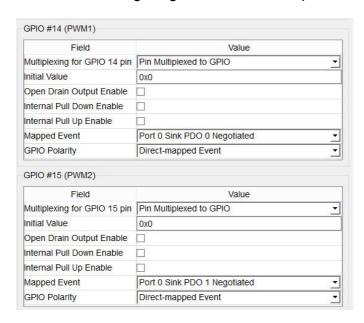# Summary TPS65987 Issue – Start September-26 2022

I'm using the TPS65987D in an UFP application and I'm trying to solve the following task:

The application is using 5V supply only depending on the current (1.5A or 3.0A) the source can supply the application should act in two different ways.

What I did:

- I defined 2 PDOs as shown in the picture "Define PDOs.jpg"
- I configured GPIO #14 / GPIO #15 as shown in the picture "Config GPIO14_15.jpg"
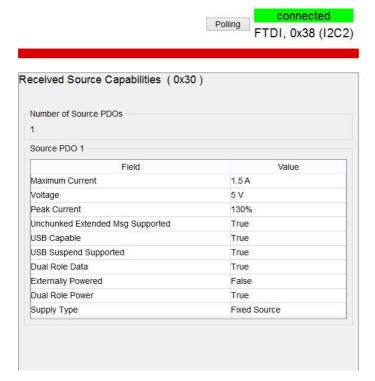
  GPIO #14 should get high if the source can provide 1.5 A only
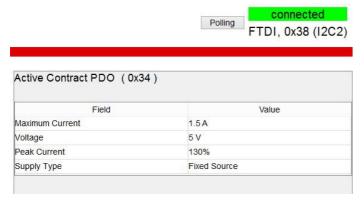 GPIO #15 should get high if the source can provide 3.0 A

Results:

1. If I connect to a source with 5V/1.5A max GPIO #14 becomes high => O.K.
   In Debug-Mode please see following pictures

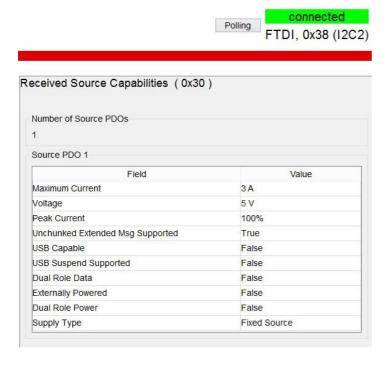   "Received Source Capabilities_Source PDO 1_5V-1A5.jpg"

"Active Contract PDO 5V_1A5-Source.jpg"

	connected
Polling	FTDI, 0x38 (I2C2)

Active Contract PDO (0x34)

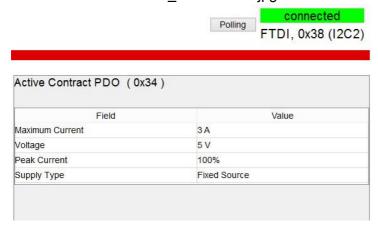| Field	Value
Maximum Current	1.5 A
Voltage	5 V
Peak Current	130%
Supply Type	Fixed Source

2. If I connect to a source with 5V/3.0A max also GPIO #14 gets high BUT NOT GPIO #15
   In Debug-Mode please see following pictures

"Received Source Capabilities_Source PDO 1_5V-3A0.jpg"

	connected
Polling	FTDI, 0x38 (I2C2)

Received Source Capabilities (0x30)

Number of Source PDOs

1

Source PDO 1

Field	Value
Maximum Current	3 A
Voltage	5 V
Peak Current	100%
Unchunked Extended Msg Supported	True
USB Capable	False
USB Suspend Supported	False
Dual Role Data	False
Externally Powered	False
Dual Role Power	False
Supply Type	Fixed Source

"Active Contract PDO 5V_3A0-Source.jpg"

	connected
Polling	FTDI, 0x38 (I2C2)

Active Contract PDO (0x34)

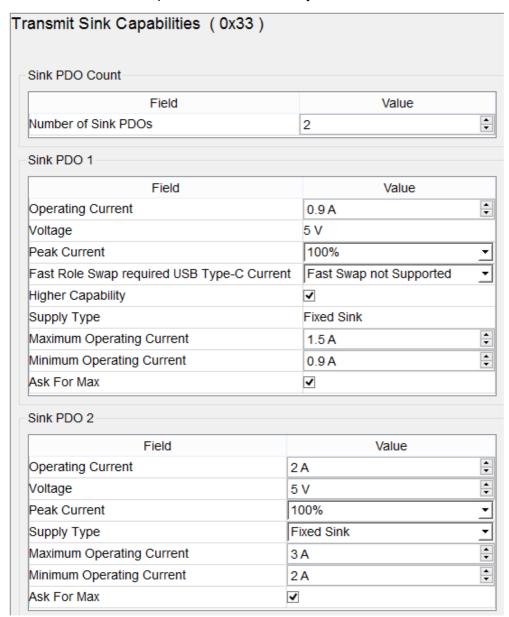| Field	Value
Maximum Current	3 A
Voltage	5 V
Peak Current	100%
Supply Type	Fixed Source

Initial Questions:
- Why is GPIO #15 not getting high in case I connect to a 5V/3.0A Source?
- If the above approach doesn't work at all, is there any other possibility to differentiate between 5V/1.5A and 5V/3.0A source capabilities?
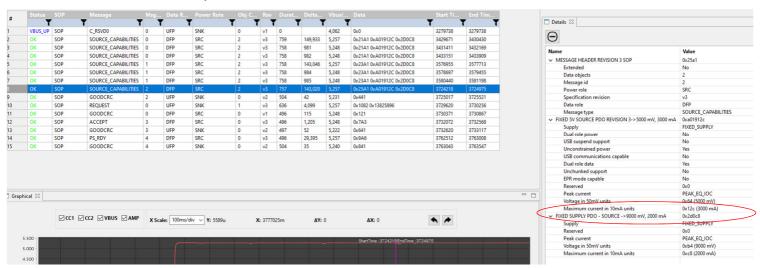
Further step:
Using a PD-Analyzer

The transmitted sink capabilities have been adjusted as follows:

Transmit Sink Capabilities (0x33)

Sink PDO Count

Field	Value
Number of Sink PDOs	2

Sink PDO 1

Field	Value
Operating Current	0.9 A
Voltage	5 V
Peak Current	100%
Fast Role Swap required USB Type-C Current	Fast Swap not Supported
Higher Capability	✔
Supply Type	Fixed Sink
Maximum Operating Current	1.5 A
Minimum Operating Current	0.9 A
Ask For Max	✔

Sink PDO 2

Field	Value
Operating Current	2 A
Voltage	5 V
Peak Current	100%
Supply Type	Fixed Sink
Maximum Operating Current	3 A
Minimum Operating Current	2 A
Ask For Max	✔

I'm using a simple USB-Power-supply with 5V/3000mA and 9V/2000mA

See the transmitted source capabilities below

As the PD analyzer shows, the TPS65987D is only requesting 5V/ 1500mA (PDO0) and not 5V/3000mA (PDO1)