

SmartView

Programmable automotive touch display

Datasheet



For more information, visit: <https://dorleco.com/smart-canbus-display/>

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About



SmartView CAN Bus TFT Display with Projected Capacitive Touch

Developed for multiple applications, the DORLECO SmartView CANBUS display can be hooked up to any Vehicle Control Unit (VCU) and stream real-time data, plots, and graphics. Get a customized display with a specific display theme, colors, infographics, and even a bespoke bezel around it.

- ✓ Real-time data and plots
- ✓ Configurable with any Vehicle Control Unit
- ✓ Available in 7", 10" and 15" sizes
- ✓ Suitable for fast and easy integration of an HMI into any application
- ✓ Pre-orders open now!

7-inch SmartView CAN Bus Display



7" SmartView CAN Bus TFT display is a slave device controlled by a master device via CAN bus command to render content on the screen and return touch event data with protocol objects.

It is integrated with a high-brightness IPS TFT module and 4-layers PCBA with built-in firmware. This 7" SmartView CAN Bus Display is an easy-to-use product that allows customers to develop projects rapidly and cost-effectively.

This 7" SmartView CAN Bus Display uses a USB2CAN dongle or Raspberry Pi interface (PiCAN2) as the HOST platform.

Salient Features:

- ✓ +12V power supply input
- ✓ Power-On Self-Test & Splash screen
- ✓ CAN bus communication interface
- ✓ Supports CANopen protocol, default baud rate at 250KB
- ✓ Built-in flash memory, storing the font and Object Dictionary Data
- ✓ Supports projected capacitive touch screen (PCAP)
- ✓ Embedded buzzer controlled by Master Device
- ✓ Demo set HOST can be used on multiple platforms, such as Computer (with USB to CAN Dongle), MCU, and Raspberry Pi (with PiCAN2).

Specifications

A. General Information

Item	Standard Value	Unit
Operating Voltage	12	Vdc
Communication Interface	CAN Bus differential ± 3.3	Vpp
Size	7.0	inch
Dot Matrix	1024 x RGB x 600(TFT)	dot
Module Dimension	169.9(W) x 103.4(H) x 7.3(D)	mm
Active Area	154.2144 x 85.92	mm
Dot Pitch	0.1506 x 0.1432	mm
Brightness	850	cd/mm ²
Backlight Type	LED, Normally Black, Transmissive	
Viewing Angle	85/85/85/85	
Aspect Ratio	16:9	
With/Without TP	With Projected Capacitive Touch Panel (PCAP)	
Surface	Glare	

B. Mechanical Data

Item	Standard Value	Unit
LCD Panel	169.9(W) x 103.4(H) x 7.3(D)	mm
PCB	184.1(W) x 102.6(H) x 1.6(D)	mm
Housing Outline	184.1(W) x 103.8(H) x 21.85(D)	mm

C. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-20	-	+70	°C
Storing Temperature	TST	-30	-	+80	°C

D. Electrical Characteristics

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage for Analog	VCI	11.4	12	12.6	V
Interface Operation Voltage	IOVCC	3.234	3.30	3.367	V
Supply LCM Current	ICI (mA)	-	675	-	mA

Interface Pinouts

CON2 Definition			
Pin	Symbol	Function	Remark
1	+12 V	Power supply 12V input	Input
2	GND	Power supply GND input	Input
3	CAN_High	CAN bus D+	I/O
4	CAN_Low	CAN bus D-	I/O
5	GND	Power supply GND input	Input
6	GND	Power supply GND input	Input
7	-	-	-
8	-	-	-
9	VDD_3.9V	3.9V	Power
10	-	-	-
11	-	-	-
12	GND	GND	GND
13	VDD_3.9V	3.9V	Power
14	-	-	-
15	-	-	-
16	GND	GND	GND
CON3 Definition			
Pin	Symbol	Function	Remark
1	VDD3V	3.3V power for JTAG interface	Output
2	JTAG_SWCLK	CLK pin for JTAG interface	Input
3	GND	GND for JTAG interface	Output
4	JTAG_SWDIO	Data pin for JTAG interface	I/O
5	NRST	Reset pin for JTAG interface	Input
6	GND	GND	Output
7	-	-	-
8	-	-	-
9	-	-	-
10	-	-	-
11	-	-	-
12	-	-	-
13	-	-	-
14	-	-	-
15	-	-	-
16	-	-	-

10.1-inch SmartView CAN Bus Display



10.1" SmartView CAN Bus TFT display is a slave device controlled by a master device via CAN bus command to render content on the screen and return touch event data with protocol objects.

