Application Note AN1906 I/O Interface Manual for the Plattform 6 Product Family

Exported on 17.01.2020

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0 History

Date	Revision	Author	Comments
August 2019	1.0	CS	First Release

Table 1: History

0.1 Related Documents

No.	Name	Remarks
1	PTCarPhone 6 Quick Reference Guide	Download from www.peitel.de
2	PTCarPhone 6 User Manual	Download from www.peitel.de
3	AN1905 Platform 6 Command Description	Download from www.peitel.de
4	PTCarPhone 6 Installation Instructions	Download from www.peitel.de

Table 2: Related Documents

1 Introduction

This documentation describes the digital input and outputs (I/O for Input/Output) of the Platform 6 product family, which includes the **PTCarPhone 6 Series** and the **PTVoiceBox 6 Series**. To make things easier and out of habit, the product is called "PTCarPhone" in this document.

The digital inputs for example can be controlled by an external button, which triggers pre-programmed phone calls, an SMS to be sent or sets the volume of the external speakers.

Digital outputs toggle a signal at either incoming SMS, incoming call, switching on of the phone or phone ringing.

2 Application Scenarios

Possible application scenarios proven by the predecessor models of the PTCarPhone:

- Door release control of valuables-in-transit vans by SMS command
- Panic button
- Lightening up of a rotating beacon at incoming call
- Volume control
- Microphone mute

3 I/O Interface Description

> **CAUTION**
> The respective operating voltage of the vehicle electrical system is applied to the I/O connection. Please keep this in mind when selecting your I/O components.

The six programmable inputs and outputs of the PTCarPhone offer the possibility of the phone being used as a control unit for vehicle accessories.

A suitable plug for the I/O interface is part of the I/O Cable Kit (Art-No: 6708-004-000-00).

The I/O Cable Kit contains 12 strands and a plug housing. The crimped contacts of the strands are pushed into the plug housing as needed.

Specifications:

- Model: Open-Drain output (wired ground) with recovery diode / input with 15 kOhm pull-up resistor against the device operating voltage
- Only ohmic and inductive loads are allowed (no capacitive loads!)
- Maximum current carrying capacity: 100 mA per connection
- Dielectric strength smaller than/equal to the connected device operating voltage (however, max. 32 V)
- Recovery diode for relay (inductive loads) included; use of device-specific power supply (pins 4, 5, 6) is required for this

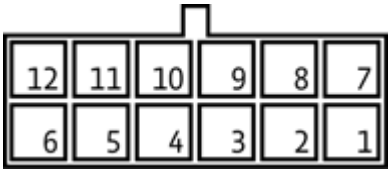

Figure 1: I/O Connections (top view)

Pin	Signal
1, 2, 3	GND
4, 5, 6	U_B+
7 to 12	I/O 1 to 6

Table 3: Pin Assignment

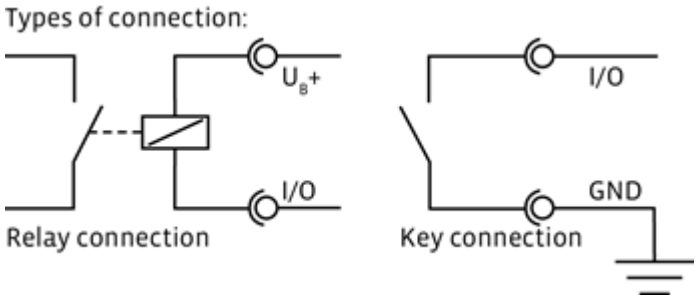

Figure 2: Types of Connection

4 Configuration of the I/Os in the PTCarPhone Menu

The PTCarPhone offers six digital inputs and outputs. Each connection can be used either as an input or as an output. Inputs are marked with a green sign 🟢, outputs are marked with a red sign 🔴.

Configuration of the I/O connections using the handset:

System > **Configuration** > *device code input* > **Digital I/O**

The device code at delivery is: 0000

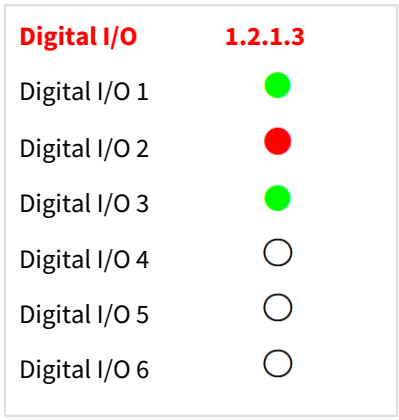

Figure 3: PTCarPhone Menu Digital Inputs and Outputs

> **Note**
> We strongly recommand to make a note of the I/O programming for further reference. Software updates or repair of the device might erase the settings and also, once the device is build-in, it is difficult to figure out, which wire goes where.

