

# PanL70 (PD70) Touch Display Datasheet



## 1 Introduction

The PanL70 Touch Display provides users an intuitive interface option to monitor and trigger control events when working alongside PanL Hub. Unlike mobile devices that usually requires recharging, the display can be placed at highly accessible areas with continuous power supply from PanL Hub through an Ethernet cable. PD70 is built with 7 inch full color TFT LCD powered by Bridgetek's very own Embedded Video Engine (EVE) Graphic Controller chip that enables rich and intuitive multi touch GUIs displays.

### 1.1 Features

PanL70 (PD70) has the following features:

- Integrated FT903Q 32-bit RISC microcontroller (MCU) with high speed performance
- In-built advanced BT815 graphics controller with display, touch and audio functionality
- 7.0" high brightness TFT LCD (800\*480 pixels) with capacitive 5 touch supported

- Ambient Light Sensor
- Built In Buzzer
- Two RJ45 Ports support RS485 Interface to PanL Hub, PanL Terminator, daisy chain to another PanL70 Touch Display or other PanL Devices
- Powered by PanL Hub at 24V DC Input through either RJ45 port
- Operating temperature range : 0°C to +55°C



## 2 Ordering Information

Part No.	Description
PD700000A	7" PanL Landscape LCD Display

**Table 1 – PanL70 (PD70) Touch Display - Part Number**

## **Table of Contents**

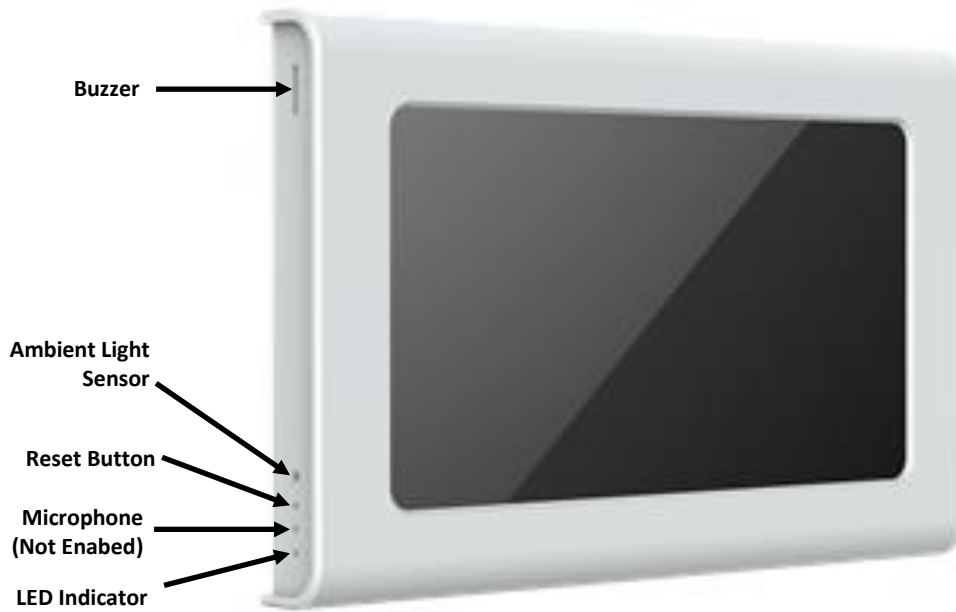
<b>1</b>	<b>Introduction .....</b>	<b>1</b>
1.1	Features.....	1
<b>2</b>	<b>Ordering Information .....</b>	<b>2</b>
<b>3</b>	<b>Specifications.....</b>	<b>4</b>
<b>4</b>	<b>Hardware Features.....</b>	<b>5</b>
4.1	Power Supply .....	6
4.2	Microcontroller.....	6
4.3	Graphic Controller.....	6
4.4	LED Indicator .....	6
4.5	RJ45 Port .....	6
4.6	ID Switch .....	7
4.7	Reset Button .....	7
4.8	Micro USB .....	7
4.9	Single Wire Debug .....	7
4.10	Buzzer.....	7
<b>5</b>	<b>Mechanical Dimensions .....</b>	<b>8</b>
<b>6</b>	<b>Contact Information.....</b>	<b>9</b>
	<b>Appendix A - References .....</b>	<b>10</b>
	Document References .....	10
	Acronyms and Abbreviations .....	10
	<b>Appendix B - List of Figures and Tables .....</b>	<b>11</b>
	List of Figures .....	11
	List of Tables.....	11
	<b>Appendix C – Revision History .....</b>	<b>12</b>