It is integrated with a high-brightness IPS TFT module and 4-layers PCBA with built-in firmware. This 10" SmartView CAN Bus Display is a state-of-the-art product that allows customers to develop projects rapidly and cost-effectively. This 10" SmartView CAN Bus Display uses a USB2CAN dongle or Raspberry Pi interface (PiCAN2) as the HOST platform.

Salient Features:

- ✓ CAN bus communication interface.
- ✓ Supports CANopen protocol, default baud rate at 250KB
- ✓ Built-in flash memory, storing the font and Object Dictionary Dat
- ✓ Supports projected capacitive touch screen (PCAP)
- ✓ Long transmission distance and strong anti-interference ability
- ✓ Embedded buzzer controlled by Master Device
- ✓ Demo set HOST can be used on multiple platforms, such as Computer (with USB to CAN Dongle), MCU, and Raspberry Pi (with PiCAN2).

Specifications

A. General Information

Item	Standard Value	Unit
Operating Voltage	12	Vdc
Communication Interface	CAN Bus differential ± 3.3	Vpp
MCU	STM32F746	N/A
Flash Memory	16	MB
SDRAM Frequency	166	MHz
LCD size	10.1	inch
Dot Matrix	1024 x RGB x 600(TFT)	dot
Module Dimension	235(W) x 143(H) x 8.78(D)	mm
Active Area	222.72 (H) x 125.28(V)	mm
Dot Pitch	0.2175(W) x 0.2088(H)	mm
Brightness	400	cd/mm ²
Backlight Type	LED, Normally White	
Viewing Angle	85/85/85/85	
Aspect Ratio	16:9	
With/Without TP	With Projected Capacitive Touch Panel (PCAP)	
Surface	Glare	

B. Mechanical Data

Item	Standard Value	Unit
LCD Panel	235(W) x 143(H) x 8.78(D)	mm
PCB	248.8(W) x 143(H) x 1.6(D)	mm
Housing Outline	N/A	mm

C. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-20	-	+70	°C
Storing Temperature	TST	-30	-	+80	°C

D. Electrical Characteristics

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage	VCC	11.4	12	12.6	V
Supply LCM Current	I (mA)	-	435	-	mA

Interface Pinouts

CON1 Definition			
Pin	Symbol	Function	Remark
1	+12 V	Power supply 12V input	Power
2	GND	Power supply GND input	Power
3	CAN_High	CAN bus D+	I/O
4	CAN_Low	CAN bus D-	I/O
5	GND	Power supply GND input	Power
6	GND	Power supply GND input	Power
CON2 Definition			
Pin	Symbol	Function	Remark
1	VDD3V	3.3V power for JTAG interface	Output
2	JTAG_SWCLK	CLK pin for JTAG interface	Input
3	GND	GND for JTAG interface	Output
4	JTAG_SWDIO	Data pin for JTAG interface	I/O
5	NRST	Reset pin for JTAG interface	Input
6	GND	GND	Output

15-inch SmartView Display



SmartView TFT Display with Projected Capacitive Touch

The DORLECO 15-inch SmartView Display is a color-active-matrix LCD module composed of a TFT-LCD display, a driver circuit, and a backlight system. The screen format is intended to support XGA (1024(H) x 768(V)) screen and 16.2M or 262K colors. All input signals are LVDS interface compatible.