4.1 Structure of the PTCarPhone Menu

Digital input:

- Panic key (I/O 2 and 6 only)
  - Sending SMS
    - Write
    - Add number
  - Phone call
    - Add number
- Sending SMS
  - Write
  - Add number
- Hangup/Answer call
- Volume +

- Volume –
- PTT

Digital output:

- Ring indic.
- Phone ON
- Active call
- Switch

Reset

4.2 Description of each Feature

Inputs:

- **Panic key (I/O 2 and 6 only):** An external button wakes up the phone and reports an emergency (by SMS or call)
- **Sending SMS:** Provided the phone is switched on, an external button sends an SMS
- **Hangup/Answer call:** An external button answers and hangs up the phone; only for calls using the hands-free system
- **Volume +:** An external button increases the volume of the external speaker by one step; only during a phone call over the hands-free system
- **Volume -:** An external button decreases the volume of the external speaker by one step; only during a phone call over the hands-free system
- **Mute:** An external button mutes and unmutes the microphone

Outputs:

- **Ring indic.:** Indicates the ringing of the phone (cyclic indication, about 2.5 seconds signal on, about 2.5 seconds signal off)
- **Phone ON:** Indicates the switch-on of the phone
- **Active call:** This output is pulled during an active call
- **Switch:** When this option is enabled, the output can be enabled or disabled by SMS

4.3 Additional Information

4.3.1 Structure of the SMS for the Output Port Switch

Command for setting the switching output:

Syntax
`AT*PSOUT=o,x`

Parameter

```
o: Output

// 1-6

x: New switch mode

// 0: Output OFF
// 1: Output ON
// 2: Output ON for 5 seconds
```

Reply

```
OK

// Output port switch was set.
```

Example

```
AT*PSOUT=1,2
OK
```

Structure of the SMS

```
AT*PSOUT="online password",o,x
```

> **Note**
> The default online password is composed of the last six digits of the IMEI number.

Sample SMS

```
AT*PSOUT="peitel",1,2
```

This SMS generates an **answer SMS** from the PTCarPhone:

Answer SMS

```
*PSOUT:1,2
```

4.3.2 Inserting Positioning Information into a Panic SMS

It is possible, to include the information of the position in a panic SMS (Only if "Hidden Emergency Call" is disabled).

Just add the placeholder

!position

to the SMS. In place of the placeholder, the phone is adding a complete tracking set including date, time, latitude, longitude, GPS-fix, quality, speed and direction.

For devices without GPS text NO GPS DEVICE is inserted. If a GPS device does not have a valid position, the text NO GPS POSITION is inserted.

Example:

The original text

```
Alarm position: !position license plate XYZ
```

generates the SMS

```
Alarm position: 16.03.31 17:21:15 52.3081, …    … license plate XYZ
```

If only the position shall be transmitted, only the placeholder is entered.

4.3.3 The Purchase Feature "Hidden Emergency Call"

Two existing I/O connections (ports) can be programmed as a panic function. By activating the extra **"Hidden Emergency Call"**, the current functionality is extended.

Conditions:

1. At least one of the I/O ports (2 or 6) needs to be programed to the panic function
2. The panic input is assigned to a phone number
3. Optional: If done a signalling of active panic call (for example by using an LED), the associated I/O* port (1 or 5) is put on **"Active Call"**.

***The following assignments are provided:**

Panic button on I/O port 2 → signal output I/O port 1

Panic button on I/O port 6 → signal output I/O port 5

In this case, the signalling takes place only at a panic call. For the signalling of a normal call, other I/O ports need to be used.

Handling

The panic call is triggered by pressing the corresponding external button for more than 1 s. As a result, the PTCarPhone establishes a call to the programmed number. If the call is accepted, it is signalled via the associated I/O port.

During the call, the telephone audio is turned off. Input from the handset will not be processed. The microphone is activated and the other party can hear. Further incoming calls are rejected with a busy signal. A signalling of an incoming call does not take place.

The panic call can be terminated by the other party or pressing the button for more than 3 s. The phone returns to the standard mode and can be operated again normally.

4.3.4 The Purchase Feature "PTT"

A PTT (Push-to-Talk) button can be connected and used with the PTCarPhone to make it appear like a radio device, provided that you have the model PTCarPhone 6 CC and the extra "PTT" is activated.

4.3.4.1 Check the Extras Menu

System > **Configuration** > *device code input* > **Extras**

The circle after PTT must be green for the extra to be available and activated.

For more information on extras, please check the "*User Manual PTCarPhone 6 Series*" availible on www.peitel.de.

4.3.4.2 Connect the PTT Button

Connect one of the PTT button's wires to one of the I/Os (see Figure 1 and Table 3) and one wire to ground (GND).

Then configure the respective I/O as an Input and for PTT use:

System > **Configuration** > *device code input* > **Digital I/O** > *select a free Digital I/O* > **Digital input** > **PTT**

> **Note**
> Once the PTT feature is set up and configured, it is only possible to talk over the phone when pressing the PTT button. Make sure all users are aware of this feature.

END OF DOCUMENT