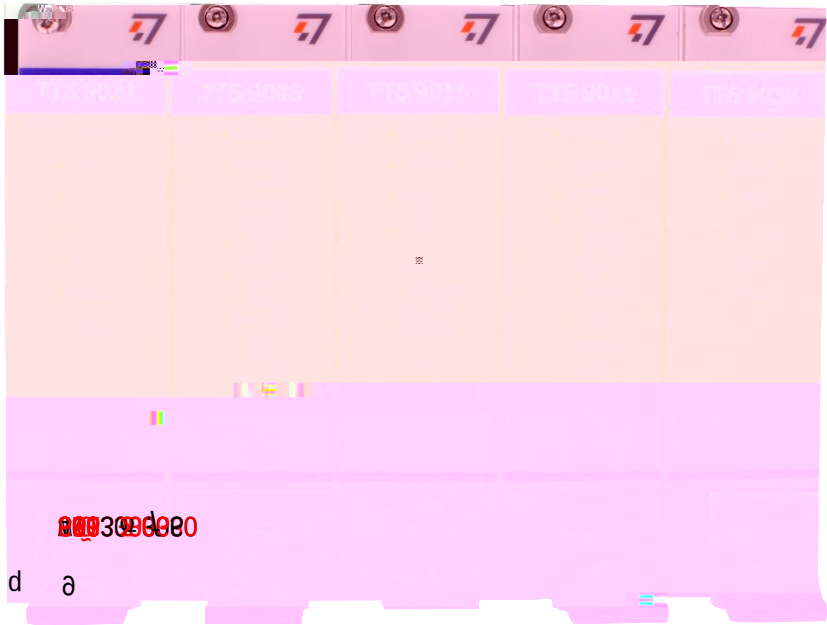
1.

1.1

1.2

2.

2.1

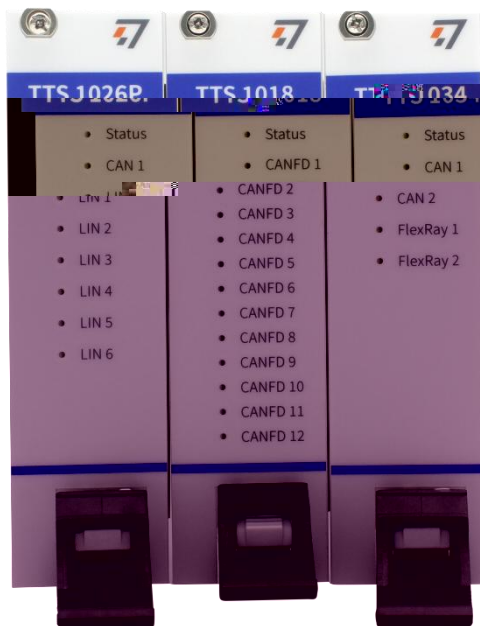


TTS9011	TTS9015	TTS9021	TTS9036	TTS9045
---------	---------	---------	---------	---------

12 8 - 5 16

PWM 3633003

2.2

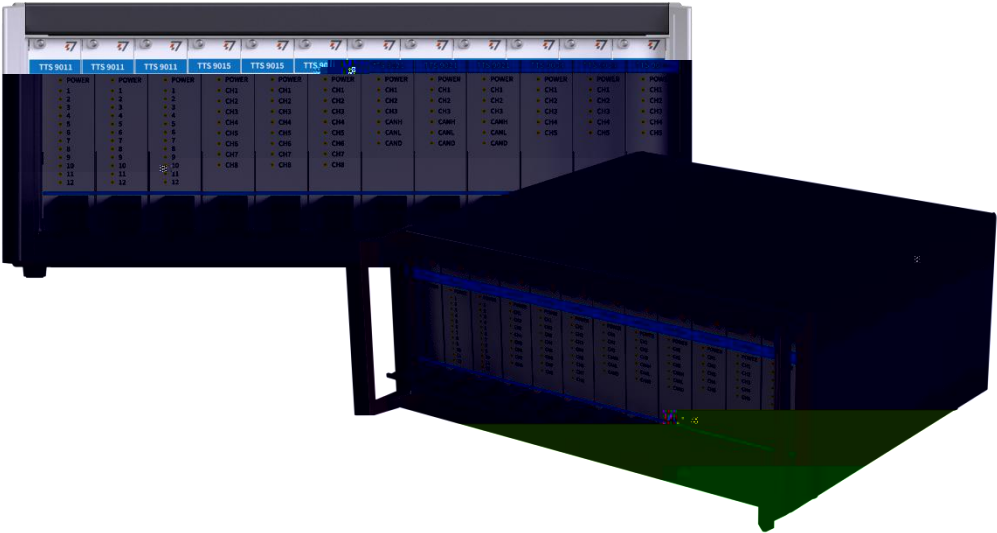


	TTS1018	TTS1026P	TTS1034	TTS1016 Pro
	12x CANFD 1+11 CANFD1	1x CANFD 6x LIN	2x CANFD 1+1 CANFD1 2x FlexRay	4x CANFD 2x LIN
	CAN 125k-1Mbps CANFD 8Mbps	CAN 125k-1Mbps CANFD 8Mbps LIN 0-20Kbps	CAN 125k-1Mbps CANFD 8Mbps	CAN 125k-1Mbps CANFD 8Mbps LIN 0-20Kbps
CAN	20000fps	20000fps	20000fps	20000fps
	2500V	2500V	2500V	2500V
	USB +DC	USB	USB	USB +DC
	3U	3U	3U	3U

3. 0001

3.1

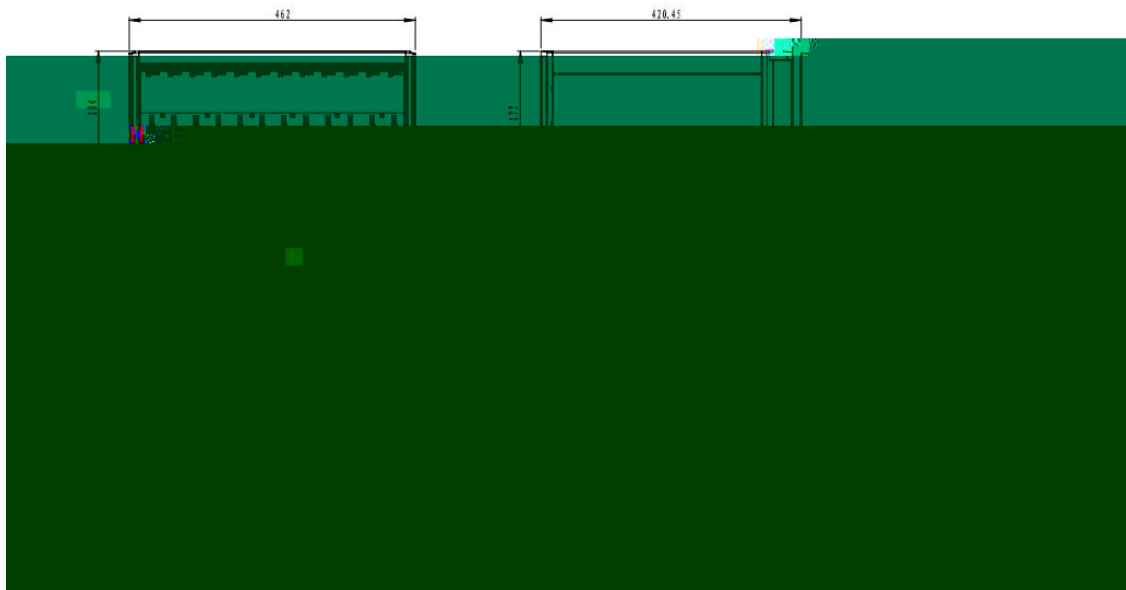
TTS0001 / TTS9000 3U
12



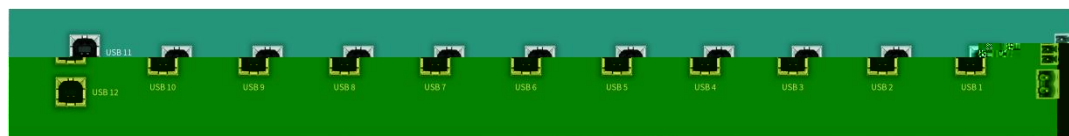
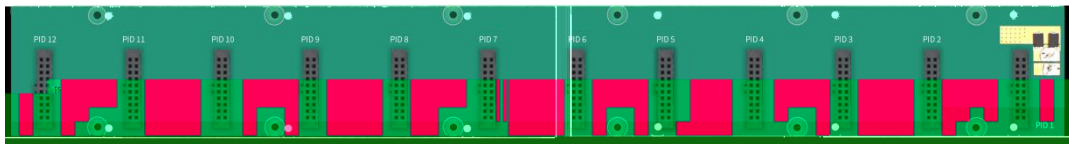
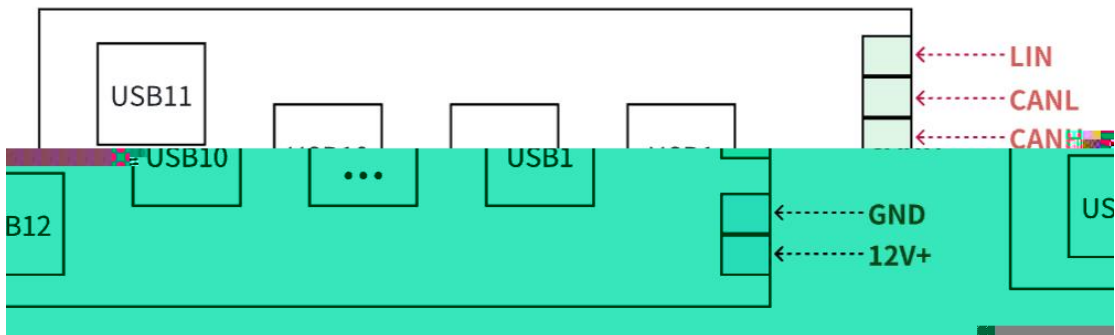
3.2

12
60Ω
10A

3.3



3.4



- 20 Pin —
- USB
- 3 Pin —CAN
- 2 Pin —DC

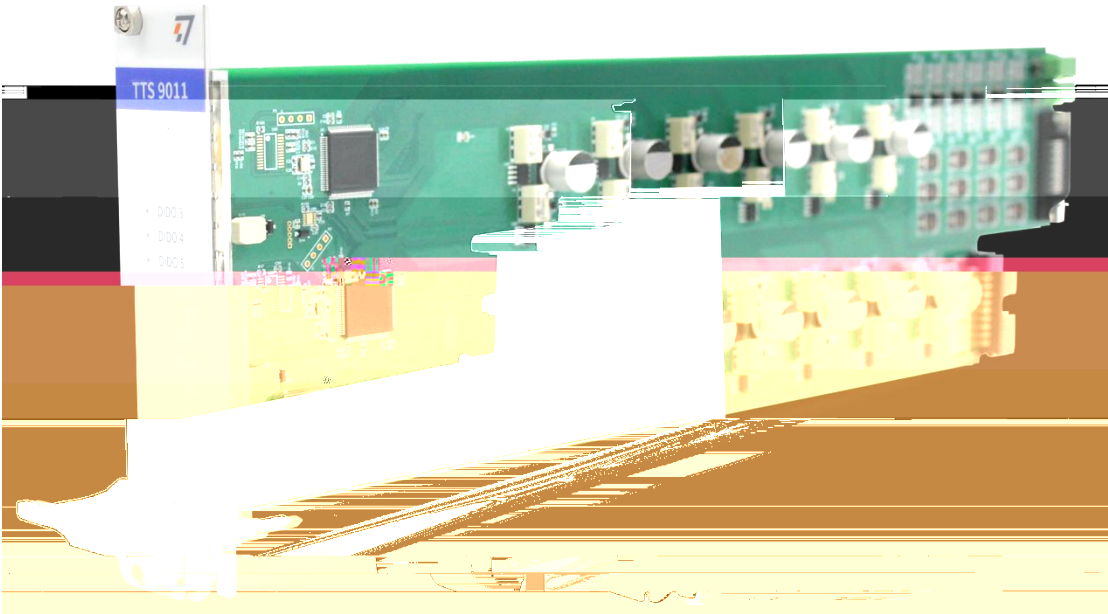
电话:

邮箱:

4. 011

4.1

TTS9011 12
PWM PWM



4.2

12 /
/ 12V/2W
CAN 1Mbps
3U

4.3

680ns

NMOS

PMOS



- Push+Pull
- Push
- Pull



VREF VBAT

- VREF
1.8V
- VBAT
5V



		12	
	250mA	100mA	0-60V

PWM

➤	≤		

电话:

邮箱:

➤ ➤ ➤ ➤	↙ ↙ ↙ ↙			
➤ ➤ ➤ ➤ ➤	↙ ↙ ↙ ↙ ↙			
➤ ➤ ➤ ➤ ➤	↙ ↙ ↙ ↙ ↙			

PWM

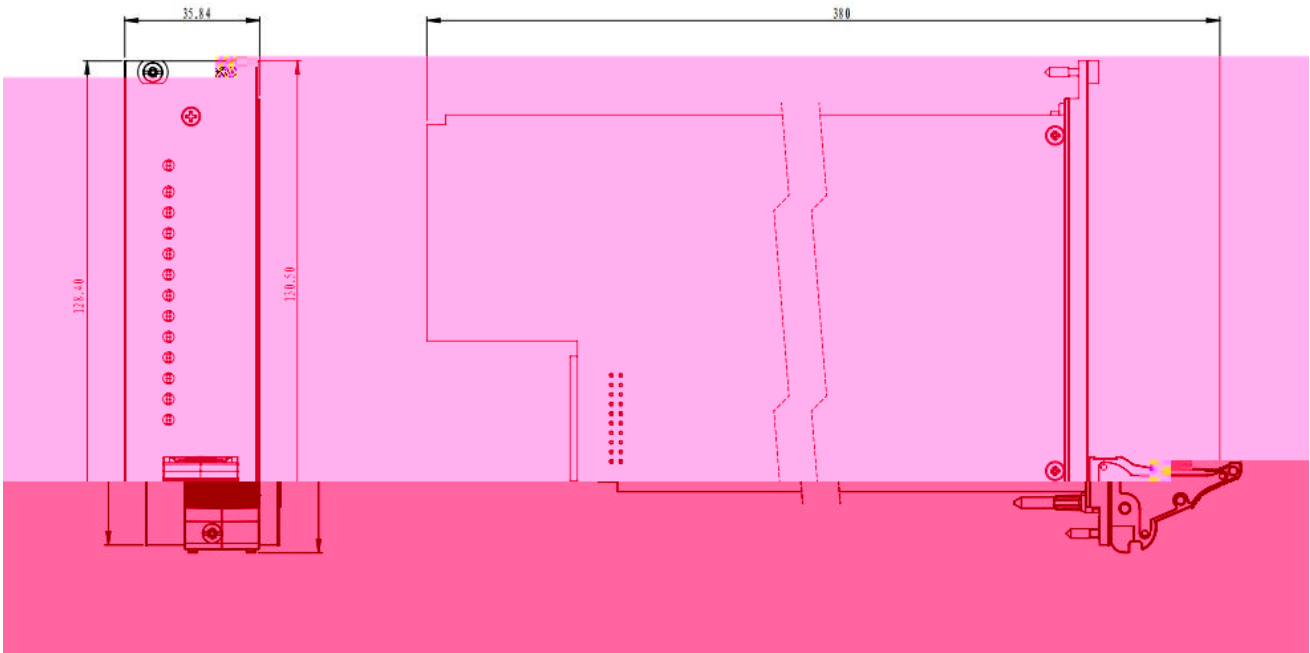
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➤ ➤ ➤ ➤ ➤ ↙ ↙ ↙ ↙ ↙			
➤ ➤ ↙ ↙			

➤	≡			
➤	≡			
➤	≡			

4.4

	DC		9	12.0	30	V
	DC		--	0.19	--	A
	DC		--	2.2	--	W
CAN		CANH CAHL	-58	--	58	V
		1mA	2500	--	--	VDC

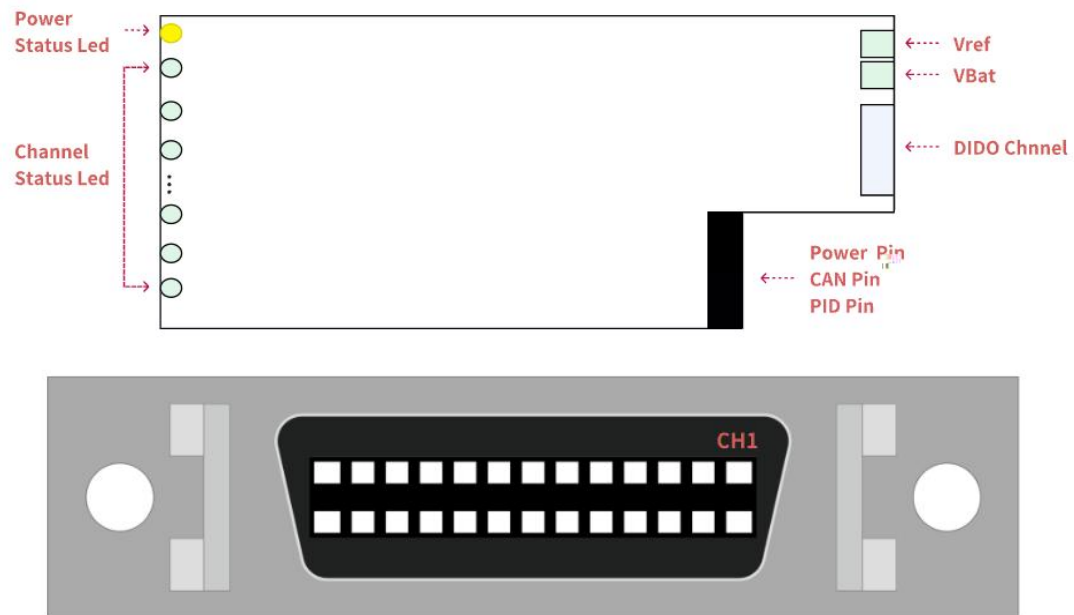
4.5



电话:

邮箱:

4.6



➤ SCS-26 Pin

Pin 1	CH1	Pin 2	CH2	Pin 3	CH3	Pin 4	CH4
Pin 5	CH5	Pin 6	CH6	Pin 7	CH7	Pin 8	CH8
Pin 9	CH9	Pin 10	CH10	Pin 11	CH11	Pin 12	CH12
Pin 13	CGND	Pin 14	CGND	Pin 15	CGND	Pin 16	CGND
Pin 17	CGND	Pin 18	CGND	Pin 19	CGND	Pin 20	CGND
Pin 21	CGND	Pin 22	CGND	Pin 23	CGND	Pin 24	CGND

4.



Status	
D1DO 1~12	D1DO

Status	
D1DO	D1DO

4.

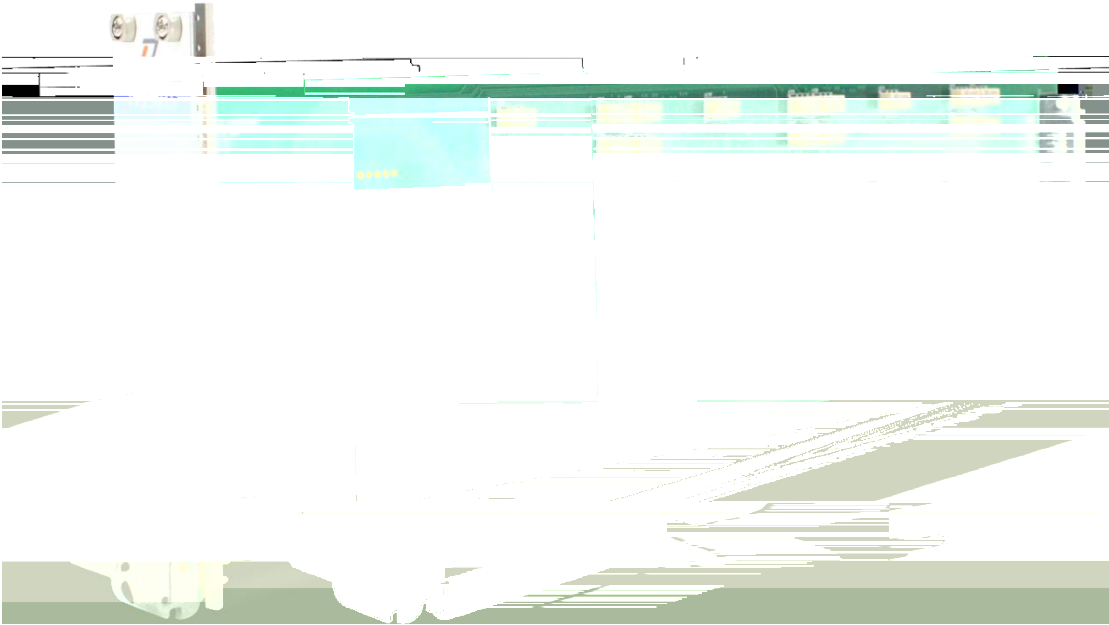
电话:

邮箱:

5. 015

5.1

TTS9015	/	8
	0-60V	-60V~-60V 0~+60V



5.2

8	/
/	12V/6W
	CAN 1Mbps
	3U

5.3

	8
	0V~+60V
DAC	16bit
	$\pm (0.4\% + 60\text{mV})$ 0V 300mV
	30mA 8 10W

	8
	-60V~+60V 0V~+60V
	250kHz
ADC	20bit
	$\pm (0.4\% + 60\text{mV})$
	300K Ω

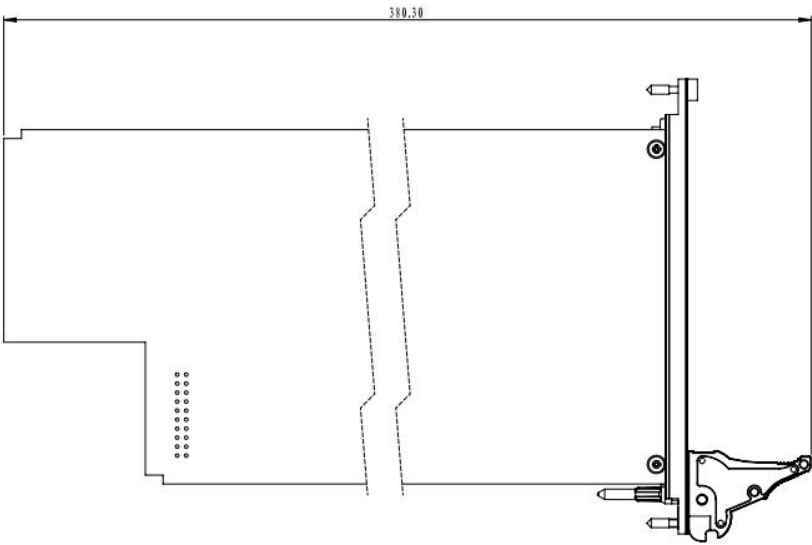
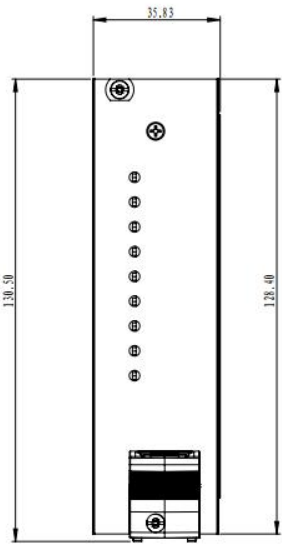
	8
	0mA~25mA
DAC	16bit
	$\pm 1\text{mA}$