### 3 Specifications

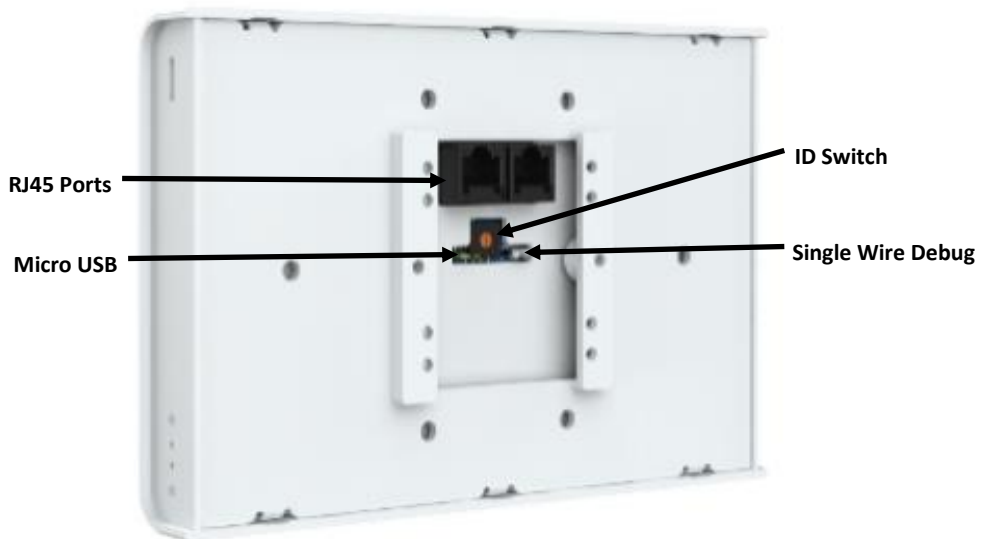
<b>PLATFORM</b>	Microcontroller	FT903Q
	Graphic Controller	BT815
<b>DISPLAY</b>	Display Size	7.0 inch TFT LCD
	Display Type	Capacitive touch panel
	Number of Pixels	800 (RGB) x 480
	Active Display Area	154.08 (H) x 85.92 (V) mm
	Light Intensity (Brightness)	420 cd/m <sup>2</sup>
	Display Colour	16.7M colors
	Viewing Angles	65°/55°/65°/65° (U/D/L/R)
<b>FEATURES</b>	Sound Alert	90 dB buzzer @3.1khz
	Ambient Light Sensor	-
	Reset Button	Push Switch
	Device Indicator	RGB LED
	Single Wire Debug	Reserved for factory use only
<b>POWER</b>	Input Voltage	DC 9-24V
	Connectivity	2x RJ45 Ports
	Micro USB	Reserved for factory use only
<b>PHYSICAL CHARACTERISTICS</b>	Color	White
	Housing	Polycarbonates
	Dimensions	192 x 125 x 26.4 mm
	Weight	454g
<b>ENVIRONMENTAL LIMITS</b>	Operating Temperature	0 to 55°C
	Storage Temperature	0 to 70°C
	Ambient Relative Humidity	20 to 85% (non-condensing)
<b>STANDARDS &amp; CERTIFICATIONS</b>	EMC (FCC/CE)	EN 55032:2015+AC:2016 Class B CISPR 32:2015+C1: 2016 Class B EN 55035:2017 FCC PART 15, Subpart B
<b>PACKAGE CONTENTS</b>	Hardware components	1x PD70 4x M3 Screws (Arlington LV2 Wall Mounting)
	Documentation	1x Quick Start Guide

