

• ADPT-PWR-INJ-TC
Power injector

XIMEA Accessories •
Technical Manual •
Version v260831 •

Introductions

About this manual

Dear customer,

Thank you for purchasing a product from XIMEA.

We hope that this manual can answer your questions, but should you have any further queries or if you wish to claim a service or warranty case, please contact your local dealer or refer to XIMEA Support on our website: www.ximea.com/support

The purpose of this document is to provide a description of XIMEA Accessories and to describe the correct way to install related software, drivers and run it successfully. Please read this manual thoroughly before operating your new XIMEA Accessories for the first time. Please follow all instructions and observe the warnings.

This document is subject to change without notice.

About XIMEA

XIMEA is one of the worldwide leaders for innovative camera solutions with a 30-year history of research, development and production of digital image acquisition systems. Based in Slovakia, Germany and the US, with a global distributor network, XIMEA offers their cameras worldwide. In close collaboration with customers XIMEA has developed a broad spectrum of technologies and cutting-edge, highly competitive products.

XIMEA's camera centric technology portfolio comprises a broad spectrum of digital technologies, from data interfaces such as USB 2.0, USB 3.1 and PCIe to cooled digital cameras with CCD, CMOS and sCMOS sensors, as well as X-ray cameras.

XIMEA has three divisions – generic machine vision and integrated vision systems, scientific imaging and OEM/custom.

Our broad portfolio of cameras includes thermally stabilized astronomy and x-ray cameras, as well as specialty cameras for medical applications, research, surveillance and defense.

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XIMEA is a worldwide operating company

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1 General description



Figure 1: Isometric view of ADPT-PWR-INJ-TC

The ADPT-PWR-INJ-TC can be used to provide sufficient power needed for optimal cooling performance to cameras from xiJ family either when the USB host controller does not support power delivery or longer cables are needed to connect the camera to the host.

The Micro-B connector is used for a standard USB3 connection to the computer host, the Type-C connector is used for a standard USB3 connection to the camera and AUX power connector is used to a power source.

WARNING: Only use with cameras from xiJ family. Do not use with other XIMEA cameras or non XIMEA products as it can damage them.

LED Description

LED	Color	Description
1	Blue	Orientation of Type-C connected cable
2	Red	Type-C Power EN#
3	Green	Adapter power

Table 1: LEDs description

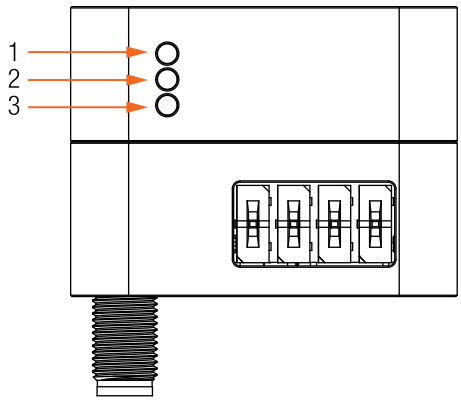


Figure 2: LEDs position

2 Dimensional drawings

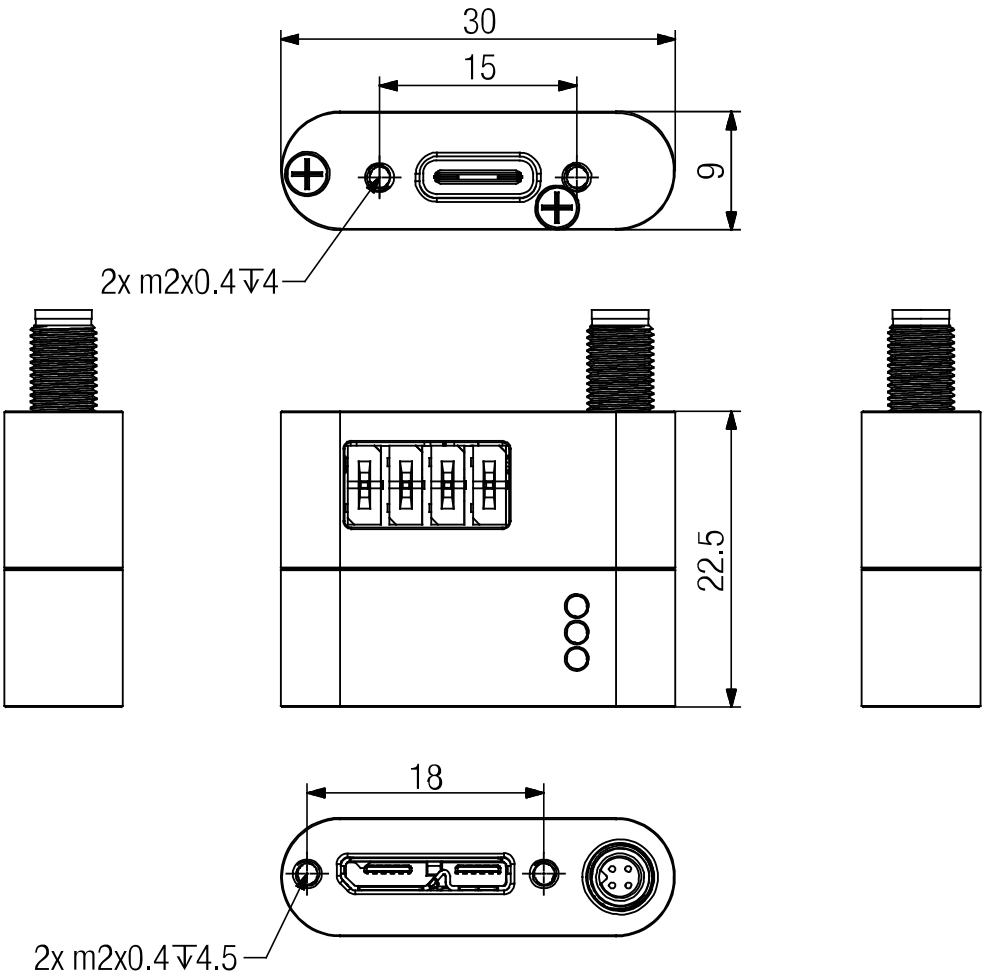


Figure 3: Dimensions of power injector ADPT-PWR-INJ-TC

Width [W]	Height [H]	Depth [D]	Material and technology
30 mm	29.2 mm	9 mm	Machined Aluminum alloy

Table 2: Parameters

3 Configuration

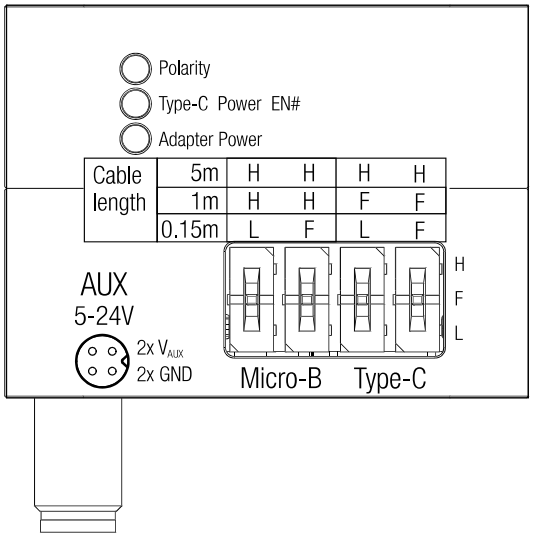


Figure 4: Laser markings and position of dip switches on power injector

Cable length	Dip switch configuration			
	Micro-B		Type-C	
5 m	H	H	H	H
1 m	H	H	F	F
0.15 m	L	F	L	F

Table 3: Power injector dip switch configuration

Example for 5 m Micro-B cable and 0.15 m Type-C cable with dipswitches in correct position:

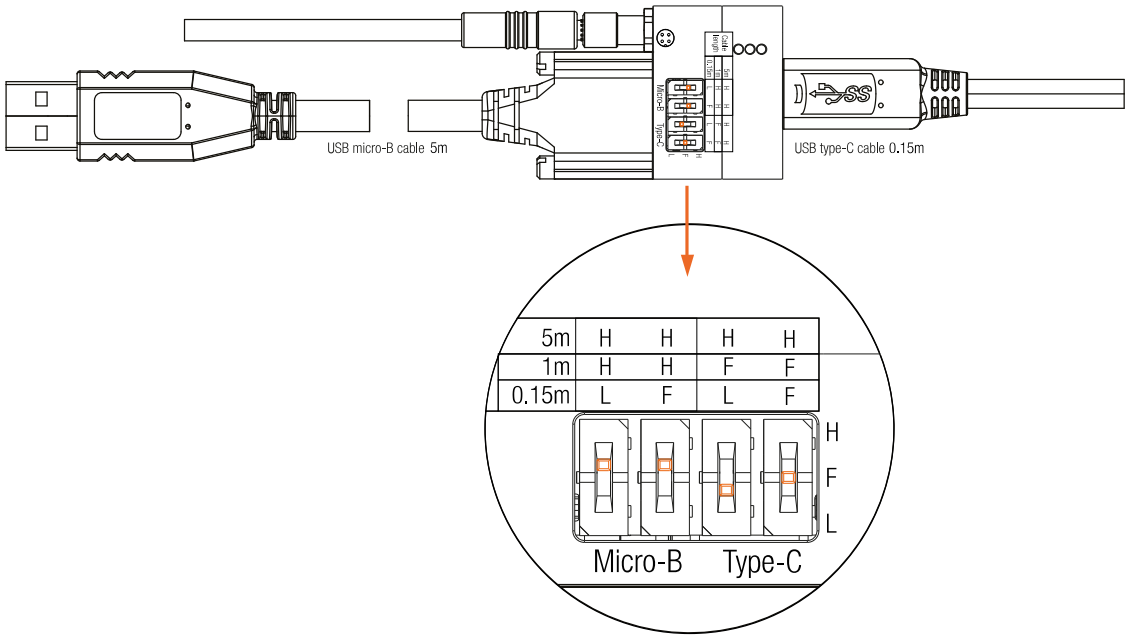


Figure 5: Example of dipswitches connection

4 Connectors

4.1 Location of connectors

Micro-B connector is placed on one side, Type-C connector and power connector are next to each other on the other side.

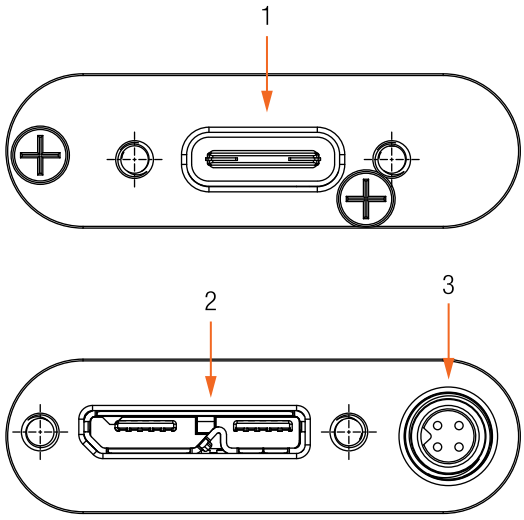


Figure 6: Opposite sides of power injector, Type-C and Micro-B with power connector

num.	connector
1	Standard USB 3.1 Gen 1 Type-C (device side)
2	Standard USB 3.1 Gen 1 Micro-B (host side)
3	Power connector

Table 4: Connectors description

4.2 Data interfaces

4.2.1 USB3 Micro-B

Item	Value
Connector	USB - micro B USB 3.0 (USB 3.1 Gen 1, Superspeed) Receptacle Connector 10 Position
Signals	USB 3.0/3.1 Gen 1 SuperSpeed, PWR, GND
Mating Connectors	Standard USB 3.1 Gen1 Micro-B Connector

Table 5: Micro-B connector general description

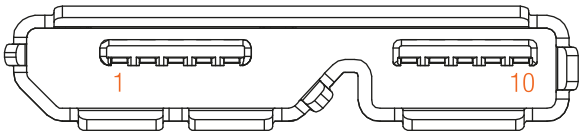


Figure 7: Micro-B pinout

Pin	Signal	Description
1	VBUS	Power
2	D-	USB 2.0 signal pair
3	D+	USB 2.0 signal pair
4	ID	OTG Identification
5	GND	Power Ground
6	SSTX-	USB 3.0 SuperSpeed transmitter signal pair
7	SSTX+	USB 3.0 SuperSpeed transmitter signal pair
8	GND_DRAIN	USB 3.0 signal Ground
9	SSRX-	USB 3.0 SuperSpeed receiver signal pair
10	SSRX+	USB 3.0 SuperSpeed receiver signal pair

Table 6: Micro-B connector pin assignment

4.2.2 USB3 Type-C

Item	Value
Connector	Standard USB Type-C
Signal	USB 3.1 Gen1, power, ground
Mating cables	Cables specified by USB Type-C specification

Table 7: USB3 Type-C connector description

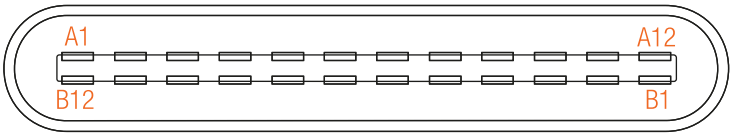


Figure 8: Type-C connector pinout

Pin	Signal	Description	Pin	Signal	Description
A1	GND	Ground return	B12	GND	Ground return
A2	SSTXp1	SuperSpeed differential pair #1, TX, pos.	B11	SSRXp1	SuperSpeed differential pair #2, RX, pos.
A3	SSTXn1	SuperSpeed differential pair #1, TX, neg.	B10	SSRXn1	SuperSpeed differential pair #2, RX, neg.
A4	V¬BUS	Bus power	B9	VBUS	Bus power
A5	CC1	Configuration channel	B8	SBU2	Sideband use (SBU)
A6	Dp1	Non-SuperSpeed diff. pair, position 1, pos.	B7	Dn2	Non-SuperSpeed diff. pair, position 2, neg.
A7	Dn1	Non-SuperSpeed diff. pair, position 1, neg.	B6	Dp2	Non-SuperSpeed diff. pair, position 2, pos.
A8	SBU1	Sideband use (SBU)	B5	CC2	Configuration channel
A9	VBUS	Bus power	B4	VBUS	Bus power
A10	SSRXn2	SuperSpeed differential pair #4, RX, neg.	B3	SSTXn2	SuperSpeed differential pair #3, TX, neg.
A11	SSRXp2	SuperSpeed differential pair #4, RX, pos.	B2	SSTXp2	SuperSpeed differential pair #3, TX, pos.
A12	GND	Ground return	B1	GND	Ground return

Table 8: USB3 type-C connector pin assignment

4.3 Power connector

Item	Value
Connector	Binder PN: 09 3111 81 04
Signals	Power input for injector and camera
Mating Connectors	Binder 79 3108 52 04
Mating Cables	XIMEA PN: CBL-MJ-PWR-2M0

Table 9: Power connector description

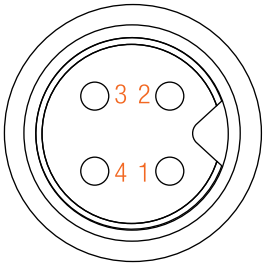


Figure 9: Power connector pinout

Pin	Name	Signal	Technical description
1	GND	Power ground	-
2	AUX PWR	Power supply input	5 to 24 V
3	AUX PWR	Power supply input	5 to 24 V
4	GND	Power ground	-

Table 10: Power connector pinout

Note: The max power consumption of the ADPT-PWR-INJ-TC itself is 1.3 W. The overall power consumption (injector + camera) depends on the connected camera model (for values please refer to the technical manual of the connected camera).

5 Additional information

5.1 Cables

5.1.1 CBL-MJ-PWR-2M0

2.0 m AUX power cable for use with power injector DPT-PWR-INJ-TC. CBL-MJ-PWR-2M0 cable ends with barrel connector - pigtail allows easy extension in length. Recommended voltage for cable use is 20 V with range 12 to 24 V

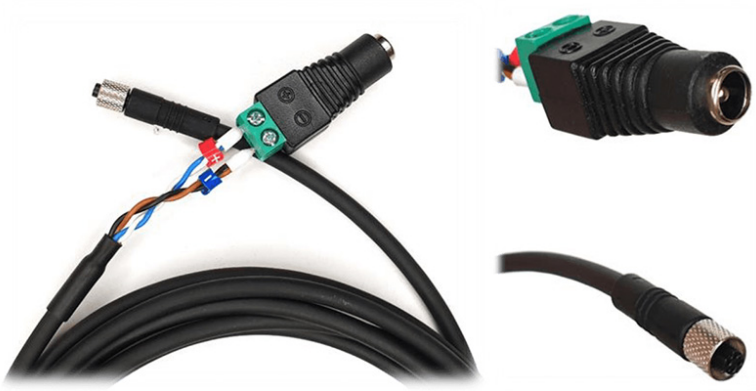


Figure 10: CBL-MJ-PWR-2M0

5.1.2 CBL-U3-P-TC-xM

USB 3.2 Gen 1 black cable with Type-C to Type-C connectors and vertical locking screw. Cables are vailable in two length - 1.0 m or 2.0 m length with part number: CBL-U3-P-TC-1M0 or CBL-U3-P-TC-2M0



Figure 11: CBL-U3-P-TC-xM

6 Quickstart guide

6.1 Hardware setup

6.1.1 Essential components

It is important that the power is turned off when inserting/detaching the cables. General ESD precautions need to be applied. Failing this requirement may lead to product damage.

- camera
- host PC
- power adapter
- USB micro-B cable (CBL-U3-1M0 / CBL-U3-3M0 / CBL-U3-5M0)
- USB type-C cable (CBL-U3-P-TC-xM)
- power cable (CBL-MJ-PWR-2M0)

6.1.2 Connecting the components

Step 1. Connect USB micro-B cable (CBL-U3-1M0 / CBL-U3-3M0 / CBL-U3-5M0) to power injector (ADPT-PWR-INJ-TC)

Step 2. Connect USB A (CBL-U3-1M0 / CBL-U3-3M0 / CBL-U3-5M0) to PC

Step 3. Connect power cable (CBL-MJ-PWR-2M0) and power on

Step 4. Connect USB type-C cable (CBL-U3-P-TC-xM) to power adapter

Step 5. Connect USB type-C cable to the camera

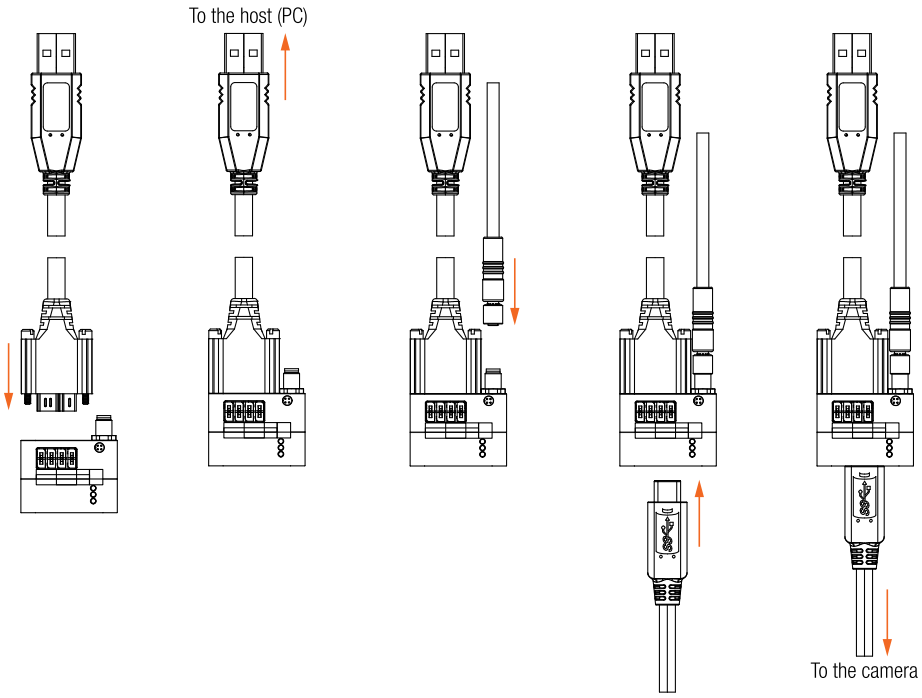


Figure 12: Connecting steps

For more information about ADPT-PWR-INJ-TC please contact: sales@ximea.com.

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