	8
	0mA~25mA
	250kHz
ADC	20bit
	$\pm 1\text{mA}$

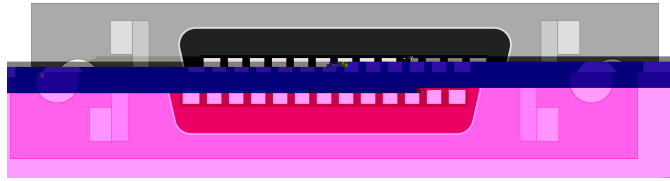
5.4

	DC	60V	9	12.0	30	V
	DC	60V	--	0.54	--	A
	DC	60V	--	6.5	--	W
CAN		CANH CAHL	-58	--	58	V
		1mA	2500	--	--	VDC

5.5



5.6



➤ SCSI-26 Pin

Pin 1	CH1+	Pin 2	CH1-	Pin 3	CH2+	Pin 4	CH2-
Pin 5	CH3+	Pin 6	CH3-	Pin 7	CH4+	Pin 8	CH4-
Pin 9	CH5+	Pin 10	CH5-	Pin 11	CH6+	Pin 12	CH6-
Pin 13	CH7+	Pin 14	CGND	Pin 15	CGND	Pin 16	CGND
Pin 17	CGND	Pin 18	CGND	Pin 19	CGND	Pin 20	CGND
Pin 21	CGND	Pin 22	CGND	Pin 23	CH8-	Pin 24	CGND
Pin 25	CH8+	Pin 26	CH7-				

5.



Status	
AIAO 1~8	AIAO

Status	
AIAO	AIAO

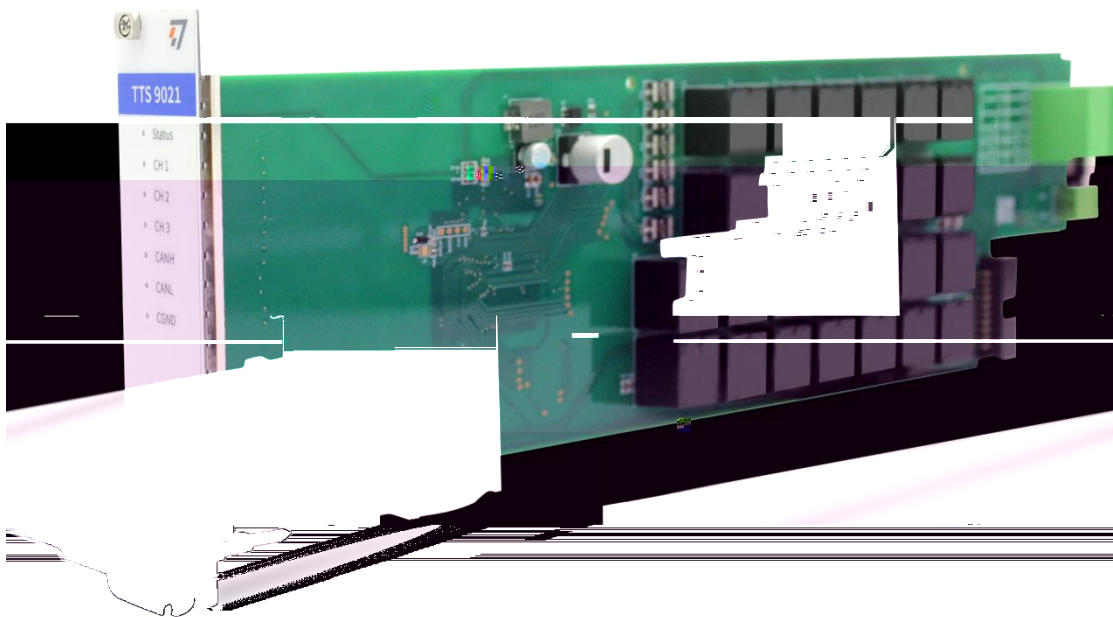
5.

6. 021

6.1

TTS9021

4



6.2

/ 12V/0.8W

CAN 1Mbps

3U

6.3

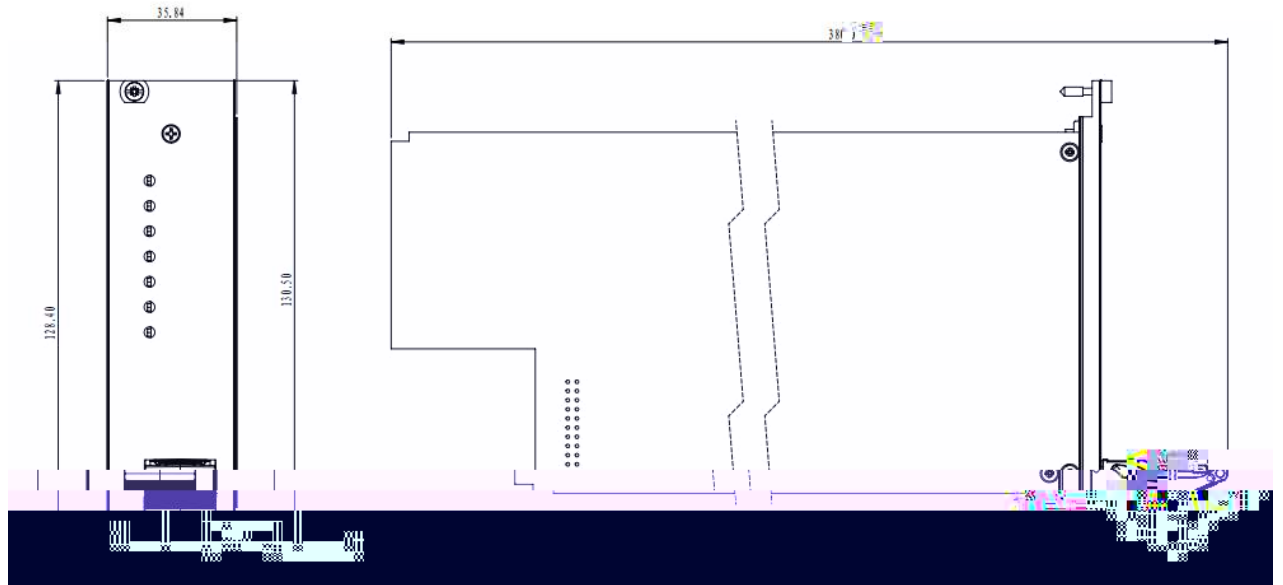
/	0 ~ 24V / 0 ~ 6A
---	------------------

(X1-Y1 X2-Y2 X3-Y3)	VBat
	VGND
CAN (CANH CANL CAN_GND)	VBat
	VGND
	0Ω 60Ω 120Ω

6.4

	DC		9	12.0	30	V
	DC		--	0.84	--	A
	DC		--	10.1	--	W
CAN		CANH CAHL	-58	--	58	V
		1mA	2500	--	--	VDC

6.5



6.6

- 2 Pin
- 12 Pin

Y1	X1
Y2	X2
Y3	X3
CANH_out	CANH_in
CANL_out	CANL_in
CGND_out	CGND_in

6.



Status	
CH1~3 CANH	
CANL CGND	

Status	

6.

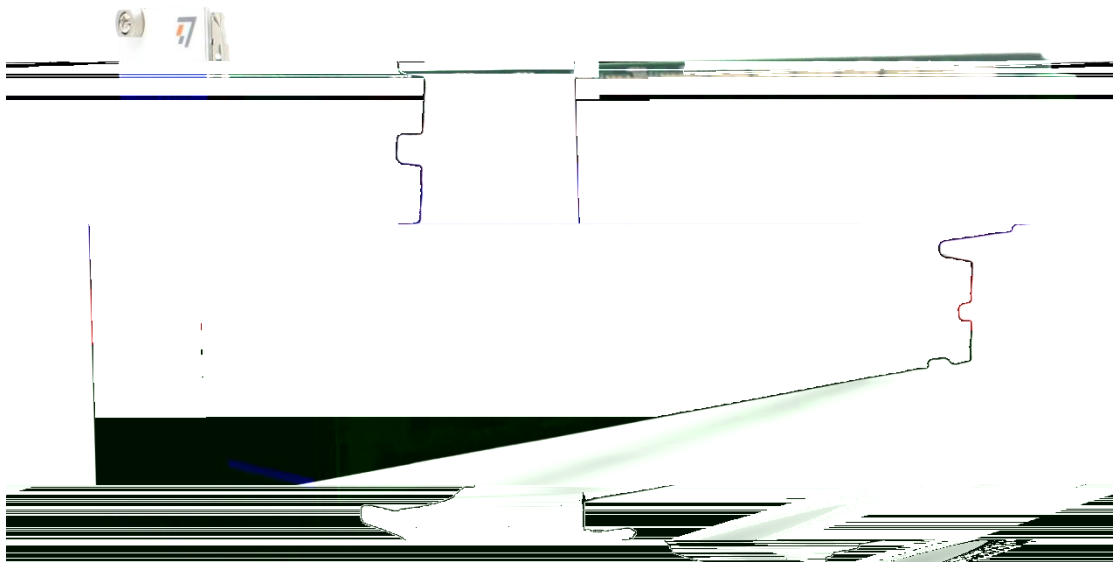
. 036

.1

TTS9036

5

1~4194303Ω



.2

5

/ 12V/0.6W

CAN 1Mbps

3U

电话:

邮箱:

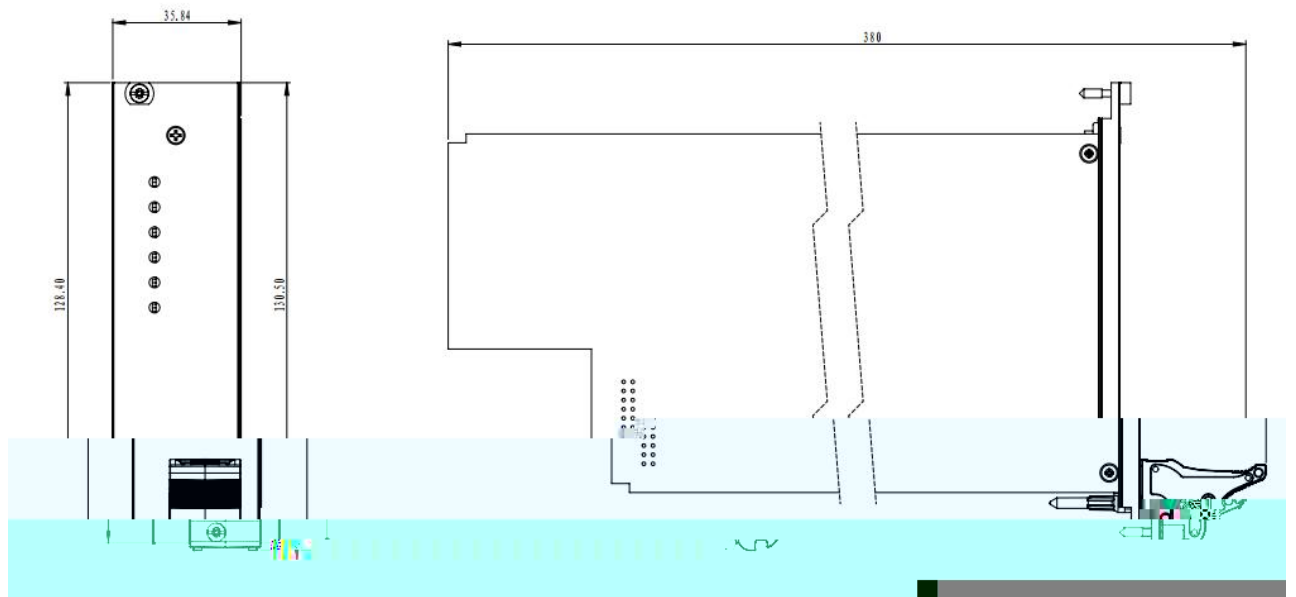
.3

	1 Ω ~4194303 Ω
	1 Ω
	1 Ω ~500 Ω $\pm 0.5 \Omega$ 500 Ω ~4194303 Ω $\pm 0.1\%$
	1/4W

.4

	DC		9	12.0	32	V
	DC		--	0.32	--	A
	DC		--	3.9	--	W
CAN		CANH CAHL	-58	--	58	V
		1mA	2500	--	--	VDC

.5



.6

➤ 5 Pin

CH5
CH4
CH3
CH2
CH1

电话:

邮箱:

.