**Table 2 – PanL70 (PD70) Touch Display Specifications**

## 4 Hardware Features



**Figure 1 – PanL70 (PD70) Touch Display Front View**



**Figure 2 – PanL70 (PD70) Touch Display Rear View**

## 4.1 Power Supply

The PD70 receives power externally from PanL Hub through either RJ45 ports. Input supply voltage is 9VDC to 24V DC (nominally 24V, 500mA from Hub).

## 4.2 Microcontroller














The [FT9030](#) 100-pin QFN microcontroller which is provided on the board belongs to the 32-bit FT90X Super Bridging Microcontroller family from [Bridgetek](#).

## 4.3 Graphic Controller

The BT815 is Bridgetek’s very own Advanced Embedded Video Engine (EVE) with high resolution graphics and video playback. FT811 functionality includes graphic control, audio and touch control interface.

## 4.4 LED Indicator

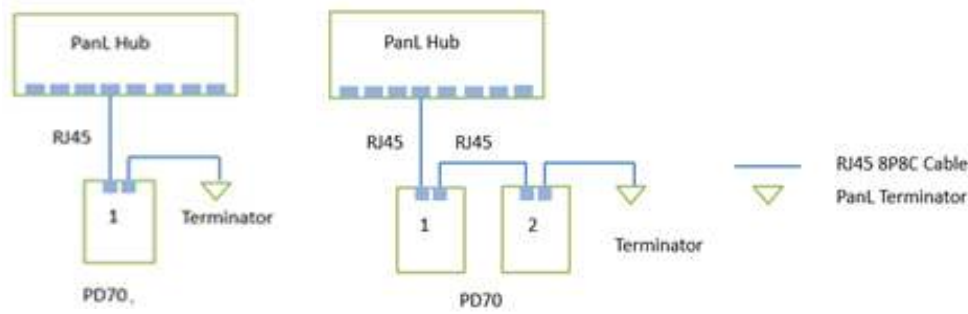
An LED indicator that indicates the functioning status of the PD70. Refer to the table given below –

Status	LED Color (Normal Mode)	LED Color (Fail-safe Mode)
Booting Up	Red 	Red 
Boot Success	Green 	Red (Blink – slow speed, twice a second) 
Lost Link To Hub (For PD70)	Yellow 	Red (Blink – medium speed, five times a second) 
Communication Error (For PD70 PLUS)	Red (Blink – slow speed, every second) 	
While communicating with Hub	Green (Blink – fast speed, ten times a second) 	Red (Blink – fast speed, ten times a second) 
Waiting for Recovery	NA	Red <-> Green (Alternate blink – slow speed, twice a second) 
Recovery in Progress	NA	Red <-> Yellow (Alternate blink – slow speed, twice a second) 
Recovery Done	NA	Green (Blink – fast speed, ten times a second) 
Waiting for Configuration	Yellow (Blink – slow speed, twice a second) 	NA

**Table 3 – LED Indicator**

## 4.5 RJ45 Port

The RJ45 ports are used either as an input or output terminal that is connected to the Hub, other PanL Devices or another PD70 as illustrated in the picture. For single PD70 connection to a PanL Hub port, the maximum length of the RJ45 8P8C cable is 100 meters. Connect the PanL terminator provided in PanL Hub box to the unconnected PD70 port. For multiple PD70 connections to a single PanL Hub port, the 1st connection to PanL Hub and the subsequent connections in between the PD70 displays must not exceed 50 meters in cable length each. A single PanL Hub port can support up to two PanL70. The total combined cable lengths must not exceed 100 meters. Connect the terminator provided in PanL Hub box to the last unconnected PD70 port.



