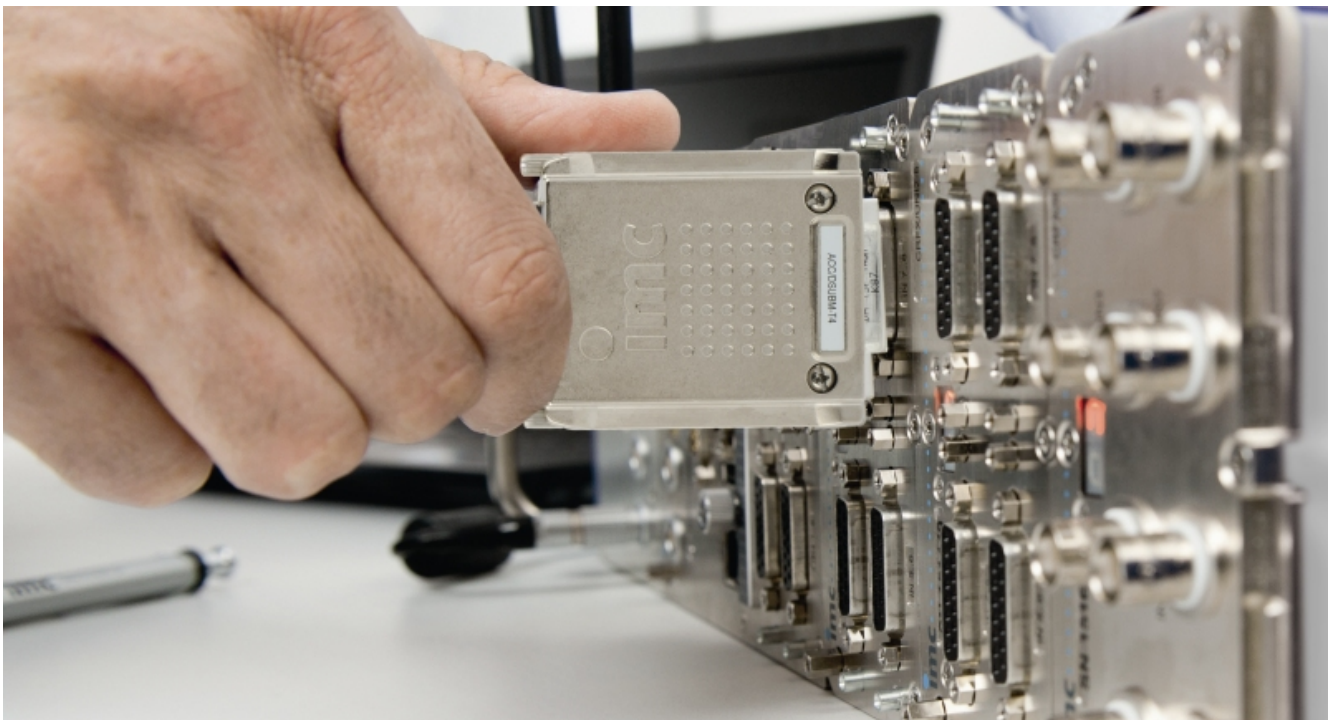


Pin configuration



The terminal plug is an adapter for connecting the DSUB-15 sockets which are provided with most imc modules as the standard signal terminal connector to screw terminals directly clamped to cables. It is available in a number of varieties either as a metal connector or as a sealed version (IP65).