TTS 9036

- Status
- Res 1
- Res 2
- Res 3
- Res 4
- Res 5

Status	
Res1~5	

Status	

电话:

. 045

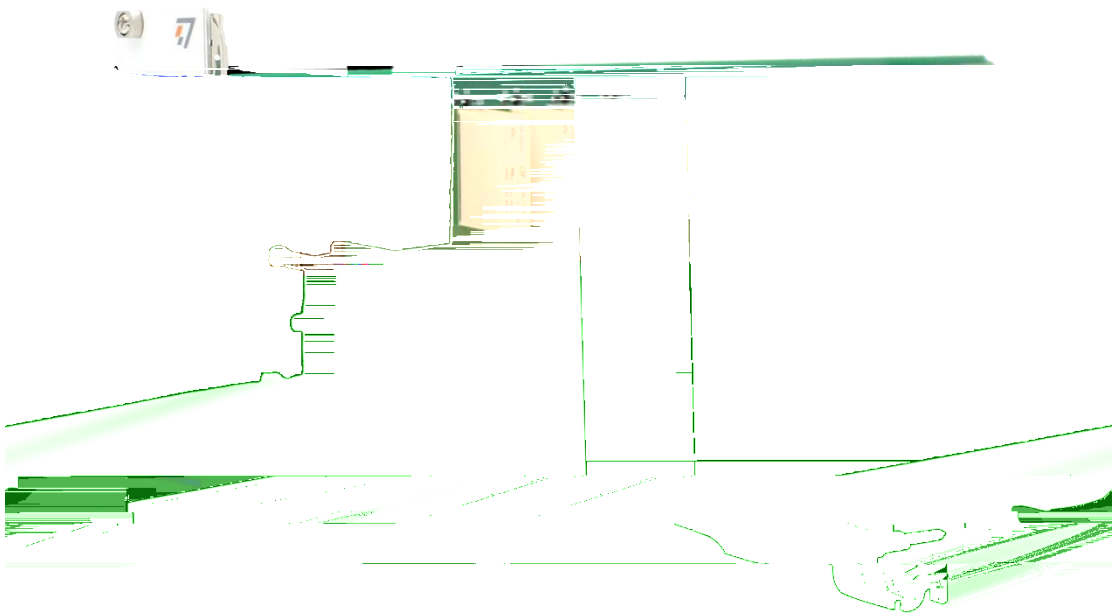
.1

TTS9045

16

1

CH/NO/NC



.2

16

/ 12V/0.4W

CAN 1Mbps

3U

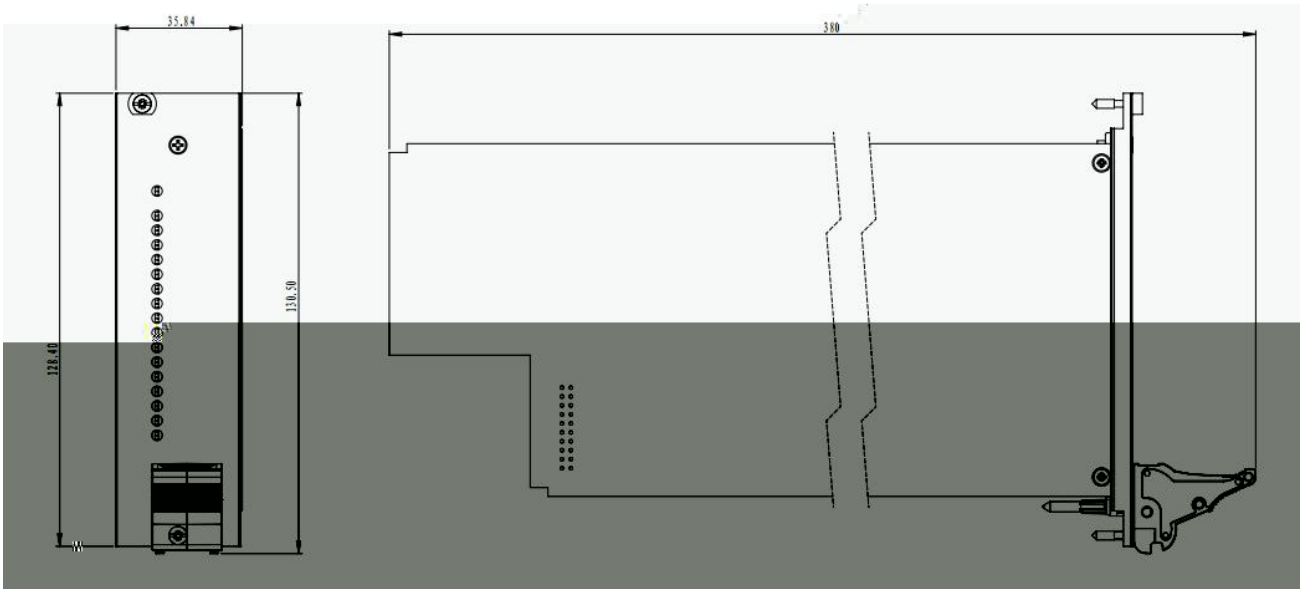
.3

	DC 36V 2.5A
	DC 40V 2A

.4

	DC		9	12	32	V
	DC		--	0.36	--	A
	DC		--	4.4	--	W
CAN		CANH CAHL	-58	--	58	V
		1mA	2500	--	--	VDC

.5



电话:

邮箱:

.6

➤ 45 Pin

+3 Pin

CH1	N01	NC1
CH2	N02	NC2
CH3	N03	NC3
CH4	N04	NC4
CH5	N05	NC5
CH6	N06	NC6
CH7	N07	NC7
CH8	N08	NC8
CH9	N09	NC9
CH10	N010	NC10
CH11	N011	NC11
CH12	N012	NC12
CH13	N013	NC13
CH14	N014	NC14
CH15	N015	NC15

NC16
N016
CH16

电话:

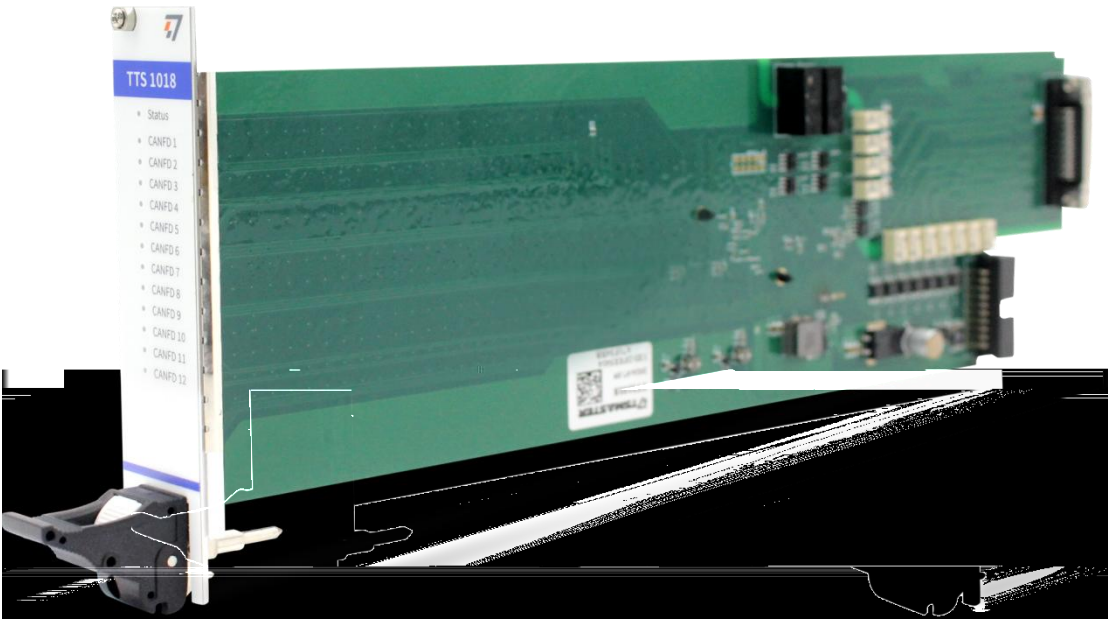
邮箱:

.

. 101

.1

TTS1018	12	CANFD			
TTS	CANFD1		CANFD1		
	CANFD1		TTS0001		
	TC1018				
	TSMaster	DBC	ARXML		
	CAN FD	UDS	ECU	CCP/XCP	



.3

12x CANFD 1+11 CANFD1

3U

电话:

邮箱:

.3

- ✓ us
- ✓ Windows Linux
- ✓ CAN DC2500V
- ✓ dbc a2l blf asc arxml
- ✓ CAN 125Kbps-1Mbps CANFD 8Mbps
- ✓ blf asc /
- ✓ UDS CCP/XCP
- ✓ UDS Flash Bootloader
- ✓
- ✓ Windows Linux
- ✓ CANFD1 120
- ✓ TSMaster License

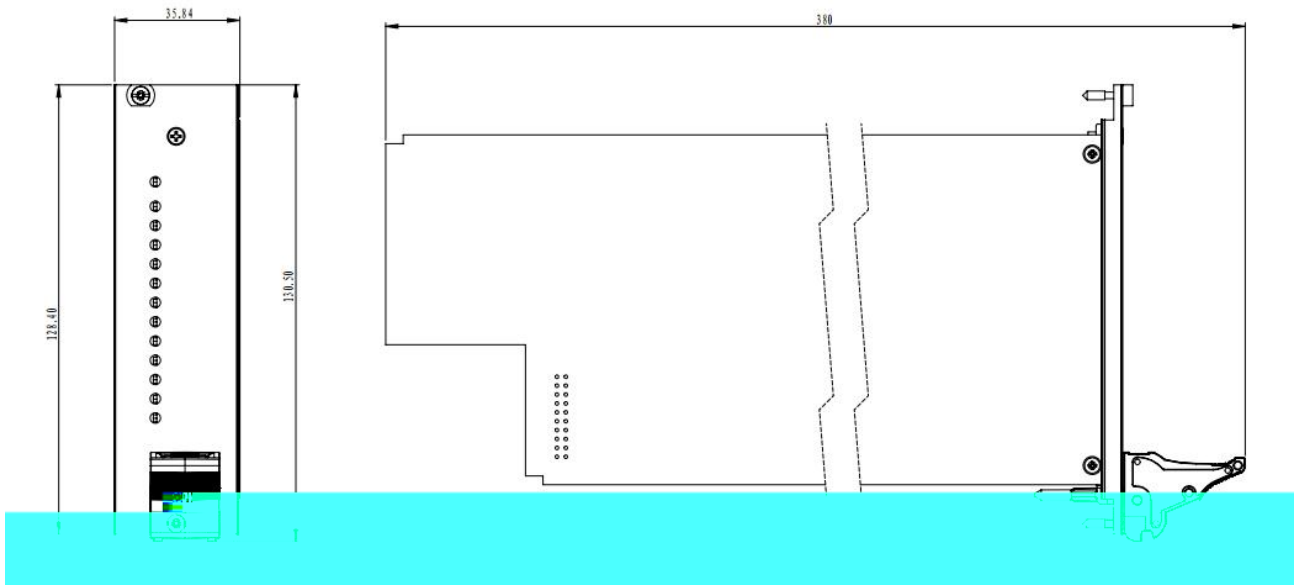
.4

	12 *CANFD 1+11 CANFD1
PC	USB2.0
	SCSI-37 Pin
	Windows Linux
	700 CAN
CAN	CAN2.0A B ISO11898-1 125Kbps-1Mbps
CANFD	ISO ISO CAN FD 125Kbps-8Mbps
	1us
	120 1
*	20000 /
*	20000 /
	CAN DC2500V
	USB +DC
	4.5W
	10% 90%

