



Next Generation Intelligent LCDs

# DPA-TCPIP Specification

DPA-TCPIP  
DPA-TCPIP-POE-33  
DPA-TCPIP-POE-50

Version 1.3

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## **General Description**

DPA-TCPIP-xx is an add-on interface board for the iLCD panels, which enables Ethernet functionality. It can be used with iLCD panels that include the DPC3080 or DPC3090 controllers. A TCP/IP board can interface to the following iLCD panels:

- **iLCD panels with DPC3080:**  
DPP-CxP3224-2, DPP-Cx4827, DPP-CT3224-2, DPP-Cx6448, DPP-Cx8048, DPP-Cx1060
- **iLCD panels with DPC3090:**  
DPP-CxP3224A, DPP-x43, DPP-Hx50, DPP-x57, DPP-Cx8048A, DPP-x70, DPP-Cx1060A, DPP-C102

The DPA-TCPIP-xx supports both 10BASE-T and 100BASE-TX.

Also Auto-MDIX (automatic medium-dependent interface crossover) is supported. The Auto-MDIX networking technology automatically detects the required cable connection type (straight-through or crossover) and configures the connection appropriately. Both types of cable can be used and the interface automatically corrects any incorrect cabling.

If you want to know how to communicate with the iLCD panel via Ethernet, please have a look at the Ethernet Application Note: [http://www.demmel.com/download/ilcd/ethernet\\_appnote.pdf](http://www.demmel.com/download/ilcd/ethernet_appnote.pdf)

## **Power supply**

The DPA-TCPIP (without PoE) is supplied via the iLCD panel and no extra power supply is required. The iLCD panel itself has to be supplied via the Control FFC connector if no Power over Ethernet is used.

If you are using Power over Ethernet, please refer to "Power over Ethernet" on page 3.

## **Mechanical Specification**

Item	DPA-TCPIP-xx	Unit
Module Dimension	48.0 x 66.0	mm
Total Module Thickness	19.0	mm

## **Maximum Ratings**

Item	Symbol	Minimum	Maximum	Unit
Supply Voltage (PoE) <sup>1)</sup>	$V_{CC}$	-0.3	60	V
Operating Temperature	$T_{OPR}$	-20	70	°C
Storage Temperature	$T_{STR}$	-20	80	°C

<sup>1)</sup> For DPA-TCPIP-POE-33 and DPA-TCPIP-POE-50 the maximum supply voltage via the Ethernet cable. DPA-TCPIP does not support power over Ethernet!

## **DC Electrical Characteristics**

DC Characteristics	Min	Typ	Max	Units	Module
Nominal Output Voltage <sup>1)</sup>	3.1	3.3	3.5	V	DPA-TCPIP-POE-33
	4.75	5.0	5.25	V	DPA-TCPIP-POE-50
Output Current <sup>2)</sup>			1.8	A	DPA-TCPIP-POE-33
			1.8	A	DPA-TCPIP-POE-50
TCPIP Board Current <sup>3)</sup>		110		mA	DPA-TCPIP-xx

<sup>1)</sup> Typical figures are at 25°C with a nominal 48V supply via Power over Ethernet.

<sup>2)</sup> The maximum output current of the PoE module without the iLCD panel and the TCPIP board itself.

<sup>3)</sup> The current consumption of the TCPIP Board itself supplied with 3.3V.

## **Power over Ethernet**

With Power over Ethernet you can supply the iLCD panel via an Ethernet cable. This enables you to use the iLCD panel with a single Ethernet cable carrying data and power.

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**iLCD panels are designed to operate with 5V supply voltage. To enable an iLCD panel to be supplied with 3.3V instead please contact demmel products in advance.**