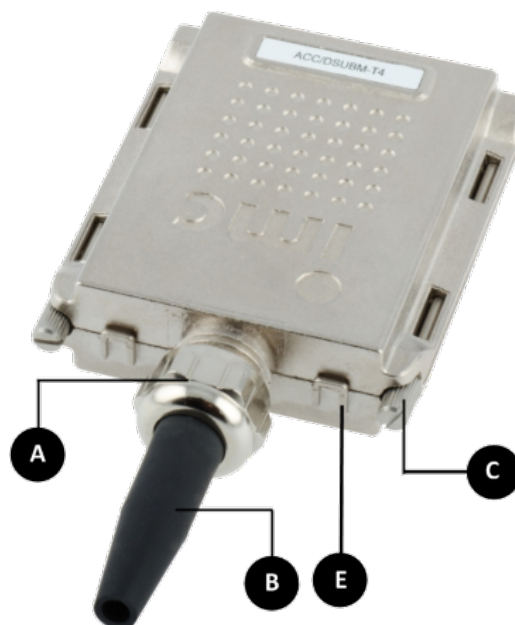
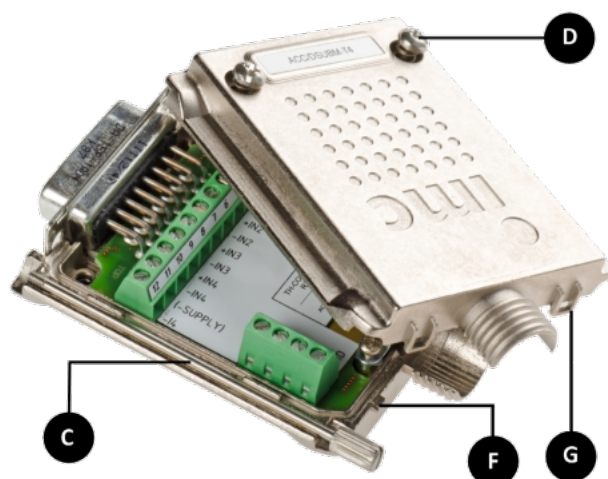
7 Pin configuration

7.1 Metal connector

ACC/DSUBM-xxx

Open the Metal connector:

1. Unscrew the cable fitting (cable gland)
2. Remove the bend protection
3. Unscrew the lid screws
4. Lift the lid in the DSUB connection area and unfasten the nose of the slot



- A: Pressure nut
 B: Bend protection
 C: Fastening screw for the devices' front panel
 D: Lid screws
 E: Locking key (Nose / Slot)
 G: Slot
 F: Nose

Close the Metal connector:

1. Assemble the lid by snapping the nose into the slot (see the following picture)
2. Audible click when the lid snaps in the front of the DSUB pod
3. Insert the bend protection
4. The pressure nut must be screwed back on
5. The lid screws can be tightened



7.2 Connecting DSUB-15 adapter plug

The [Standard connector](#) ^[498] is a 1:1 DSUB-15 to screw terminal adapter. It can be used for all modules which come with the corresponding pin configuration. Apart from specific labeling, those connectors are electrically identical.

The [Special connector](#) ^[499] do not offer direct adaption from the DSUB pins to the screw terminals, but instead come with extra functions:

For current measurement (up to 50 mA) with voltage channels the [Shunt connector](#) ^[499] (ACC/DSUB(M)-I2 and I4) have a built-in 50 Ω shunt. The scaling factor 0.02 A/V must be set in order to display the current value.

For temperature measurements, a special, patented [Thermo connector](#) ^[499] (ACC/DSUB(M)-T4) is available. This DSUB-15 connector is suited for measurement of voltages as well as temperatures with PT100 and thermocouples with integrated cold junction compensation (CJC). Any types of thermocouples can be connected at the differential inputs (+IN and -IN). It also has additional "auxiliary contacts" for connecting PT100 in 4-wire configurations, where the reference current loop is already pre-wired internally. The Thermo connector can also be used for normal voltage measurement.



Plastic connector (ACC/DSUB-)



Metal connector (ACC/DSUBM-)

The [Universal connector](#) ^[499] (ACC/DSUB(M)-UNI2) contains an additional built-in PT1000 temperature sensor providing cold junction compensation (CJC) for thermocouple measurement. If this function is not required, it is also possible to use a Standard connector for other measurement types.

The [ICP connector](#) ^[499] (ACC/DSUB(M)-ICP2 and ICP4) provide a current supply source as well as a capacitive coupling.

The [TEDS connectors](#) ^[500] are special, TEDS capable (according to IEEE1451.4 for the use with imc Plug & Measure) imc plugs for saving sensor information. The sensor-TEDS are serial PROMS which are connected with an amplifier channel via a digital signal line (One-wire-PROM). For a detailed description of the use of TEDS, see the imc STUDIO User's Manual.

Note on the screw terminals of the connector

To connect the measurement leads with the screw terminals, suitable leads should have a maximum cross section of 1.5 mm² incl. cable end-sleeve.

The terminals' screw heads only have secure electrical contact once they are tightened to a connection wire. For this reason, a control measurement (for instance with multimeter probe tips) at "open" terminals can falsely mimic a missing contact!

Cable shielding must be connected at CHASSIS (DSUB frame) as a rule. At some connectors, V_{CC} (5 V) is available, with a maximum load current of typically 135 mA per plug.