.5

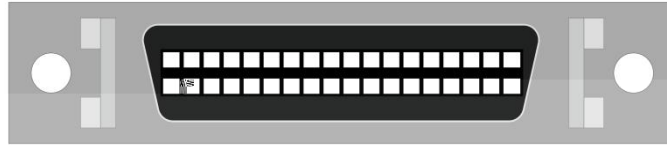
	USB	CAN	4.8	5.0	5.2	V
	DC	CAN	9	12	32	V
	USB	CAN	--	0	--	A
	DC	CAN	--	0.35	--	A
	USB	CAN	--	4.2	--	W
CAN		CANH CAHL	-58	--	58	V
			--	120	--	Ω
		1mA	2500	--	--	VDC

.6



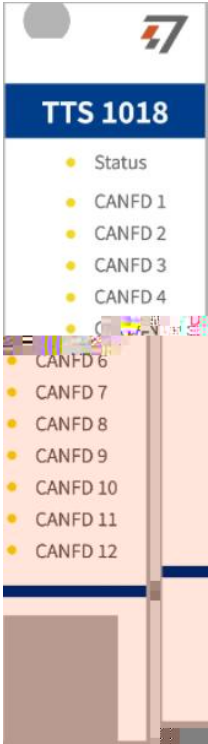
电话:

邮箱:



Pin 3	CAN_Shield	Pin 4	CGND
Pin 5	CAN2_L	Pin 6	CAN2_H
Pin 7	CAN3_L	Pin 8	CAN3_H
Pin 9	CAN_Shield	Pin 10	CGND
Pin 11	CAN4_L	Pin 12	CAN4_H
Pin 13	CAN5_L	Pin 14	CAN5_H
Pin 15	CAN_Shield	Pin 16	CGND
Pin 17	CAN6_L	Pin 18	CAN6_H
Pin 19	CAN7_L	Pin 20	CAN7_H
Pin 21	CGND	Pin 22	CAN_Shield
Pin 23	CAN8_L	Pin 24	CAN8_H
Pin 25	CAN9_L	Pin 26	CAN9_H
Pin 27	CGND	Pin 28	CAN_Shield
Pin 29	CAN10_L	Pin 30	CAN10_H
Pin 31	CAN11_L	Pin 32	CAN11_H
Pin 33	CGND	Pin 34	CAN_Shield
Pin 35	CAN12_L	Pin 36	CAN12_H

.



Status	
CANFD 1~12	

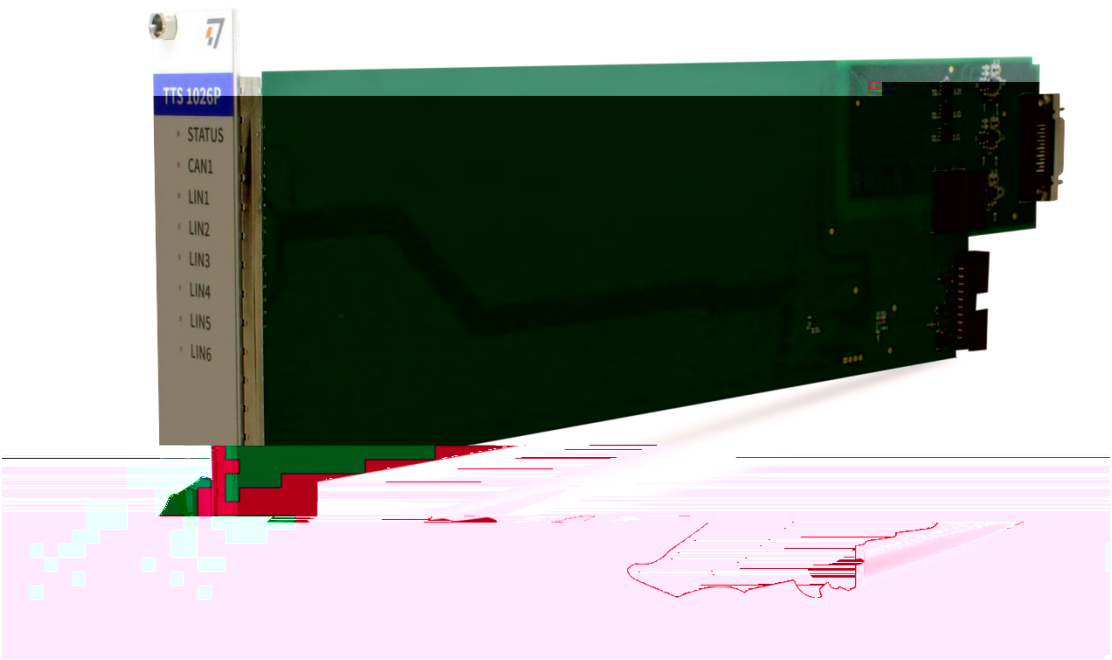
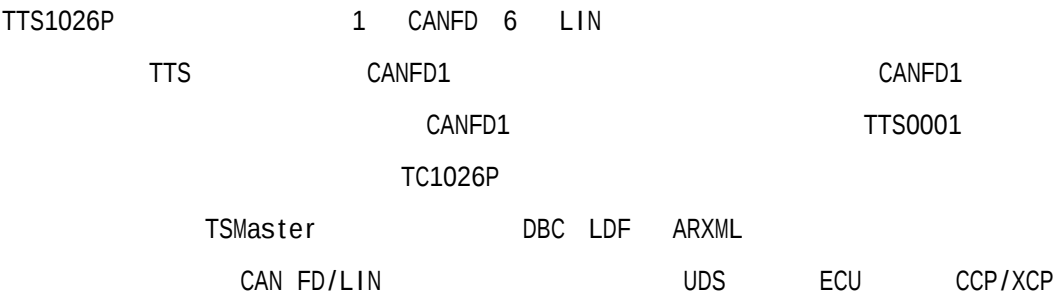
Status	
CANFD	CANFD
CANFD	CANFD

•

1.TCA00011 CAN

10. 1026

10.1



10.2

1x CANFD 6x LIN

3U

10.3

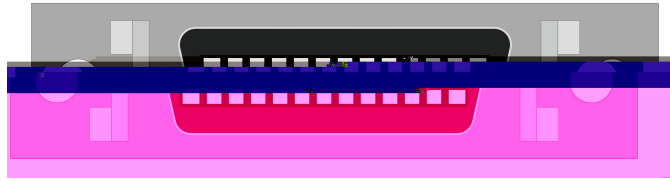
- ✓ us
- ✓ Windows Linux
- ✓ CAN DC2500V
- ✓ LDF dbc a2l blf asc arxml
- ✓ CAN 125Kbps-1Mbps CANFD 8Mbps
- ✓ LIN
- ✓ blf asc /
- ✓ UDS CCP/XCP
- ✓ UDS Flash Bootloader
- ✓ LIN UDS
- ✓
- ✓ Windows Linux
- ✓ TSMaster license

10.4

	1	*CANFD	/ 6		*LIN
PC	USB2.0				
	SCSI-26 Pin				
	Windows	Linux			
			1000	CAN	
CAN	CAN2.0A B		ISO11898-1	125Kbps-1Mbps	
CANFD	ISO	ISO	CAN FD	125Kbps-8Mbps	
LIN	LIN1.3	LIN2.x	0-20Kbps		
	LDF				
	1us				
	*	20000	/		
	*				

10.5

10.



Pin 1	VCC_LIN1	Pin 2	CGND
Pin 3	LIN1	Pin 4	VCC_LIN2
Pin 5	CGND	Pin 6	LIN2
Pin 7	VCC_LIN3	Pin 8	CGND
Pin 9	LIN3	Pin 10	VCC_LIN4
Pin 11	CGND	Pin 12	LIN4
Pin 14	VCC_LIN5	Pin 15	CGND
Pin 16	LIN5	Pin 17	VCC_LIN6
Pin 18	CGND	Pin 19	LIN6

10.



Status	
CAN 1	CANFD
LIN 1~6	LIN

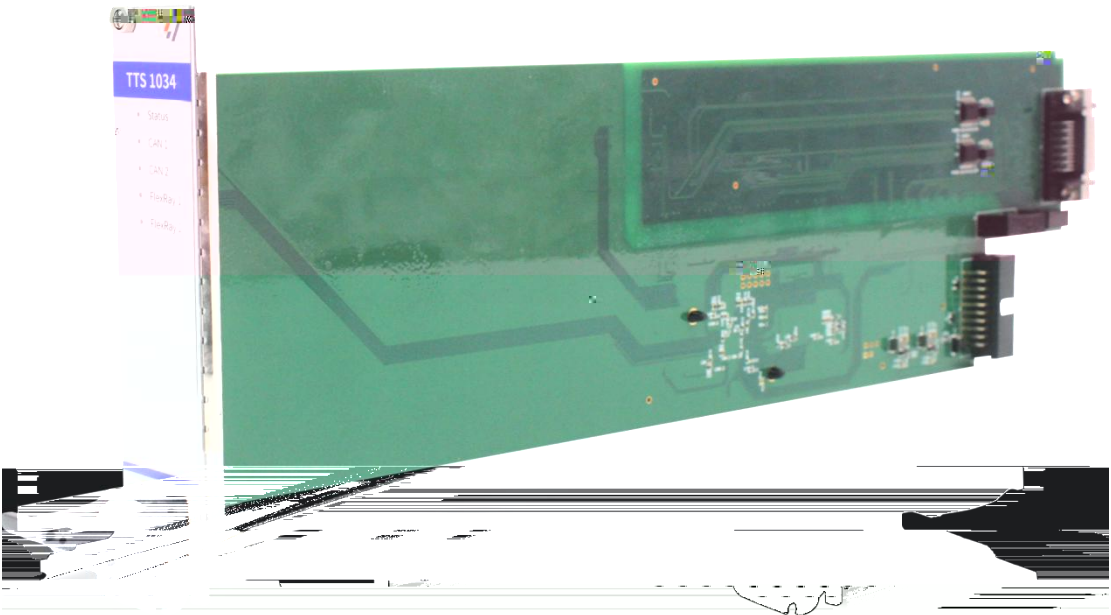
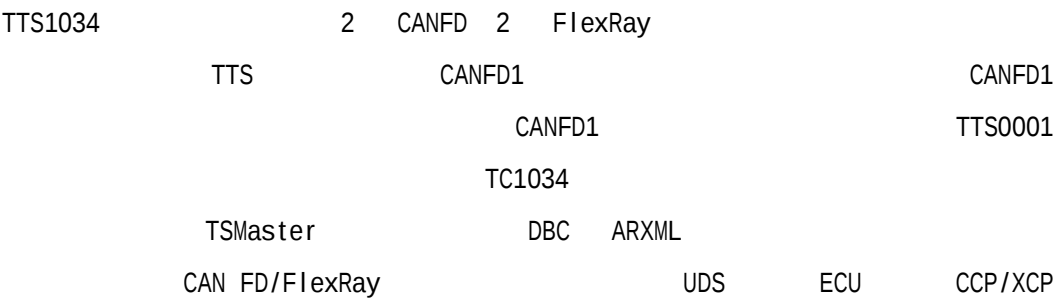
Status	
CAN	CANFD
CAN	CANFD
LIN	LIN
LIN	LIN

10.