**Figure 3 – Daisy Chain Network**

## 4.6 ID Switch

For multiple PD70 connections or mixed PanL Device daisy chain connection to a single PanL Hub port, the ID switch at the back of the displays must be configured to be unique. Using a Philip head screw driver, set a unique number for each device between 0-7 (8-9 are reserved). For example, if connecting two PD70`s to a PanL Hub port, you may set it as **0 and 1**. Displays connected to different PanL Hub ports can share the same unique number. A maximum of two PanL devices are allowed for daisy chain if there are more than one PD70, PD70PLUS or PD50 device or any combination of these present. Any other combinations will have a maximum limit of three devices.

## 4.7 Reset Button

It is a device reset pin which is used to restart the PD70.

## 4.8 Micro USB

This is reserved for factory use.

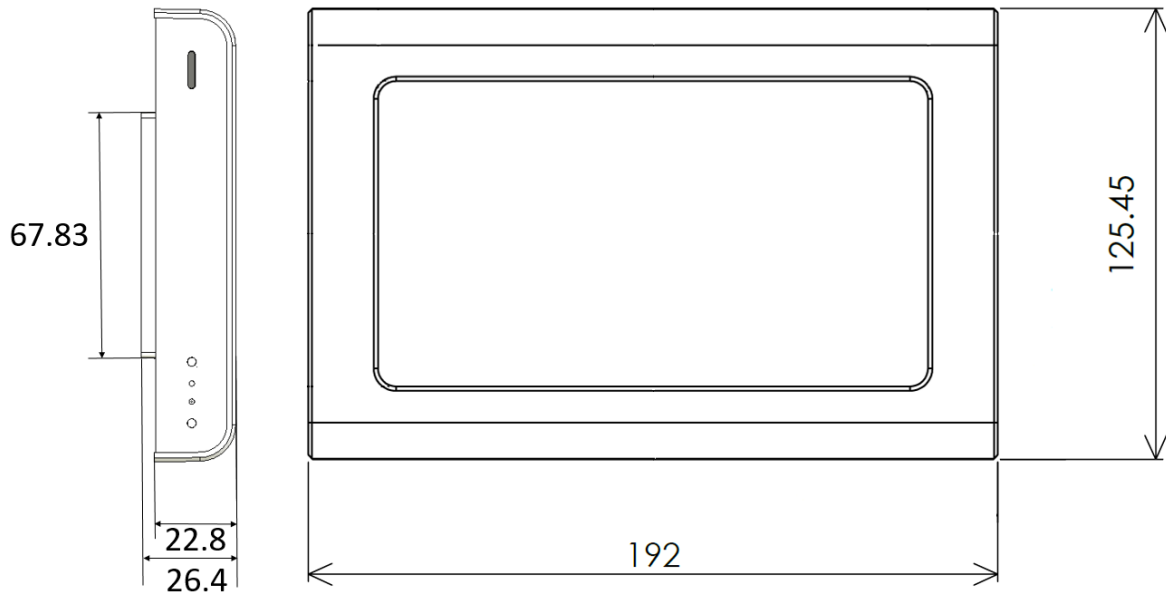
## 4.9 Single Wire Debug

This is reserved for factory use.

## 4.10 Buzzer

Trigger sound to user to signify an event.

## 5 Mechanical Dimensions



**Figure 4 – PanL70 (PD70) Touch Display Dimensions**



## 6 Contact Information

### Head Quarters – Singapore

Bridgetek Pte Ltd  
178 Payar Lebar Road, #07-03  
Singapore 409030  
Tel: +65 6547 4827  
Fax: +65 6841 6071

E-mail (Sales) [sales.apac@brtchip.com](mailto:sales.apac@brtchip.com)  
E-mail (Support) [support.apac@brtchip.com](mailto:support.apac@brtchip.com)