7.2.1 Overview of the modules and connectors

		Voltage	Current	Bridge	Thermocouple	Current feed sensors IEPE (ICP)	Universal
Analog amplifier	UNI2-8	UNI2 B2	UNI2 I2	UNI2 B2	UNI2	ICP2	UNI2
	UNI-4	UNI2	UNI2 I2	UNI2 B2	UNI2	ICP2	UNI2
	DCB2-8	B2 UNI2	I2	B2 UNI2		ICP2	
	BR2-4	B2	I2	B2		ICP2	
	LV-16	U4	I4				
	LV3-8	U4	I4			ICP4	
	SC2-32	U4	I4			ICP4	
	OSC-16	U4 T4	I4		T4		
	C-8	U4 T4	I4		T4		
	ISO2-8	U4 T4	I4		T4	ICP4	
	ISOF-8	U4 T4	I4		T4	ICP4	

		INC.-ENCODER	FREQUENCY	DIGITAL IN	DIGITAL OUT	DIGITAL OUT HIGH CURRENT	RELAYS	ANALOG OUT
Digital modules	ENC-4, HRENC-4	ENC4, ENC4-IU						
	FRQ2-4		FRQ2					
	DI-16			DI8				
	DIOINC	ENC4		DI2-8			REL4	
	DIO-PL2			DI8			REL4	
	DI2-16			DI4-8				
	DO-16				DO-8			
	DO-16-HC					DO8-HC		
	DAC-8							DAC4
	DI16-DO8-ENC4 DI8-DO8-ENC4-DAC4	ENC4 ENC4		DI4-8 DI4-8	DO-8 DO-8			DAC4 DAC4

7.3 DSUB-15 pin configuration

In general: DSUB pin 1 is internally reserved.

7.3.1 Standard and Universal connector

Universal connector

Plastic		Metal connector			
ACC/DSUB-		ACC/DSUBM-		B2	U4
DSUB-15 Pin	Terminal	DSUB-15 Pin	Terminal	BRIDGE	VOLTAGE
9	1	9	1	+VB1	(RES.)
2	2	2	2	+IN1	+IN1
10	3	10	3	-IN1	-IN1
3	4	3	4	-VB1	(+SUPPLY)
11	5	11	5	[+SENSE1_1/4B1]	+IN2
4	6	4	6	-SENSE1	-IN2
12	7	12	7	+VB2	(-SUPPLY)
5	8	5	8	+IN2	+IN3
13	9	13	9	-IN2	-IN3
6	10	6	10	-VB2	(GND) *
14	11	14	11	[+SENSE2_1/4B2]	+IN4
7	12	7	12	-SENSE2	-IN4
15	14	15	15	GND	(GND)
8	17	8	18	+5V	(+5V)
	13		13		
	18		14		
Case	15	Case	16	CHASSIS	CHASSIS
Case	16	Case	17	CHASSIS	CHASSIS

[] : if SEN-SUPPLY with ±15V option then this pin = -15V

[] : 1/4 Bridge with UNI2-8, DCB2-8, B-8, UNI-4 and +SENSE with BR2-4, UNI-4

* if SEN-SUPPLY with ±15V option then pin 6 is the reference

Plastic		Metal connector			
ACC/DSUB-		UNI2		ACC/DSUBM-	
DSUB-15 Pin	Terminal	UNI2		DSUB-15 Pin	Terminal
		UNIVERSAL			
9	1	+VB1		9	1
2	2	+IN1		3	2
10	3	-IN1		2	3
3	4	-VB1		10	4
11	5	I1_1/4B1*		11	5
4	6	-SENSE1		4	6
12	7	+VB2		5	7
5	8	+IN2		13	8
13	9	-IN2		14	9
6	10	-VB2		7	10
14	11	I2_1/4B2*		12	11
7	12	-SENSE2		6	12
15	14	GND		15	15
8	17	+5V		8	18
	13				13
	18				14
Case	15	CHASSIS		Case	16
Case	16	CHASSIS		Case	17

* if special version with ±15V option then this pin = -15V

(+5 V): Note concerning ACC/DSUB(M)-U4 connector: +5 V (DSUB pin 8) for C-8, OSC-16 not available