Salient features:

- ✓ Supports LVDS communication protocol
- ✓ 262K color by 6-bit R.G.B signal input
- ✓ RoHS compliant
- ✓ Designed for commercial display applications
- ✓ Real-time data and plots
- ✓ Configurable with any Vehicle Control Unit
- ✓ Suitable for fast and easy integration of an HMI into any application

Technical Specifications

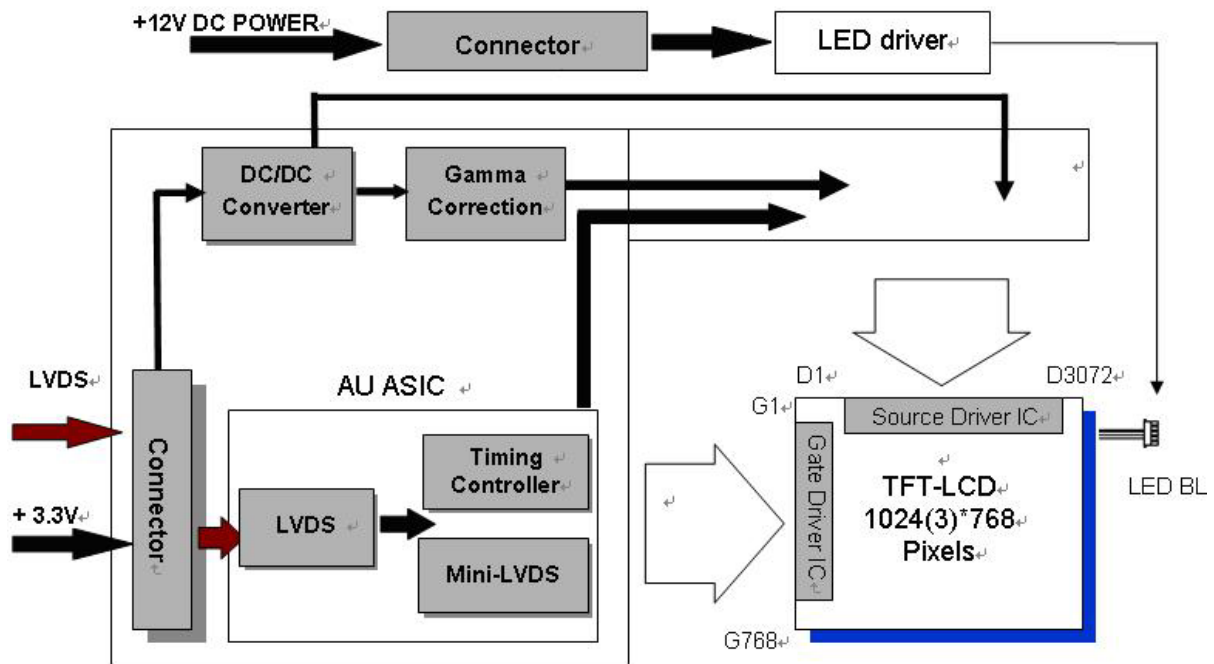
A. Display Characteristics

Items	Unit	Specifications
Screen Diagonal	inch	15
Active Area	mm	304.128 (H) x 228.096 (V)
Pixels H x V		1024 x 3 (RGB) x 768
Pixel Pitch	mm	0.297 x 0.297
Pixel Arrangement		R.G.B. Vertical Stripe
Display Mode		TN, Normally White
Nominal Input Voltage VDD	Volt	3.3 typical
Typical Power Consumption	Watt	12W
Weight	Grams	1000g (max)
Physical Size	mm	326.5(H) x 253.5(V) x 12.0(D) (max)
Electrical Interface		LVDS
Surface Treatment		Anti-glare
Support Color		16.2M/262K
Temperature Range:		
Operating	°C	-30 to +85
Storage (non-operating)	°C	-30 to +85
RoHS Compliance		RoHS Compliant
Light Bar Unit		LED, Replaceable