### Branch Office – Taipei, Taiwan

Bridgetek Pte Ltd, Taiwan Branch  
2 Floor, No. 516, Sec. 1, Nei Hu Road, Nei Hu  
District  
Taipei 114  
Taiwan, R.O.C.  
Tel: +886 (2) 8797 5691  
Fax: +886 (2) 8751 9737

E-mail (Sales) [sales.apac@brtchip.com](mailto:sales.apac@brtchip.com)  
E-mail (Support) [support.apac@brtchip.com](mailto:support.apac@brtchip.com)

### Branch Office - Glasgow, United Kingdom

Bridgetek Pte. Ltd.  
Unit 1, 2 Seaward Place, Centurion Business Park  
Glasgow G41 1HH  
United Kingdom  
Tel: +44 (0) 141 429 2777  
Fax: +44 (0) 141 429 2758

E-mail (Sales) [sales.emea@brtchip.com](mailto:sales.emea@brtchip.com)  
E-mail (Support) [support.emea@brtchip.com](mailto:support.emea@brtchip.com)

### Branch Office – Vietnam

Bridgetek VietNam Company Limited  
Lutaco Tower Building, 5th Floor, 173A Nguyen Van  
Troj,  
Ward 11, Phu Nhuan District,  
Ho Chi Minh City, Vietnam  
Tel : 08 38453222  
Fax : 08 38455222

E-mail (Sales) [sales.apac@brtchip.com](mailto:sales.apac@brtchip.com)  
E-mail (Support) [support.apac@brtchip.com](mailto:support.apac@brtchip.com)

Email Address: [panl-support@brtchip.com](mailto:panl-support@brtchip.com)

Website: <http://panl.brtchip.com/>

System and equipment manufacturers and designers are responsible to ensure that their systems, and any Bridgetek Pte Ltd (BRTChip) devices incorporated in their systems, meet all applicable safety, regulatory and system-level performance requirements. All application-related information in this document (including application descriptions, suggested Bridgetek devices and other materials) is provided for reference only. While Bridgetek has taken care to assure it is accurate, this information is subject to customer confirmation, and Bridgetek disclaims all liability for system designs and for any applications assistance provided by Bridgetek. Use of Bridgetek devices in life support and/or safety applications is entirely at the user's risk, and the user agrees to defend, indemnify and hold harmless Bridgetek from any and all damages, claims, suits or expense resulting from such use. This document is subject to change without notice. No freedom to use patents or other intellectual property rights is implied by the publication of this document. Neither the whole nor any part of the information contained in, or the product described in this document, may be adapted or reproduced in any material or electronic form without the prior written consent of the copyright holder. Bridgetek Pte Ltd, 178 Paya Lebar Road, #07-03, Singapore 409030. Singapore Registered Company Number: 201542387H.

## Appendix A - References

### Document References

NA

### Acronyms and Abbreviations

Terms	Description
EVE	Embedded Video Engine
FCC	Federal Communications Commission
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MCU	Microcontroller Unit
QFN	Quad Flat No Leads Package
RGB	Red Green Blue
TFT	Thin Film Transistor
USB	Universal Serial Bus

## Appendix B - List of Figures and Tables

### List of Figures

Figure 1 – PanL70 (PD70) Touch Display Front View.....	5
Figure 2 – PanL70 (PD70) Touch Display Rear View .....	5
Figure 3 – Daisy Chain Network.....	7
Figure 4 – PanL70 (PD70) Touch Display Dimensions .....	8

### List of Tables

Table 1 – PanL70 (PD70) Touch Display - Part Number.....	2
Table 2 – PanL70 (PD70) Touch Display Specifications .....	4
Table 3 – LED Indicator .....	6

## Appendix C – Revision History

Document Title: PanL70 (PD70) Touch Display Datasheet  
Document Reference No.: BRT\_000288  
Clearance No.: BRT#151  
Product Page: <https://panl.brtchip.com>  
Document Feedback: [Send Feedback](#)

Revision	Changes	Date
Version 1.0	Initial Release	2019-12-31