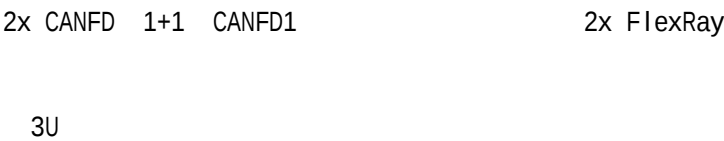
1. TCA00011 CAN

11. 1034

11.1



11.2



11.3

- ✓ us
- ✓ USB2.0 Windows Linux
- ✓ CAN DC2500V
- ✓ dbc a2l blf asc arxml
- ✓ CAN 125Kbps-1Mbps CANFD 8Mbps
- ✓ blf asc /
- ✓ UDS CCP/XCP
- ✓ UDS Flash Bootloader
- ✓
- ✓ TSMaster FlexRay CAN/CANFD
- ✓ Windows Linux

FlexRay

-
-
- Cycle multiplexing
- 254
- PDUs
-
- FlexRay
- 2 FlexRay FlexRay

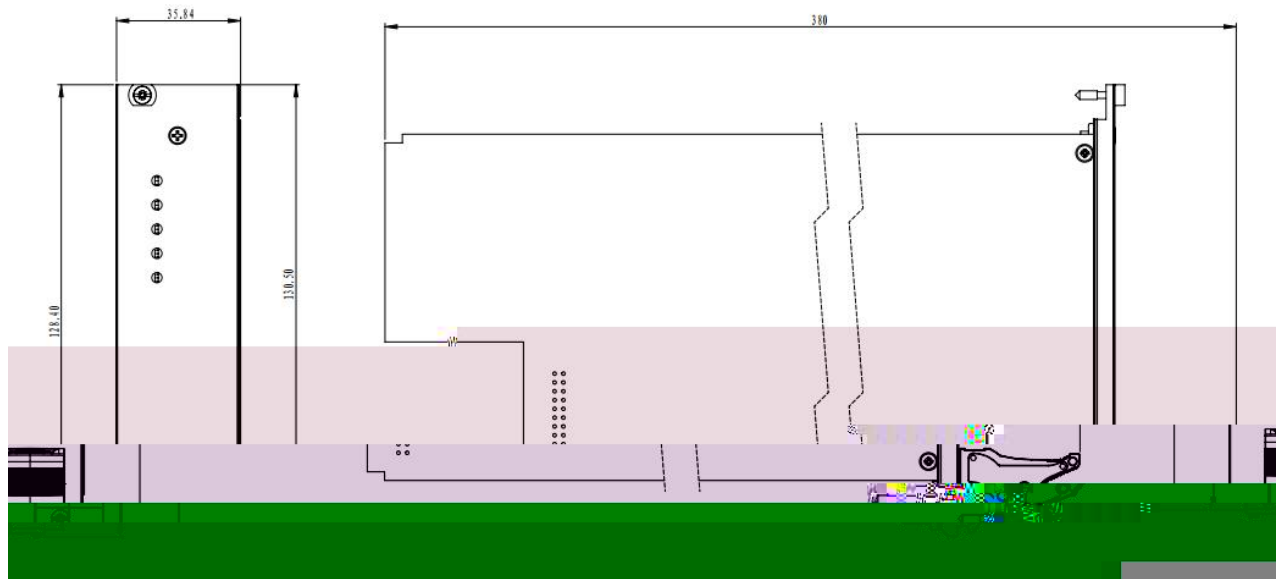
11.4

	2 *CANFD 1+1 CANFD1 / 2 *FlexRay
PC	USB2.0
	SCSI-26 Pin
	Windows Linux
FlexRay	FlexRay channel A and B
	1000 CAN
CAN	CAN2.0A B ISO11898-1 125Kbps-1Mbps
CANFD	ISO ISO CAN FD 125Kbps-8Mbps
	1us
CAN	120 1
FlexRay	100
*	20000 /
*	20000 /
	CAN/FlexRay DC2500V
	USB
	3W
	10% 90%

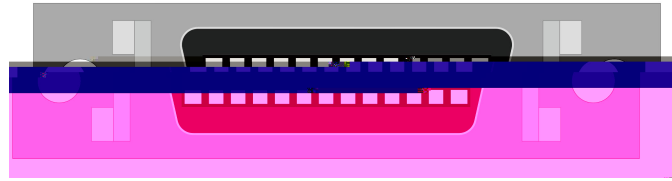
11.5

	USB	CAN	FlexRay	4.8	5.0	5.2	V
	USB	CAN	FlexRay	--	0.51	--	A
	USB	CAN	FlexRay	--	2.6	--	W
CAN		CANH	CAHL	-58	--	58	V
				--	120	--	Ω
			1mA	2500	--	--	VDC
FlexRay		FlexRay_BM		-60	--	60	V
		FlexRay_BP		--	100	--	Ω
			1mA	2500	--	--	VDC

11.6

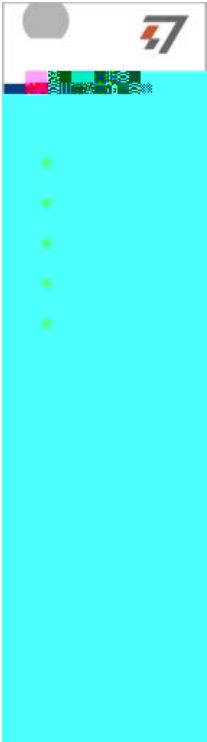


11.



Pin 1	CAN_Shield	Pin 2	CGND
Pin 5	CAN2_L	Pin 6	CAN2_H
Pin 7	CGND	Pin 8	CGND
Pin 9	FlexRay_BM1	Pin 10	FlexRay_BP1
Pin 11	FlexRay_BM2	Pin 12	FlexRay_BP2
Pin 13	CGND	Pin 21	CGND
Pin 22	CGND	Pin 23	FlexRay_BP4
Pin 24	FlexRay_BM4	Pin 25	FlexRay_BP3
Pin 26	FlexRay_BM3		

11.



Status	
CAN 1~2	CANFD
FlexRay 1~2	FlexRay

Status	
CAN	CANFD
CAN	CANFD
FlexRay	FlexRay
FlexRay	FlexRay

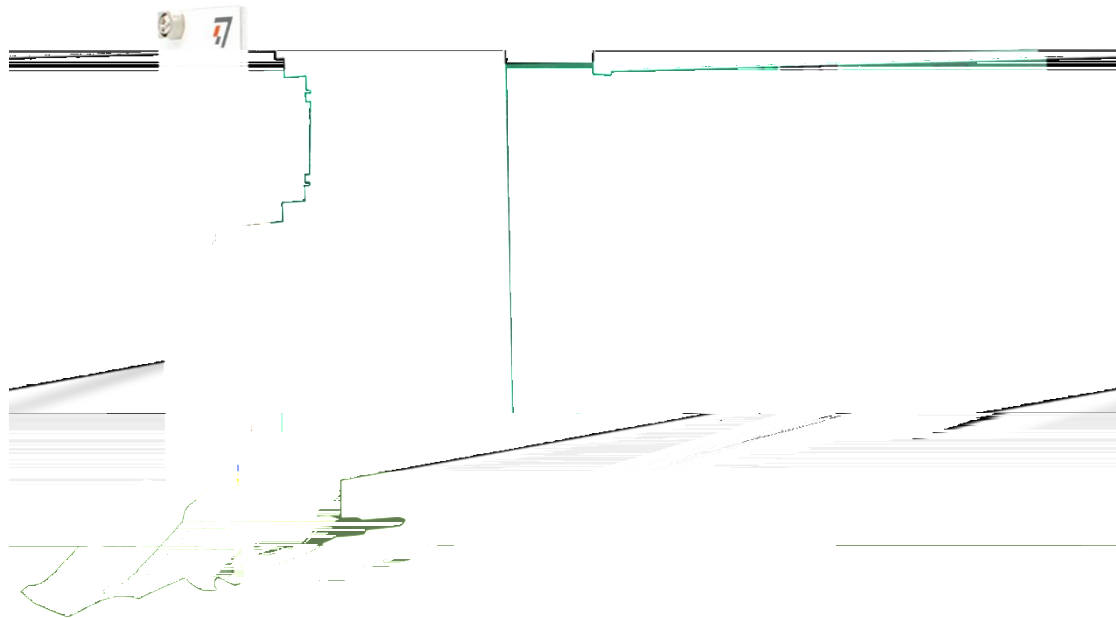
11.

1.TCA00011 CAN

12. 1016

12.1

TTS1016 Pro	4	CANFD	2	LIN				
TTS	4	CANFD			8M bps	2	LIN	
0~20K bps								
TSMaster			DBC	LDF	ARXML			
CAN FD/LIN					UDS	ECU		CCP/XCP



12.2

4x CANFD 2x LIN

3U

电话:

邮箱:

12.3

- ✓ us
- ✓ Windows Linux
- ✓ CAN DC2500V
- ✓ LDF dbc a2l blf asc arxml
- ✓ CAN 125Kbps-1Mbps CANFD 8Mbps
- ✓ LIN
- ✓ blf asc /
- ✓ UDS CCP/XCP
- ✓ UDS Flash Bootloader
- ✓ LIN UDS
- ✓ Windows Linux
- ✓ TSMaster license

12.4

	4 *CANFD / 2 *LIN			
PC	USB2.0			
	SCSI-26 Pin			
	Windows Linux			
	1000 CAN			
CAN	CAN2.0A B		ISO11898-1	125Kbps-1Mbps
CANFD	ISO	ISO	CAN FD	125Kbps-8Mbps
LIN	LIN1.3	LIN2.x	0-20Kbps	
	LDF			
	1us			
*	20000 /			
*	20000 /			
	CAN	DC2500V		
	USB	+DC		
	5W			
	10%	90%		

12.5

USB	CAN	4.8	5.0	5.2	V
DC	CAN	9	12	32	V

C
DC

CA

4.8 (9.1

5.0 5.2 V

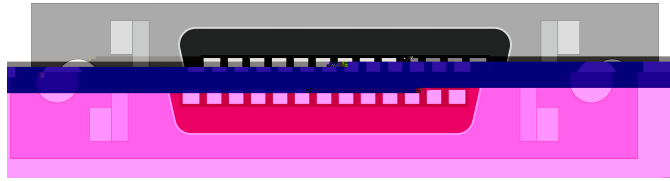
2 E

电话:

邮箱:

C8r

12.



Pin 1	CAN_Shield	Pin 2	GND
Pin 3	CAN1_L	Pin 4	CAN1_H
Pin 5	CAN2_L	Pin 6	CAN2_H
Pin 7	CAN_Shield	Pin 8	GND
Pin 9	CAN3_L	Pin 10	CAN3_H
Pin 11	CAN4_L	Pin 12	CAN4_H
Pin 13	CAN_Shield	Pin 14	GND
Pin 15	LIN1	Pin 16	GND
Pin 17	LIN2	Pin 18	GND
Pin 19	VCC	Pin 20	GND

12.



Status	
CAN 1~4	CANFD
LIN 1~2	LIN

Status	
CAN	CANFD
CAN	CANFD
LIN	LIN
LIN	LIN

12.