B. Optical Characteristics

Item	Unit	Conditions	Min	Typ	Max	
White Luminance	cd/m ²		-	1500	-	
Uniformity	%	9 Points	75	80	-	
Contrast Ratio			400	800	-	
Cross Talk	%		-	1.2	1.5	
Response Time	msec	Rising	-	5.7		
		Falling	-	2.3		
		Rising + Falling	-	8		
Viewing Angle	degrees	Horizontal CR=10	Right 70 Left 70	80 80	- -	
		Vertical CR=10	Upper Lower	60 70	70 80	- -
Color / Chromaticity Coordinates (CIE 1931)		Red X		0.567	0.617	0.667
		Red Y		0.296	0.346	0.396
		Green X		0.286	0.336	0.386
		Green Y		0.562	0.612	0.662
		Blue X		0.109	0.159	0.209
		Blue Y		0.015	0.065	0.115
		White X		0.261	0.311	0.361
		White Y		0.272	0.322	0.372
Color Gamut	%			60	-	

Functional Block Diagram



Absolute Maximum Ratings

Item	Symbol	Min	Max	Unit
Logic / LCD Drive Voltage	V_{in}	-0.3	+3.6	Volt
Operating Temperature	TOP	-30	+85	°C
Operating Humidity	HOP	8	90	% RH
Storage Temperature	TST	-30	+85	°C
Storage Humidity	HST	8	90	% RH

Electrical Characteristics

A. TFT LCD Module Power Specification

Symbol	Parameter	Min	Typ	Max	Units	Remark
VDD	Logic/LCD Drive Voltage	3.0	3.3	3.6	Volt	± 10%
IDD	VDD Current	-	450	750	mA	64 Gray Bar Pattern (VDD=3.3V, at 60Hz)
I _{rush}	LCD Inrush Current	-	-	2	A	
PDD	VDD Power	-	1.49	2.48	Watt	64 Gray Bar Pattern (VDD=3.3V, at 60Hz)

B. TFT LCD Module Signal Electrical Characteristics

Symbol	Item	Min	Typ	Max	Unit	Remark
VTH	Differential Input High Threshold	-	-	100	mV	VCM=1.2V
VTL	Differential Input Low Threshold	-100	-	-	mV	VCM=1.2V
VID	Input Differential Voltage	100	400	600	mV	
VICM	Differential Input Common Mode Voltage	1.15	1.2	1.45	V	VTH/VTL=±100mV

C. Backlight Unit Parameter Guidelines for LED

Parameter	Symbol	Min	Typ	Max	Unit
Converter Power Supply Voltage	V _i	-	12.0	-	V
Converter Power Supply Current	I _i	-	330	-	mA
LED Input Voltage	V _f	-	52	-	VDC
LED Current	I _f	-	100	-	mA

Signal Description

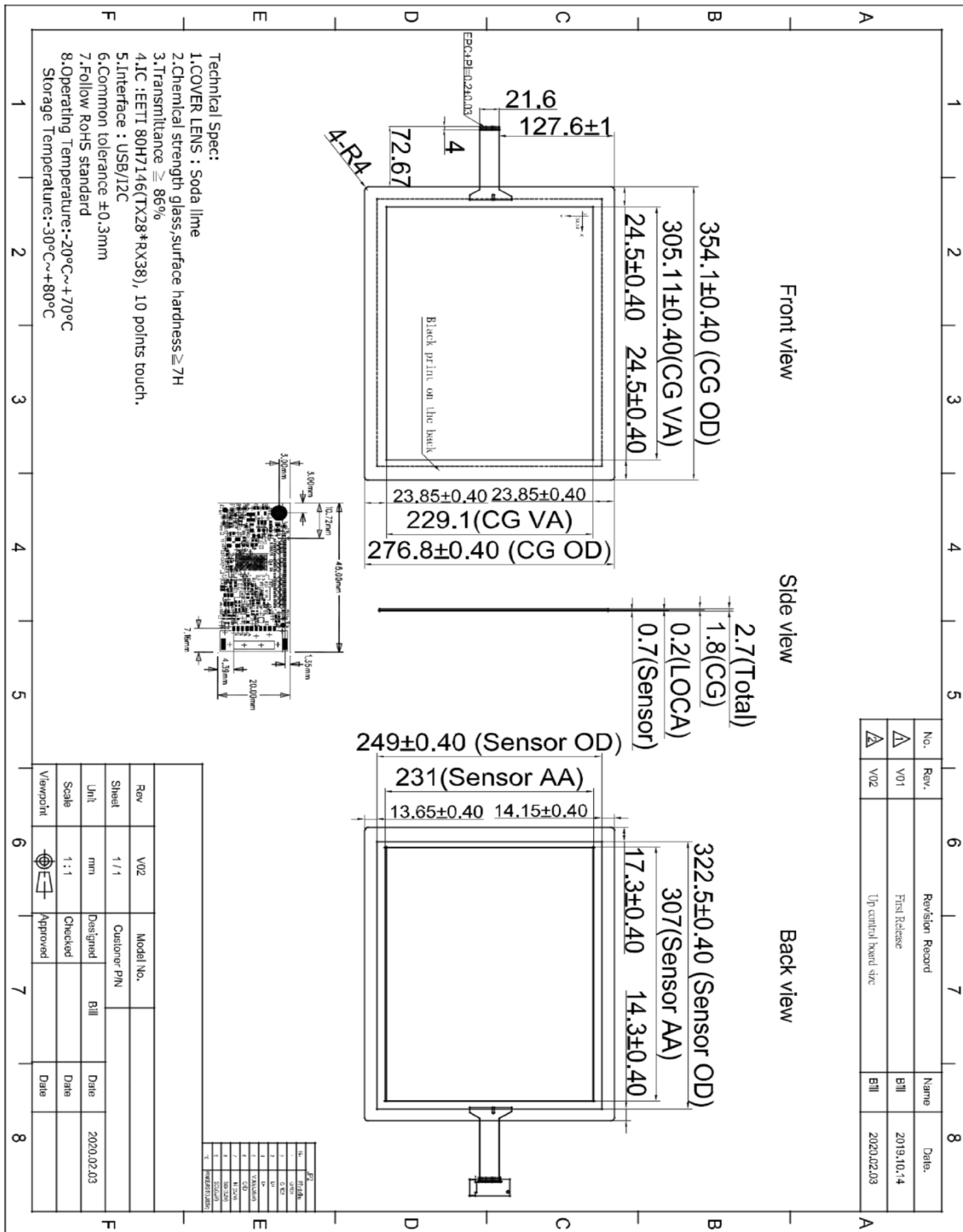
Pin No.	Symbol	Description
1	VDD	Power Supply, 3.3V (typical)
2	VDD	Power Supply, 3.3V (typical)
3	NC	No Connect
4	NC	No Connect
5	Rin1-	- LVDS differential data input
6	Rin1+	+ LVDS differential data input
7	VSS	Ground
8	Rin2-	- LVDS differential data input
9	Rin2+	+ LVDS differential data input
10	VSS	Ground
11	Rin3-	- LVDS differential data input
12	Rin3+	+ LVDS differential data input
13	VSS	Ground
14	ClkIN-	- LVDS differential clock input
15	ClkIN+	+ LVDS differential clock input
16	VSS	Ground
17	Rin4-	- LVDS differential data input
18	Rin4+	- LVDS differential data input
19	VSS	Ground
20	SEL LVDS	H or NC: 6bit/L: 8bit

TFT LCD Module: LVDS Connector & Pinouts

Connector Name / Designation	Signal Connector
Manufacturer	STM or compatible
Connector Model Number	MSB240420E or compatible
Mating Model Number	P240420 or compatible

Pin#	Signal Name	Pin#	Signal Name
1	VDD	2	VDD
3	NC	4	NC
5	Rin1-	6	Rin1+
7	VSS	8	Rin2-
9	Rin2+	10	VSS
11	Rin3-	12	Rin3+
13	VSS	14	ClkIN-
15	ClkIN+	16	VSS
17	Rin4-	18	Rin4+
19	VSS	20	SEL68

Outline Dimensions



Contact Us!

For more information about the 15-inch SmartView CAN Bus Display, write to info@dorleco.com.