

IntegraBus  
PCT-ACH-xxx  
Hybrid USB type-A and USB type-C Charger

Datasheet  
Rev. 04

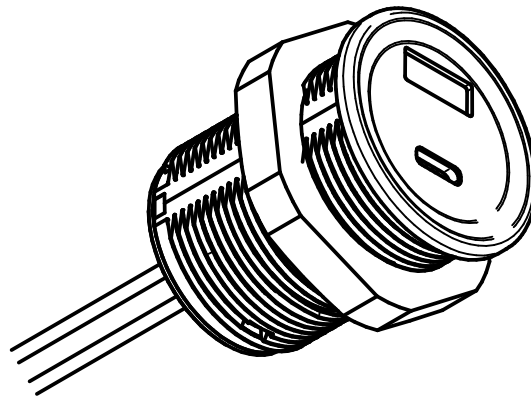


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## 1. Product Overview

The PCT-ACH-xxx hybrid USB type-A and USB type-C charger module intended for use in buses/coaches. It allows two connected and charged device in same time.

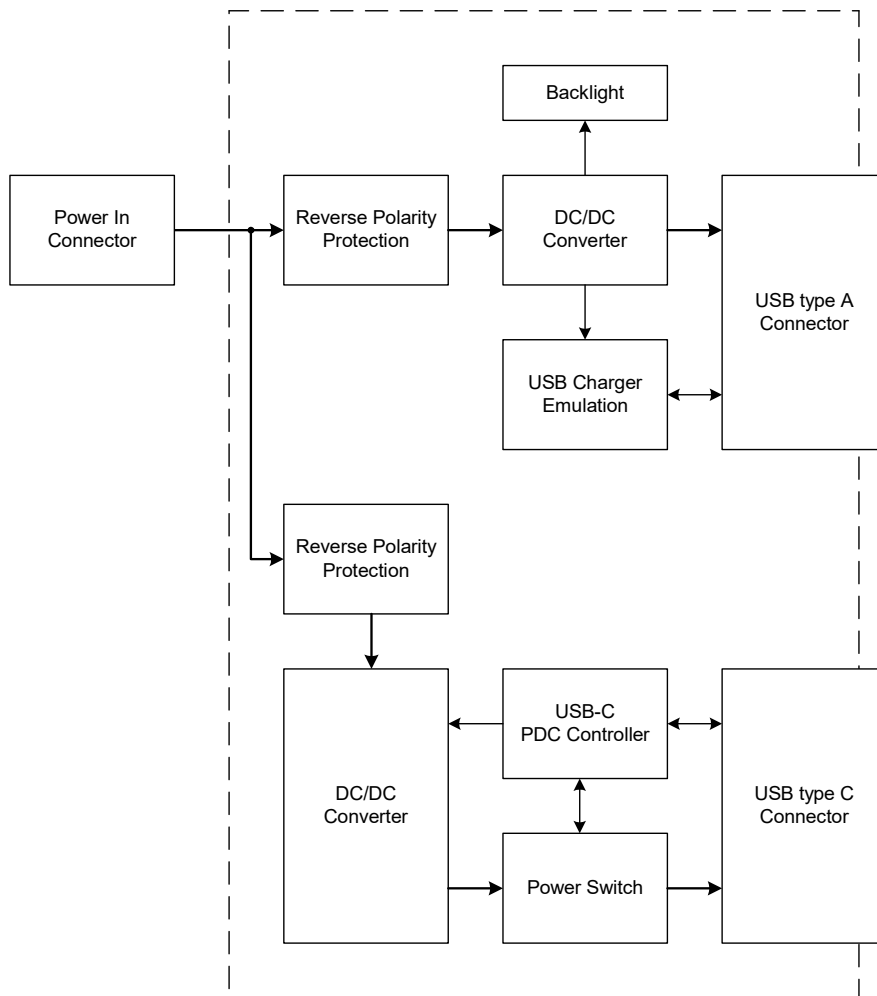
The charger has a USB type-A port and a high-power USB type-C port. These ports can be used with most of the popular mobile devices.

The USB type-C port is designed especially for charging high power mobile devices like new generation notebooks.

## 2. Electrical Specification

		Min.	Norm.	Max	
1.	Supply Voltage	22	24	40	V
2.	Operating Temperature	-40		+85	°C
<b>USB type-A Port</b>					
3.	Output Voltage	4.75	5	5.25	V
4.	Output Current (@ 5V output voltage)			2.5	A
5.	Efficiency of USB-A port	87			%
6.	Output Power			12.5	W
<b>USB type-C Port</b>					
7.	Output Voltage	4.75	5	5.25	V
		8.50	9	9.50	
		11.4	12	12.6	
		14.2	15	15.8	
		18.8	20	21.2	
8.	Output Current	at 5V output voltage		3.0	A
		at 9V output voltage		3.0	
		at 12V output voltage		2.5	
		at 15V output voltage		2.0	
		at 20V output voltage		1.5	
9.	Efficiency of USB-C port	92			%
10.	Output Power			30	W
<b>Backlight</b>					
11.	Backlight		White		

### 3. System Diagram



### 4. Functional Description

Features:

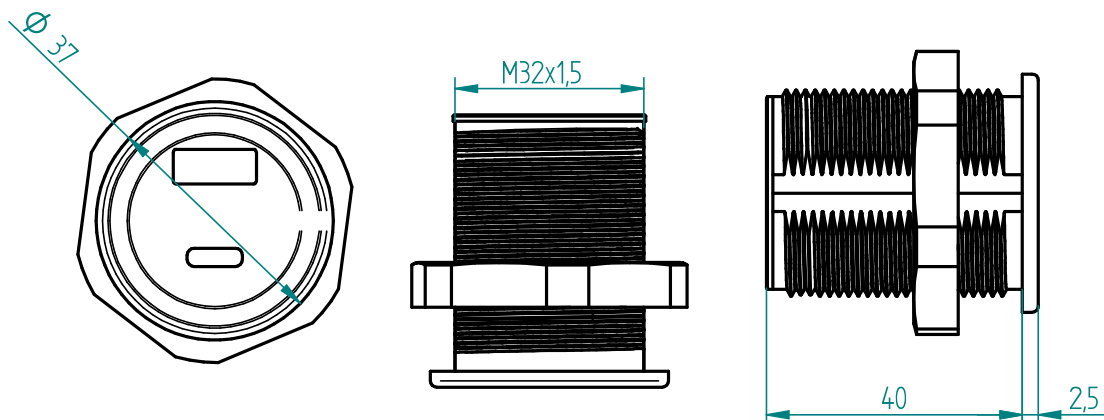
- Two mobile devices can be charged simultaneously
- Standard USB type-A and USB type-C connector outputs
- USB type-A output can supply 2.5A current maximum at 5V output voltage
- USB type-C output can supply 30W power maximum at 20V output voltage
- Easy to install
- Supported mobile devices:
  - o iPod, iPhone, iPad
  - o Android phones and tabs
  - o Notebooks with USB type-C charging capability
- Supported Charge Profiles On USB type-A connector:

- Divider 1 DCP, (required to apply 2 V and 2.7 V on D+ Line on the D+ and D– Lines)
- Divider 2 DCP, required to apply 2.7 V and 2 V on the D+ and D– Lines
- Divider 3 DCP, required to apply 2.7 V and 2.7 V on the D+ and D- Lines
- BC1.2 DCP, required to short the D+ Line to the D– Line
- Chinese Telecom Standard YD/T 1591-2009 Shorted Mode, required to short the + Line to the D– Line
- 1.2 V on both D+ and D– Lines
- Standard USB type-C Power Delivery (PD) compatibility
- Available charging powers on USB type-C connector:
  - 15W at 5V output voltage
  - 27W at 9V output voltage
  - 30W at 12V output voltage
  - 30W at 15V output voltage
  - 30W at 20V output voltage
- Automotive environment compatible design
- Overcurrent protection, overvoltage protection, thermal protection

## 5. Certification

ECE R10 certification:	E-24 10R-041054
ECE R118 certification:	Housing weight is less than 15 g, application of R118 is not necessary on housing, Power cable is R118 certified.

## 6. Mechanical Specification



## 7. Installation

The installation requires a round hole of 32 mm (1 1/4") diameter.

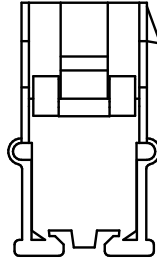
## 8. Ordering Codes

		PCT - ACH -	
PCT	Procharge Tube charger	←	┌───┐
ACH	USB type-A + USB type-C charger High power	←	└───┘
<b>Connector options:</b>		←	┌───┐
T	Tyco connector		
M	Molex Microfit 3.0(TM) connector		
F	FF250 connector		
X	No connector		
<b>Wire length options:</b>		←	└───┘
03	300mm		
08	800mm		
10	1000mm		
16	1600mm		
<b>Cable protection options:</b>		←	┌───┐
S	Shrinking tube		
N	Plastic protector tube		
X	No additional cable protection		

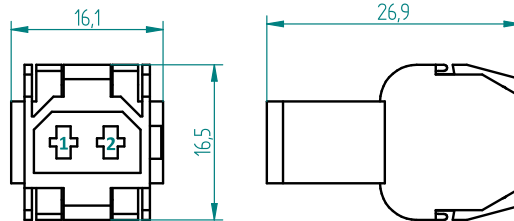
## 9. Connector Pinouts

### Connector option “ - T”:

Housing: Tyco 964586  
Terminal: Tyco 964273-2

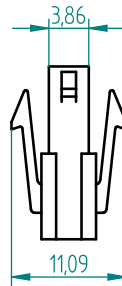


Pin	Wire	Function
1	RED	+12 – 24V Input
2	BLACK	GND Input

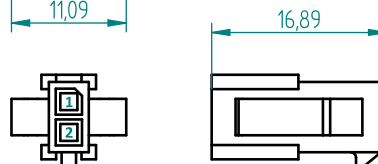


### Connector option “ - M”:

Housing: Molex 430200208  
Terminal: Molex 43031

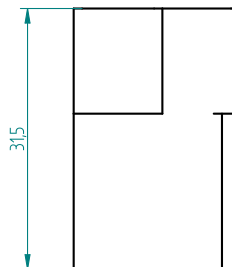


Pin	Wire	Function
1	RED	+12 – 24V Input
2	BLACK	GND Input

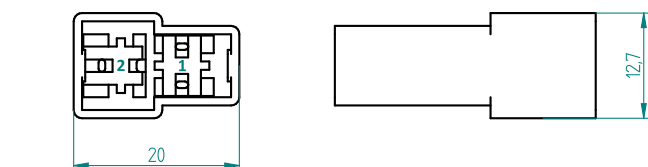


### Connector option “ - F”:

Housing: Tyco 180908  
Terminal: Tyco 293041



Pin	Wire	Function
1	RED	+12 – 24V Input
2	BLACK	GND Input



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## 10.Document History

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rev	History	Date	Author
R04	Updated drawings Bandaged cable option is no more available	2022.09.25.	epapp
R02	Updated electrical specification: 3.1 Supply voltage 3.7 USB-C output current	2021.10.01.	epapp
R01	First release	2020.12.03.	epapp