TCA00011 CAN

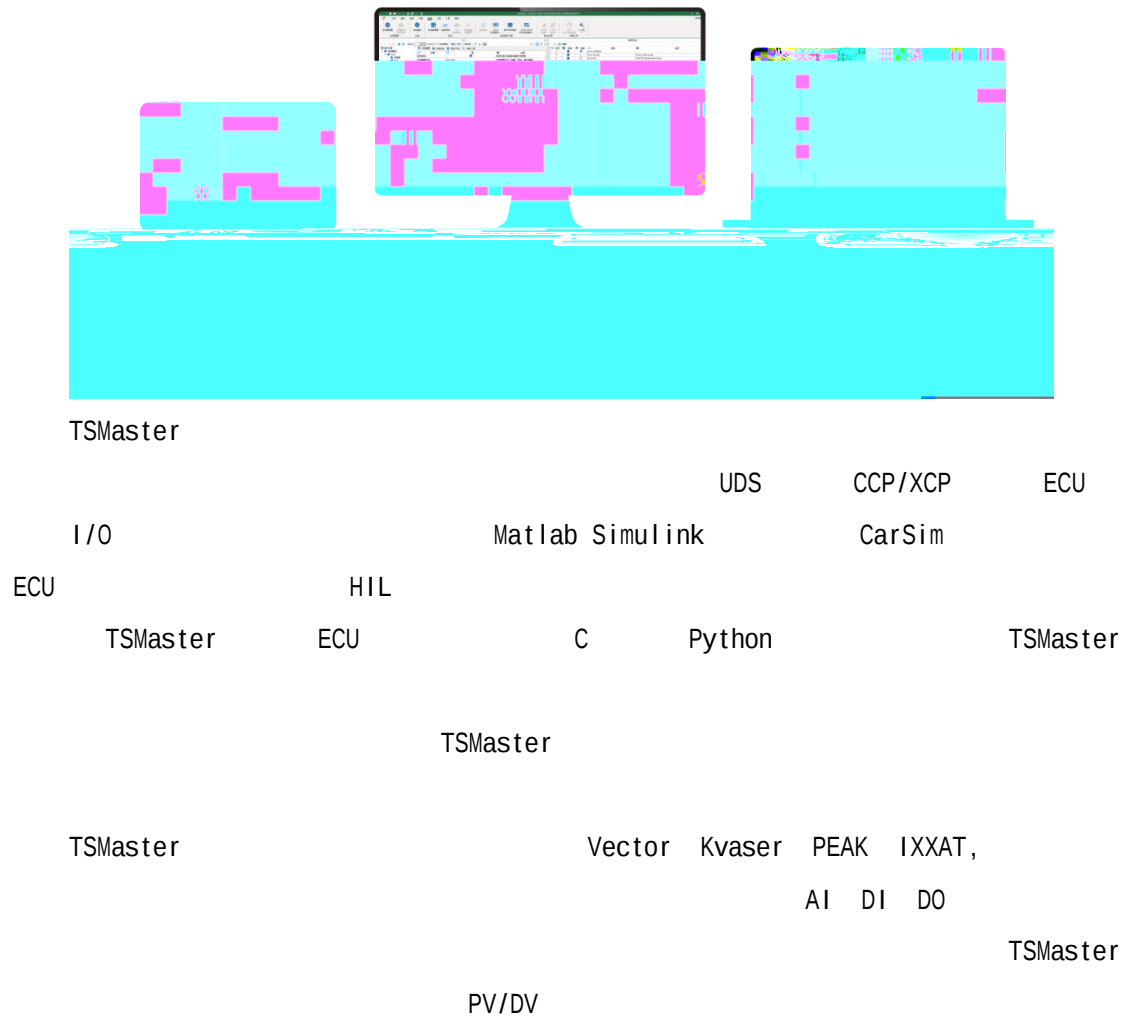
13. 012

14. 20

15. 516

16.

16.1



16.2

<https://www.tosunai.com/downloads/>



PC



16.3

16.3.1

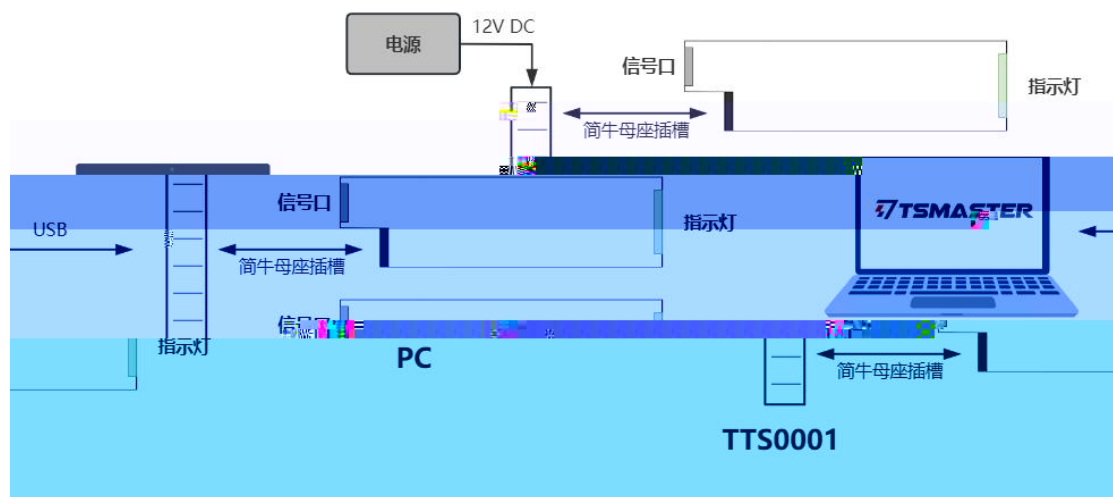
TTS1018 TTS1026P TTS1034 TTS1016 Pro

TTS0001

TTS0001

TTS0001

USB

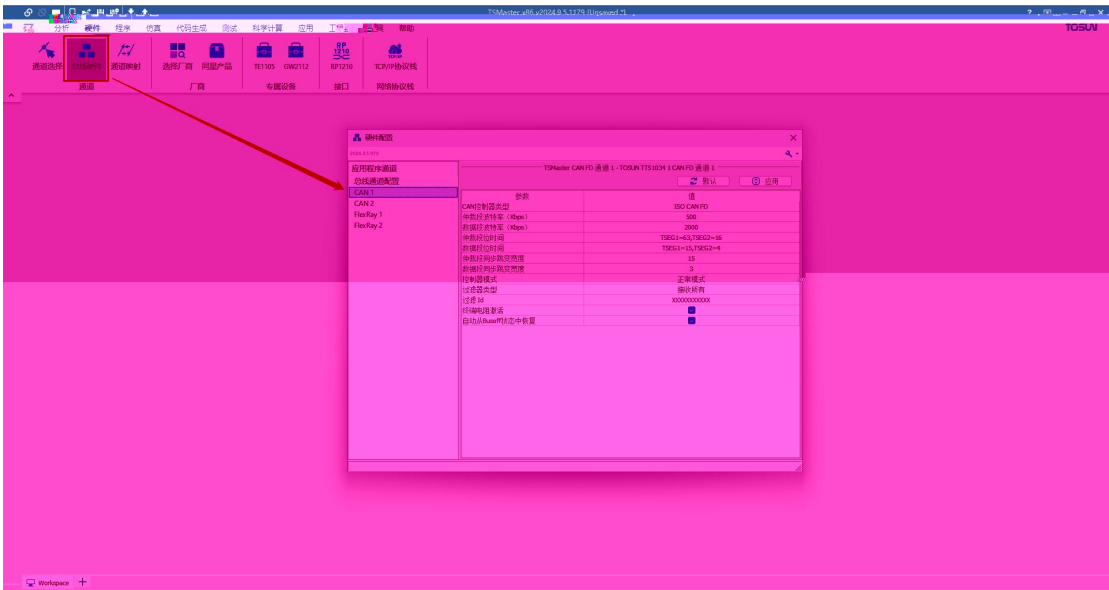


TSMaster

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TSMaster

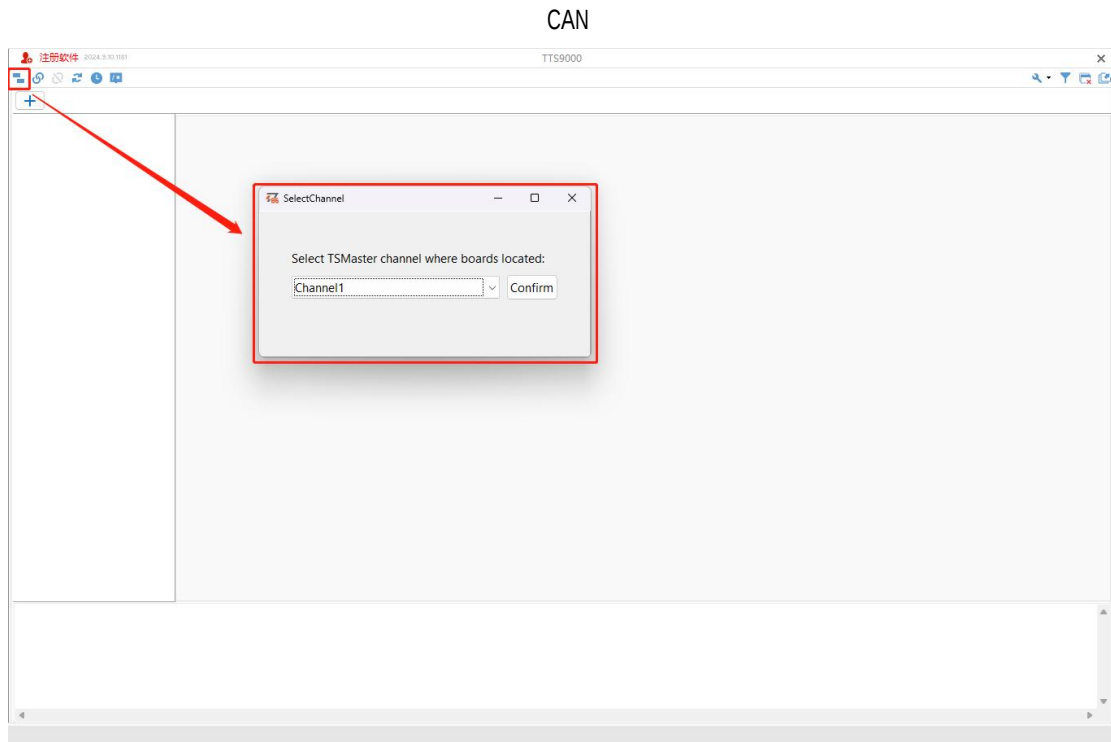
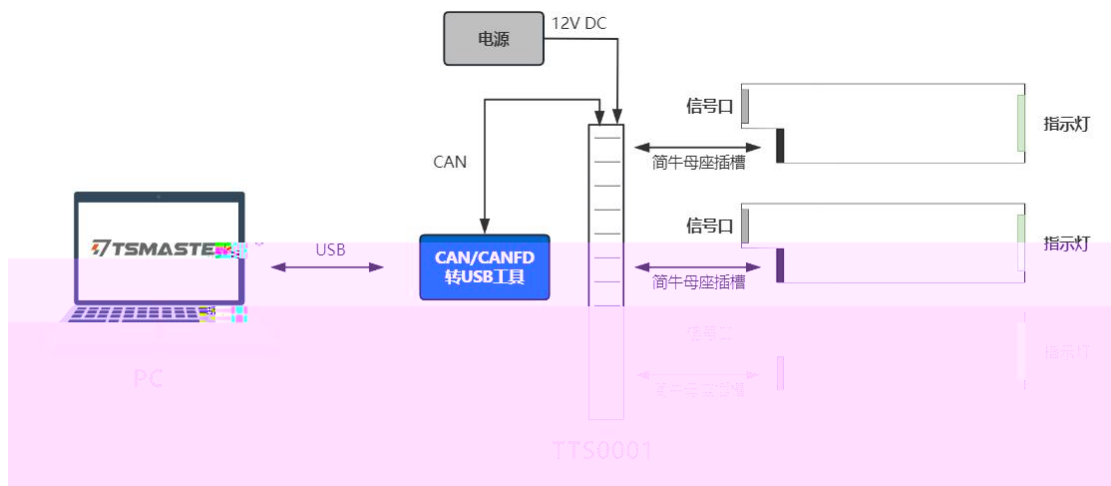
ECU