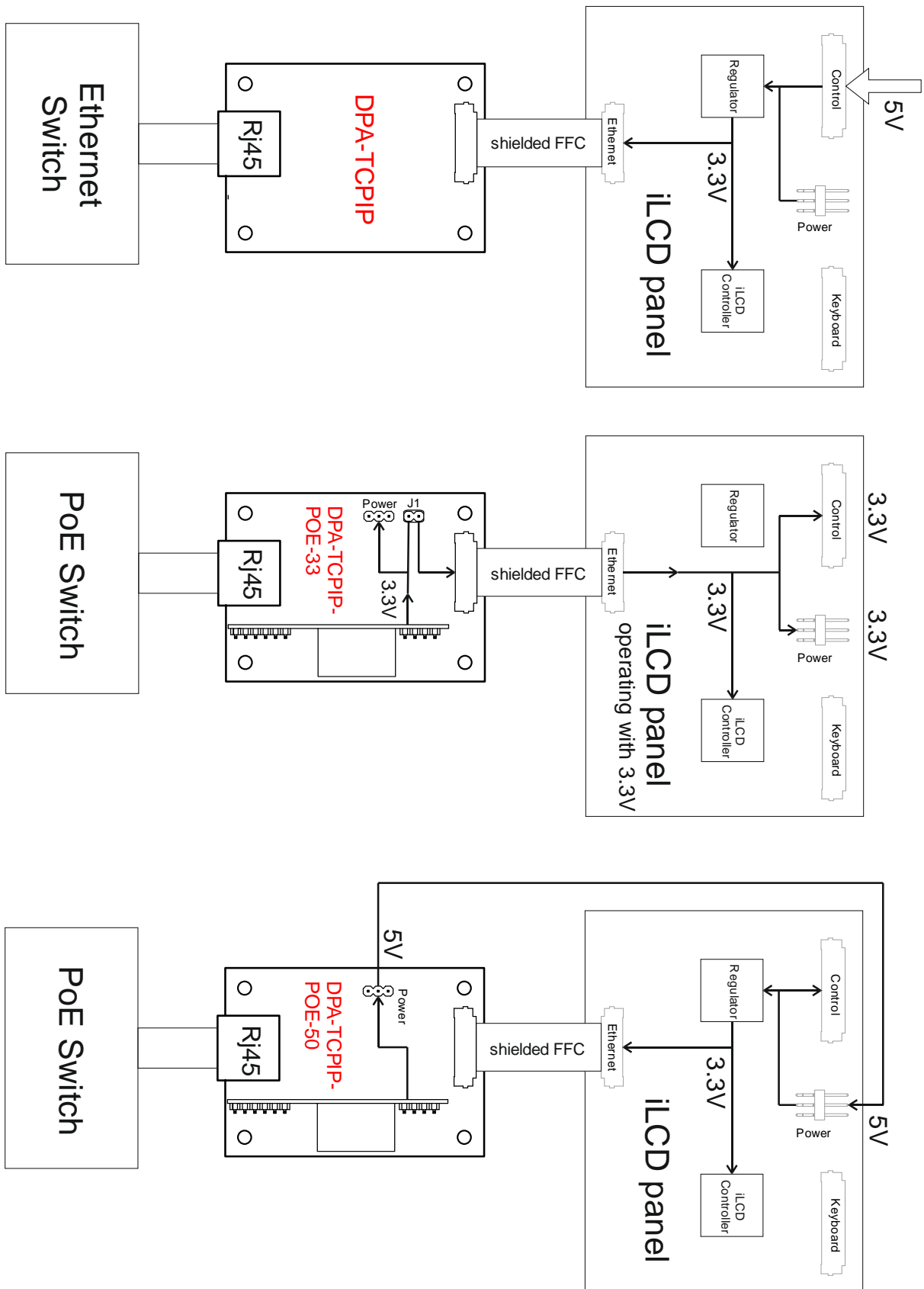
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There are 3 variants of the TCPIP Board differing in the Power over Ethernet functionality only:

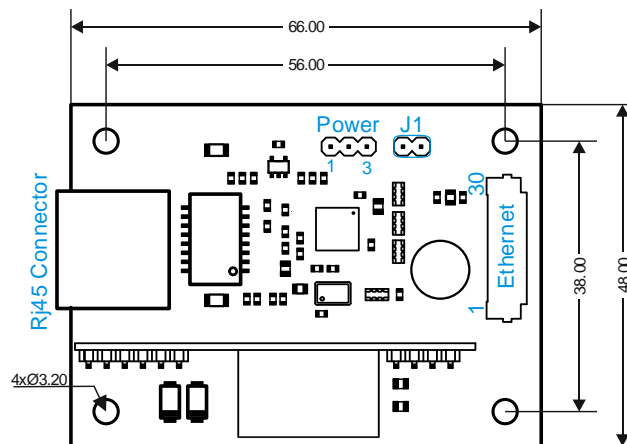
- **DPA-TCPIP:** Has no Power over Ethernet functionality. The DPA-TCPIP will be supplied via the iLCD module via the FFC (Flat Flexible Cable). The iLCD panel itself must be supplied via the Control FFC connector or via the 3-pin Power connector.
- **DPA-TCPIP-POE-33:** Power over Ethernet with regulated 3.3V output voltage. This board can be used with 3.3V powered iLCDs only! The iLCD panel will be supplied via the FFC or via a 3-pin cable.
- **DPA-TCPIP-POE-50:** Power over Ethernet with regulated 5V output voltage. This board can be used with 5.0V powered iLCD panels. The iLCD panel must be supplied via the 3-pin cable connected to the DPA-TCPIP on the one side and the 3-pin Power connector located on the iLCD panel on the other side. Supplying the iLCD via the FFC is not possible in this case.

See the details about how to connect the power supply on the following graphics.

### Details of Power Supply Modes



## Connectors and Jumpers



### Power Connector (Power)

The power connector is populated on the DPA-TCPIP-POE-33 and DPA-TCPIP-POE-50 only and supplies an output voltage of 3.3V or 5V.

Pin #	Pin Name	Direction	Primary Function Description
1	GND	-	Ground pin
2	VCC	-	5V or 3.3V power supply (see section Power over Ethernet)
3	GND	-	Ground pin

### PoE Supply Jumper (J1)

The Jumper J1 is populated on the DPA-TCPIP-POE-33 only. If Jumper J1 is set the iLCD panel is supplied via the FFC.

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**Do not set the jumper on the DPA-TCPIP-POE-50 otherwise the iLCD panel and the DPA-TCPIP can be damaged!**

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**WARNING! If you supply the iLCD panel with Power over Ethernet via the FFC, do not supply the iLCD panel via the Control FFC connector or the 3-pin Power connector of the iLCD panel. Two power supplies can cause serious damage and can destroy the iLCD and the DPA-TCPIP module.**

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### Ethernet FFC Connector (Ethernet)

The DPA-TCPIP is connected with the iLCD panel via a 30 pin FFC with 150 mm length and 0.5 mm pitch. It is included in delivery.

### RJ45 Connector (RJ45 Connector)

Connect a standard Ethernet cable with a RJ45 connector (8P8C) here.

## **Revision History**

Date	Rev. #	Revision Details
October 4, 2010	1.0	First Issue
February 16, 2011	1.1	Added section Power Supply
May 13, 2011	1.2	Changes section Power over Ethernet
August 30, 2017	1.3	iLCDs with DPC3090, editorial changes

If you find any errors in this document, please contact demmel products at [support@demmel.com](mailto:support@demmel.com)