Plastic		Metal connector									
ACC/DSUB-		ACC/DSUBM-		ENC4, ENC4-IU	FRQ2	DI8	DI2-8	DI4-8	DO8	REL	DAC4
DSUB-15 Pin	Terminal	DSUB-15 Pin	Terminal	INC.-ENCODER	FREQUENCY	DIGITAL IN	DIGITAL IN	DIGITAL IN	DIGITAL OUT	RELAIS	ANALOG OUT
9	1	9	1	+INA	+IN1	BIT1	+IN1	+IN1	BIT1	IN1	
2	2	2	2	-INA	-IN1	BIT2	+IN2	+IN2	BIT2	IN2	DAC1
10	3	10	3	+INB		BIT3	-IN1/2	+IN3	BIT3	IN3	AGND
3	4	3	4	-INB		BIT4	+IN3	+IN4	BIT4	IN4	
11	5	11	5	+INC	+IN2	BIT5	+IN4	-IN1/2/3/4	BIT5	OFF1	DAC2
4	6	4	6	-INC	-IN2	BIT6	-IN3/4	+IN5	BIT6	OFF2	AGND
12	7	12	7	+IND		BIT7	+IN5	+IN6	BIT7	OFF3	
5	8	5	8	-IND		BIT8	+IN6	+IN7	BIT8	OFF4	DAC3
13	9	13	9	+INDEX		CLK	-IN5/6	+IN8		ON1	AGND
6	10	6	10	-INDEX			+IN7	-IN5/6/7/8		ON2	
14	11	14	11	+5V	+5V	HCOM	+IN8	+HCOM	HCOM	ON3	DAC4
7	12	7	12	GND *	GND	LCOM	-IN7/8	-IN7/8	LCOM	ON4	AGND
15	14	15	15	(-SUPPLY)		LCOM	LEVEL	LEVEL	LCOM	(GND)	
8	17	8	18	(+SUPPLY)		LEVEL	LCOM	LCOM	OPDRN	(+5V)	
	13		13								
	18		14								
Case	15	Case	16	CHASSIS	CHASSIS	CHASSIS	CHASSIS	CHASSIS	CHASSIS	CHASSIS	CHASSIS
Case	16	Case	17	CHASSIS	CHASSIS	CHASSIS	CHASSIS	CHASSIS	CHASSIS	CHASSIS	CHASSIS

with HRENC-4: INDEX only on **CON1**

with ENC-4: INDEX only on **CON2**

* if SEN-SUPPLY with ±15 V option then pin 7 is the reference

7.3.2 Special connector

Plastic			Metal connector			Plastic			Metal connector		
ACC/DSUB-		T4	ACC/DSUB-		T4	ACC/DSUB-		ACC/DSUB-	I4		I2
DSUB-15 Pin	Terminal	TH-COUPLE/RTD	DSUB-15 Pin	Terminal	TH-COUPLE/RTD	DSUB-15 Pin	Terminal	DSUB-15 Pin	Terminal	CURRENT	CURRENT
9	1	+I1	9	1	+I1	9	1	9	1	(RES.)	+SUPPLY1
2	2	+IN1	3	2	(+SUPPLY)	2	2	2	2	+IN1	+IN1
10	3	-IN1	2	3	+IN1	10	3	10	3	-IN1	-IN1
	4	+I2	10	4	-IN1	3	4	3	4	(+SUPPLY)	-SUPPLY1
11	5	+IN2	11	5	+IN2	11	5	11	5	+IN2	
4	6	-IN2	4	6	-IN2	4	6	4	6	-IN2	
	7	+I3	5	7	+IN3	12	7	12	7	(-SUPPLY)	+SUPPLY2
5	8	+IN3	13	8	-IN3	5	8	5	8	+IN3	+IN2
13	9	-IN3	14	9	+IN4	13	9	13	9	-IN3	-IN2
6	10	-I4	7	10	-IN4	6	10	6	10	(GND)	-SUPPLY2
14	11	+IN4	12	11	(-SUPPLY)	14	11	14	11	+IN4	
7	12	-IN4	6	12	-I4 (GND)*	7	12	7	12	-IN4	
	14	-I2		15	-I3	15	14	15	15	(GND)	(GND)
	17	-I3		18	+I2	8	17	8	18	(+5V)	(+5V)
	13	-I1	15	13	GND		13		13		
	18	+I4		14	+I3		18		14		
Case	15	CHASSIS		16	+I4	Case	15	Case	16	CHASSIS	CHASSIS
Case	16	CHASSIS		17	-I1	Case	16	Case	17	CHASSIS	CHASSIS
				19	-I2				19		
			Case	20	CHASSIS				20		

* if SEN-SUPPLY with ±15V option then pin 6 is the reference

Plastic			Metal connector			Plastic connector			Metal connector							
ACC/DSUB-		ICP4	ICP2		ACC/DSUB-		DO8-HC		ACC/DSUB-		SYNTH4		ACC/DSUB-		SYNTH4	
Terminal	ICP		ICP		DSUB-15 Pin	Terminal	DIGITAL OUT HIGH CURRENT		DSUB-15 Pin	Terminal	SYNTHESIZER		DSUB-15 Pin	Terminal	SYNTHESIZER	
1	+ICP1		+ICP1		9	1	BIT1		9	1			9	1	DOUT1	
2	-ICP1		-ICP1		2	2	BIT2		2	2	AOUT1		2	2	AOUT1	
3	+ICP2				10	3	BIT3		10	3	AGND		10	3	AGND	
4	-ICP2				3	4	BIT4		3	4			3	4	DOUT2	
5	+ICP3		+ICP2		11	5	BIT5		11	5	AOUT2		11	5	AOUT2	
6	-ICP3		-ICP2		4	6	BIT6		4	6	Vcc		4	6	+5V	
7	+ICP4				12	7	BIT7		12	7	HCOM		12	7	HCOM	
8	-ICP4				5	8	BIT8		5	8	AOUT3		5	8	AOUT3	
9					13	9	HCOM_1-4		13	9	AGND		13	9	AGND	
10					6	10	LCOM_1-4		6	10	DIN1		6	10	DIN1	
11					14	11	HCOM_5-8		14	11	AOUT4		14	11	AOUT4	
12					7	12	LCOM_5-8		7	12	LCOM		7	12	LCOM	
14	CHASSIS		CHASSIS		15	15	LCOM			13			15	15	LEVEL	
17	+5V		+5V		8	18	OPDRN		15	14	DI_LEVEL/DG		8	18	OPDRN	
13	CHASSIS		CHASSIS			13				13				13		
18	AGND		AGND			14			8	17	OPDRN			14		
15	CHASSIS		CHASSIS		Case	16	CHASSIS		Case	15	CHASSIS			4	CHASSIS	
16	CHASSIS		CHASSIS		Case	17	CHASSIS		Case	16	CHASSIS			17	CHASSIS	

7.3.3 TEDS connector

Universal connector

Plastic				Metal connector				Plastic				Metal connector			
ACC/DSUB-TEDS-				ACC/DSUBM-TEDS-				ACC/DSUB-TEDS-UNI2				ACC/DSUBM-TEDS-UNI2			
DSUB-15 Pin	Terminal	VOLTAGE	BRIDGE	DSUB-15 Pin	Terminal	VOLTAGE	BRIDGE	DSUB-15 Pin	Terminal	UNIVERSAL		DSUB-15 Pin	Terminal	UNIVERSAL	
9	1	(RES.)	+VB1	9	1	(RES.)	+VB1	9	1	+VB1		9	1	+VB1	
2	2	+IN1	+IN1	2	2	+IN1	+IN1	2	2	+IN1		3	2	-VB1	
10	3	-IN1	-IN1	10	3	-IN1	-IN1	10	3	-IN1		2	3	+IN1	
3	4	(+SUPPLY)	-VB1	3	4	(+SUPPLY)	-VB1	3	4	-VB1		10	4	-IN1	
11	5	+IN2	+SENSE1_1/4B1	11	5	+IN2	[+SENSE1_1/4B1]	11	5	I1_1/4B1*		11	5	I1_1/4B1*	
4	6	-IN2	-SENSE1	4	6	-IN2	-SENSE1	4	6	-SENSE1		4	6	-SENSE1	
12	7	(-SUPPLY)	+VB2	12	7	(-SUPPLY)	+VB2	12	7	+VB2		5	7	+IN2	
5	8	+IN3	+IN2	5	8	+IN3	+IN2	5	8	+IN2		13	8	-IN2	
13	9	-IN3	-IN2	13	9	-IN3	-IN2	13	9	-IN2		14	9	I2_1/4B2*	
6	10	GND*	-VB2	6	10	GND	-VB2	6	10	-VB2		7	10	-SENSE2	
14	11	+IN4	+SENSE2_1/4B2	14	11	+IN4	[+SENSE2_1/4B2]	14	11	I2_1/4B2*		12	11	+VB2	
7	12	-IN4	-SENSE2	7	12	-IN4	-SENSE2	7	12	-SENSE2		6	12	-VB2	
15	14	TEDS2	GND	15	15	TEDS_GND	(GND), TEDS_GND	15	14	(GND)		15	15	TEDS_GND	
8	17	TEDS3	+5V	8	18	(+5V)	(+5V)	8	17	(+5V)		8	18	(+5V)	
	13	TEDS1	TEDS1		13	TEDS1	TEDS1		13	TEDS1			13	TEDS2	
	18	TEDS4	TEDS2		14	TEDS2	TEDS2		18	TEDS2			14	TEDS1	
Case	15	CHASSIS	CHASSIS	Case	16	CHASSIS	CHASSIS	Case	15	CHASSIS		Case	16	CHASSIS	
Case	16	TEDS_GND	TEDS_GND	Case	17	CHASSIS	CHASSIS	Case	16	TEDS_GND		Case	17	CHASSIS	
					19	TEDS3									
					20	TEDS4									

* if SEN-SUPPLY with ±15V option then pin 6 is reference

[] : if SEN-SUPPLY with ±15V option then this pin = -15V

[] : 1/4 Bridge with UNI2-8, DCB2-8, B-8 and +SENSE with BR2-4

* if SEN-SUPPLY with ±15V option then this pin = -15V

Plastic				Metal connector				Plastic				Metal connector			
ACC/DSUB-TEDS-T4				ACC/DSUBM-TEDS-T4				ACC/DSUB-TEDS-I4 I2				ACC/DSUBM-TEDS-I4 I2			
DSUB-15 Pin	Terminal	TH-COUPLE RTD		DSUB-15 Pin	Terminal	TH-COUPLE RTD		DSUB-15 Pin	Terminal	CURRENT	CURRENT	DSUB-15 Pin	Terminal	CURRENT	CURRENT
9	1	+IREF		9	1	+I1		9	1	(RES.)	+SUPPLY1	9	1	(RES.)	+SUPPLY1
2	2	+IN1		3	2	(+SUPPLY)		2	2	+IN1	+IN1	2	2	+IN1	+IN1
10	3	-IN1		2	3	+IN1		10	3	-IN1	-IN1	10	3	-IN1	-IN1
3	4			10	4	-IN1		3	4	(+SUPPLY)	-SUPPLY1	3	4	(+SUPPLY)	-SUPPLY1
11	5	+IN2		11	5	+IN2		11	5	+IN2		11	5	+IN2	
4	6	-IN2		4	6	-IN2		4	6	-IN2		4	6	-IN2	
12	7			5	7	+IN3		12	7	(-SUPPLY)	+SUPPLY2	12	7	(-SUPPLY)	+SUPPLY2
5	8	+IN3		13	8	-IN3		5	8	+IN3	+IN2	5	8	+IN3	+IN2
13	9	-IN3		14	9	+IN4		13	9	-IN3	-IN2	13	9	-IN3	-IN2
6	10	-IREF		7	10	-IN4		6	10	(GND)	-SUPPLY2	6	10	GND	-SUPPLY2
14	11	+IN4		12	11	(-SUPPLY)		14	11	+IN4		14	11	+IN4	
7	12	-IN4		6	12	-I4		7	12	-IN4		7	12	-IN4	
15	14	TEDS2		15	15	-I3		15	14	TEDS2	TEDS_GND	15	15	TEDS_GND	TEDS_GND
8	17	TEDS3		18	18	TEDS4		8	17	TEDS3	(+5V)	8	18	(+5V)	(+5V)
	13	TEDS1		15	13	TEDS_GND			13	TEDS1	TEDS1		13	TEDS1	TEDS1
	18	TEDS4		14	14	+I3			18	TEDS4	TEDS2		14	TEDS2	TEDS2
Case	15	CHASSIS		16	16	+I4		Case	15	CHASSIS	CHASSIS	Case	16	CHASSIS	CHASSIS
	16	TEDS_GND		17	17	TEDS3			16	TEDS_GND	CHASSIS	Case	17	CHASSIS	CHASSIS
				19	19	TEDS2						Case	19	TEDS3	
				20	20	TEDS1						Case	20	TEDS4	
				21	21	-I1									
				22	22	+I2									
				23	23	-I2									
				Case	24	CHASSIS									