TSMaster

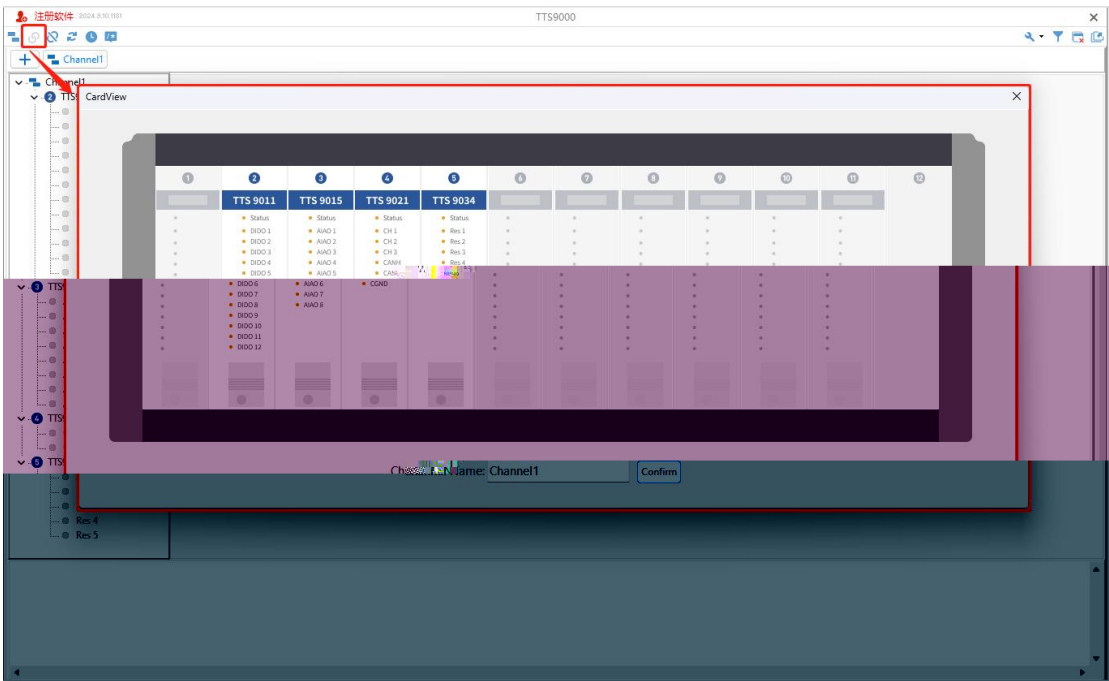
TSMaster

16.3.2

TTS0001	TTS0001	TTS0001	CAN	CAN/CANFD
USB	CAN/CANFD		CAN	

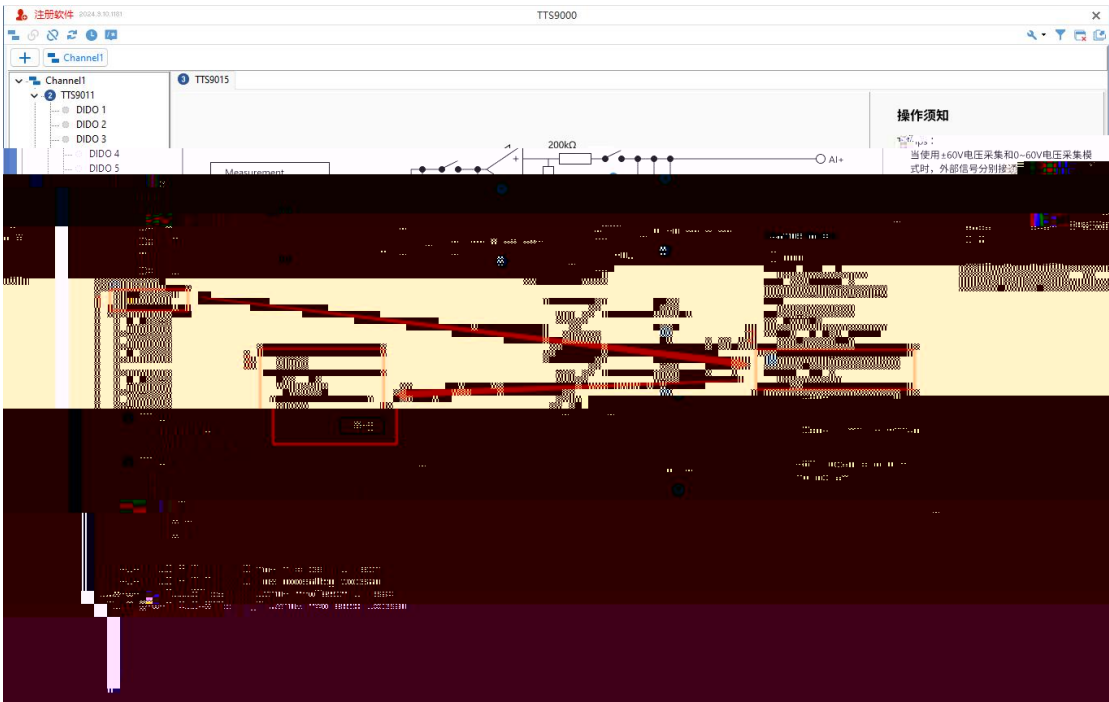


TTS



TTS9015 1 30V TTS9015

1 0-60V 30V



TSMaster

TTS

API

CAN

TTS

ID

ID



XX

00	
08	
18	

ON

00	1
01	2
02	3
03	4
...	
0F	16

YY

18/19	TTS9011
06	TTS9015
14	TTS9021
1B	TTS9036
03	TTS9045

ZZ

TTS9015	26	
	04	
	27	
	25	
	61	/

电话:

邮箱:

TTS9021	04	
	62	/
TTS9036	61	
	04	
	29	
	28	
TTS9045	04	
	0E	
	0D	
TTS9011	18 04	
	18 07	
	18 1C	PWM
	18 19	PWM
	18 12	PWM
	18 61	1~6
	19 06	
	19 05	
	19 04	
	19 1B	PWM
	19 18	PWM
	19 1A	PWM
	19 17	PWM
	19 11	PWM
	19 10	PWM
	19 61	7~12

TSMaster

TTS

TTS9011

TSMaster

TTS9011

CAN

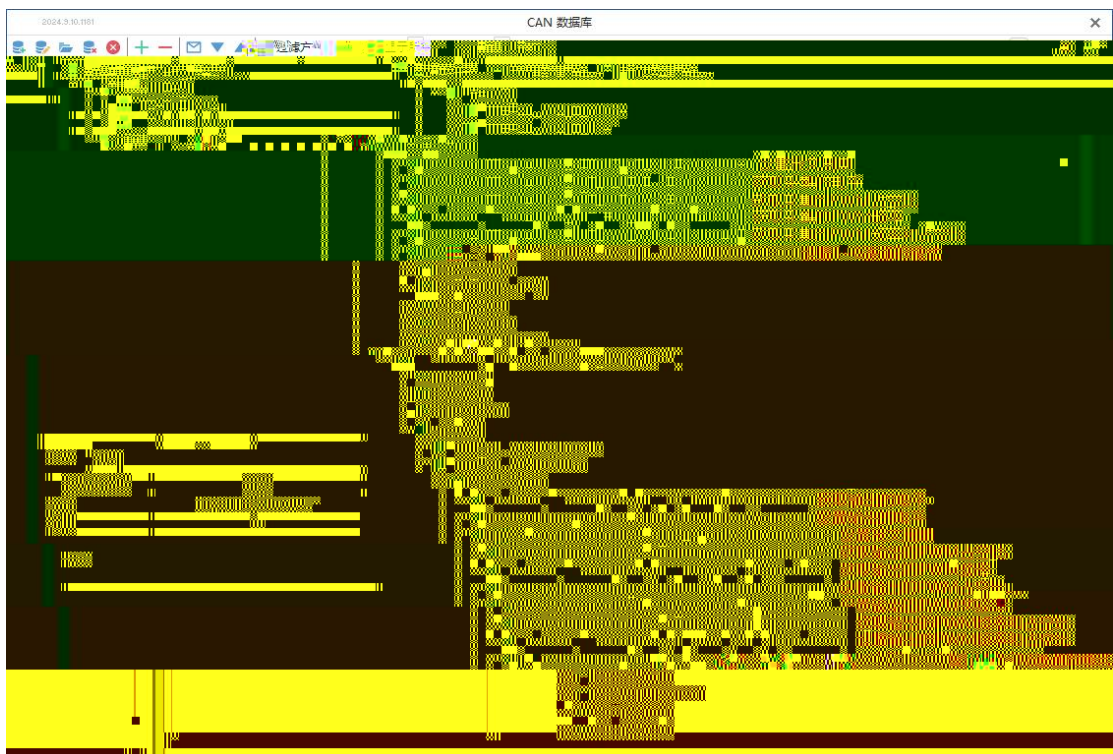
2024.9.30.10:01

CAN / CAN FD 报文信息

绝对时间	计数	通道	标识符	帧率	报文名称	数据长度	RBS	FSI	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
599.795278	18553	C...	18011863x	11	TTS9011_N02_R...	数据帧	Rx	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TTS9011_Channel_Index																							
TTS9011_Report_PUX_SubCPD																							
TTS9011_Channel_Index																							
599.324689	18553	C...	18011855x	9	TTS9011_N02_R...	数据帧	Rx	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freq_0_01Hz_CH01																							
Freq_0_01Hz_CH02																							
599.324834	18554	C...	18011856x	9	TTS9011_N02_R...	数据帧	Rx	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freq_0_01Hz_CH03																							
Freq_0_01Hz_CH04																							
599.324979	18555	C...	18011857x	9	TTS9011_N02_R...	数据帧	Rx	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freq_0_01Hz_CH05																							
Freq_0_01Hz_CH06																							
599.325125	18556	C...	18011858x	9	TTS9011_N02_R...	数据帧	Rx	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freq_0_01Hz_CH07																							
Freq_0_01Hz_CH08																							
599.323862	18547	C...	18011859x	9	TTS9011_N02_R...	数据帧	Rx	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freq_0_01Hz_CH09																							
Freq_0_01Hz_CH10																							
599.424831	18564	C...	1801185Ax	9	TTS9011_N02_R...	数据帧	Rx	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freq_0_01Hz_CH11																							
Freq_0_01Hz_CH12																							
599.424973	18565	C...	1801185Dx	9	TTS9011_N02_R...	数据帧	Rx	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Duty_0_01Per_CH01																							
Duty_0_01Per_CH02																							
Duty_0_01Per_CH03																							
Duty_0_01Per_CH04																							
599.425118	18566	C...	1801185Ex	9	TTS9011_N02_R...	数据帧	Rx	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Duty_0_01Per_CH05																							
599.423855	18557	C...	1801185Fx	9	TTS9011_N02_R...	数据帧	Rx	8	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
599.423961	18558	C...	18011809x	9	TTS9011_N02_R...	数据帧	Rx	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Duty_0_01Per_CH06																							
599.423792	18538	C...	18011863x	11	TTS9011_N02_R...	数据帧	Rx	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CAN

TTS9011



1 .

TTS

6

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		USB +5V DC +12V DC	USB /
	()	-40 ~+80	
	()	10%~90%	
			,

电话:

邮箱:

