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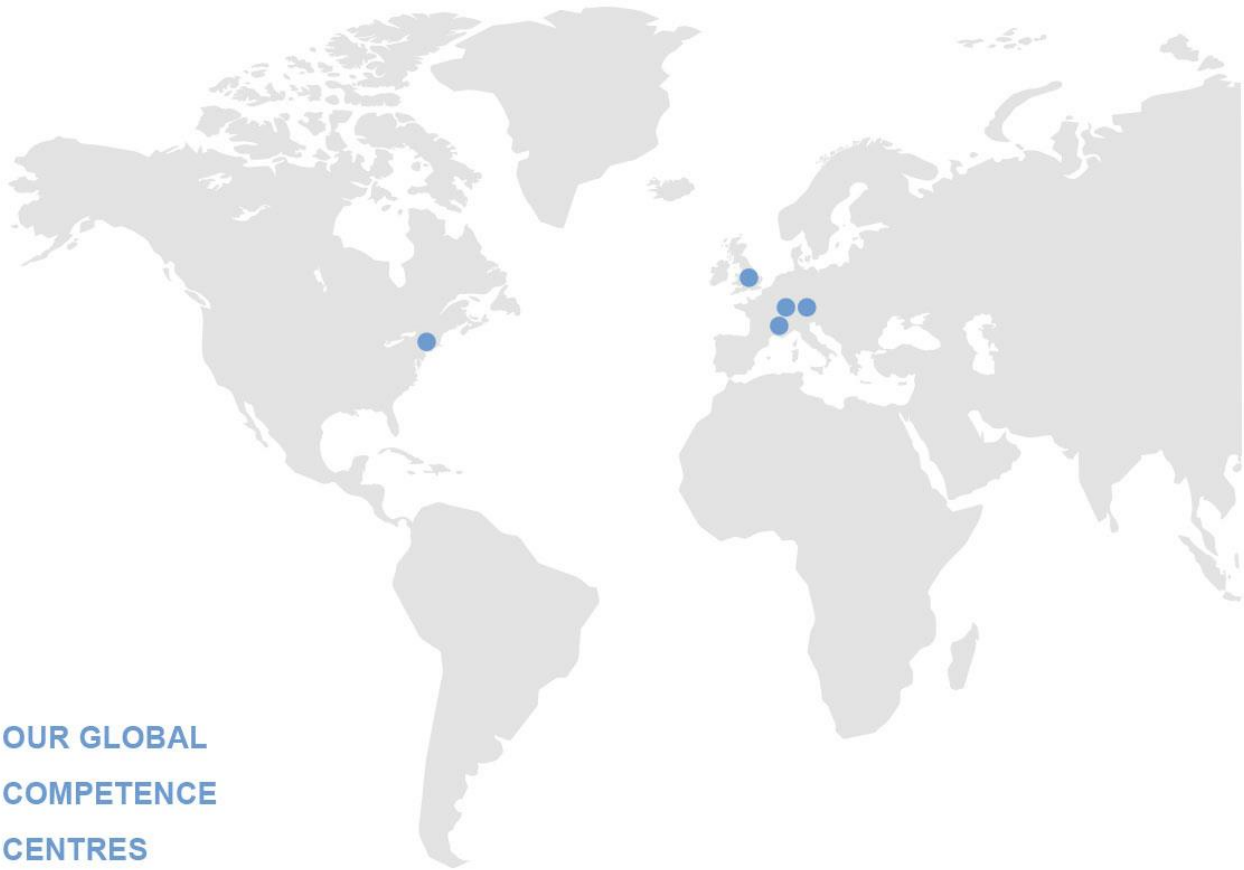

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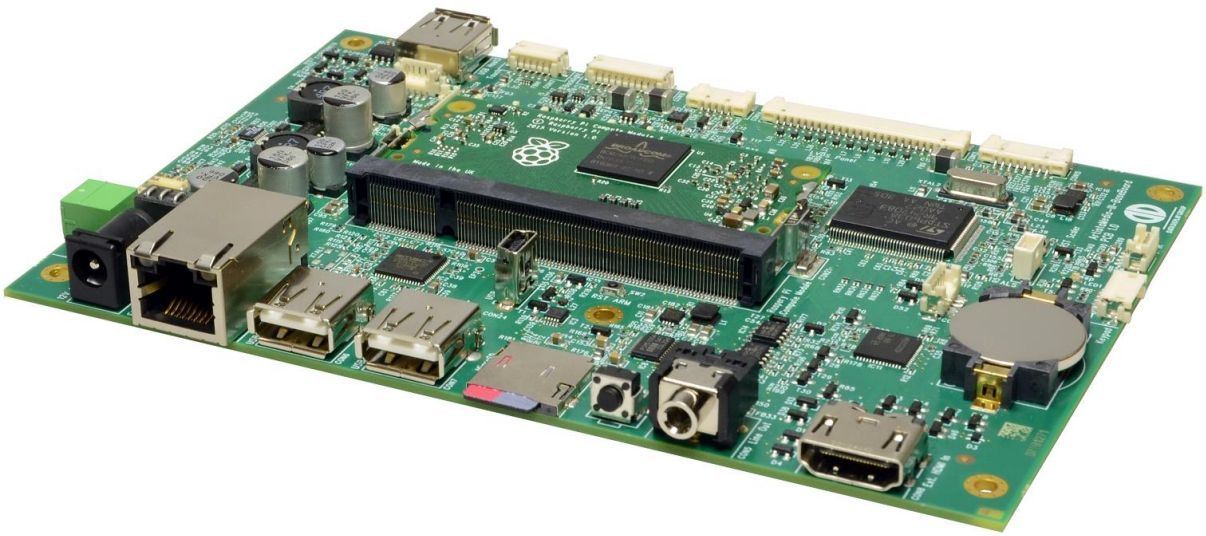
Datasheet

Distec

ArtistaMedia-III-BB

Base Board for Raspberry Pi Compute Module 1, 3 and 3+ with on-board Display Controller

AR-02-201_A1



Version 1.3

25.04.2019

Table of Contents

1 Revision History

Date	Rev.No.	Description	Page
17.02.2017	1.0	Initial release for ArtistaMedia-III Base Board PCB version 1.1	All
29.05.2017	1.1	- Added thermal derating characteristic - Picture update for wide range DC/DC regulator ZU-02-414 - Added temperature sensor ZU-02-389 - Added Starter Kit KI-53-002 - Removed chapter “News and Updates”	7, 26, 28, 29, 30
20.11.2017	1.2	Add min/max Mechanical Dimensions	25
25.04.2019	1.3	- Added info about new Raspberry Pi Compute Module 3+ - Removed obsolete LVDS2eDP interface ZU-09-032_A1 from accessories list - Updated document template	6 29 All

2 Overview

ArtistaMedia-III Base Board is Distec's TFT controller board based on the STDP6038 graphic and scaler chip (also called "Chandler"). It holds the ARM based Raspberry Pi Compute Module as internal video source and is designed for a wide range of TFT displays, multimedia- and HMI applications.

Key Features:

- Supports Raspberry Pi Compute Module 1, 3 and 3+ (with up to 32GB eMMC on-board flash memory)
- 10/100-Mbit/s Ethernet
- 3x USB 2.0 Type A Host Connectors
- Mini USB 2.0 Type B Connector for programming the Raspberry Pi firmware
- MicroSD Card Reader
- I2C Touch Sensor support
- 3x UART
- 2x I2C
- 10x GPIOs
- OSD Keypad
- IR Remote Control
- Audio Line Out
- HDMI 1.4 Input Port
- Real Time Clock (RTC)
- LVDS interface for TFT panels
- Backlight control interface for TFT panels
- 12 V Single Voltage Power Supply

3 Supported Raspberry Pi Compute Modules

3.1 Raspberry Pi Compute Module 1 (CM1), 3 (CM3) and 3+ (CM3+) Supported

The ArtistaMedia-III Base Board is designed to support the Raspberry Pi Compute Module 1 (CM1), Compute Module 3 (CM3) and the Compute Module 3+ (CM3+). These have 4GB, 8GB, 16GB or 32GB eMMC flash memory on-board which is used to boot the Raspberry Pi SoC.

These Compute Modules are available with the following order numbers:

PC-02-014	Raspberry Pi Compute Module (CM1)
PC-02-015	Raspberry Pi Compute Module 3 (CM3)
PC-02-018	Raspberry Pi Compute Module CM3+/8GB
PC-02-019	Raspberry Pi Compute Module CM3+/16GB
PC-02-020	Raspberry Pi Compute Module CM3+/32GB

3.2 Raspberry Pi Compute Module 3 Lite (CM3L) and 3+ Lite (CM3+ Lite) Not Supported

The Raspberry Pi Compute Module 3 Lite (CM3L) and 3+ Lite (CM3+ Lite) are currently not directly supported by ArtistaMedia-III Base Board. The reason is, that the Lite versions of the Compute Module don't have an eMMC flash memory device on-board to boot from.

Further the SD card reader of ArtistaMedia-III Base Board is connected to the secondary SD card interface of the Raspberry Pi SoC.
Currently there is no firmware support available from Raspberry Pi to boot from the secondary SD card interface or an USB mass storage device out of box.

4 Electrical Characteristics

All measurements are done at 25°C ambient temperature.

Item	Symbol	Condition	MIN.	TYP.	MAX.	Unit	Note
Supply Voltage	V_{in}		10.8	12.0	13.2	VDC	1, 2
Supply Current	I_{in}	Board only	-	120	-	mA	3
		Board incl. CM1	-	250	-	mA	3, 4
		Board incl. CM3	-	270	540*	mA	3, 4

Note (1): Note that 12V backlight supply and 12V panel power are directly driven from $V_{in.}$ Therefore V_{in} must be within the voltage limits of backlight converter and panel as well.
Note (2): If the supply voltage is in the range of 8V to 36V, an external DC/DC regulator is available as add-on board. It can be connected to the internal power supply connector CON1 directly. See chapter 12.1 for more details.
Note (3): With 12V supply voltage.
Note (4): The Compute Module is playing a FHD video, microSD card inserted, no panel and no other peripheral devices connected.
*CPU running with max. frequency (CPU cooled to prevent throttling), all 4 cores incl. GPU busy.

5 Absolute Maximum Ratings

Permanent damage of the device may occur if maximum values are exceeded.

5.1 Electrical Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit	Note
Supply Voltage	V_{in}	-0.2	16	VDC	1, 2
Max. Backlight Current	$I_{bkl\ (12V)}$	-	3	A	
	$I_{bkl\ (5V)}$	-	2	A	3
Max. Panel Current	$I_{panel\ (12V)}$	-	2.6	A	
	$I_{panel\ (5V)}$	-	2.6	A	3
	$I_{panel\ (3.3V)}$	-	1.5	A	
Max. USB Current per Port	I_{USB}	-	0.5	A	3

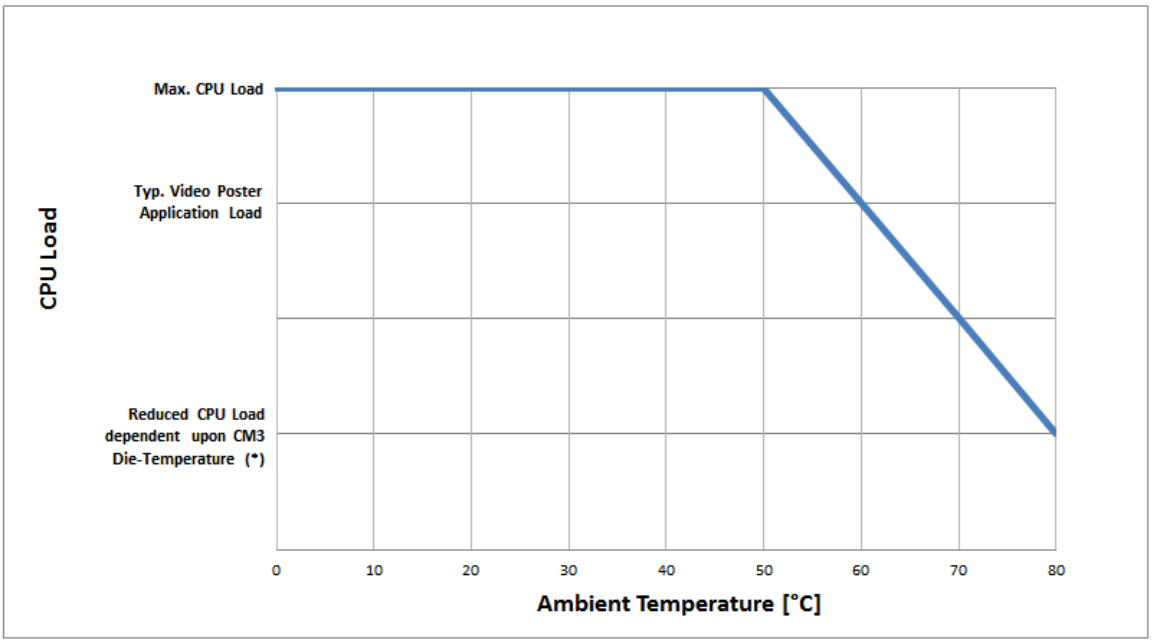
Note (1): Within operating temperature range.
Note (2): Note that 12V backlight supply and 12V panel power is directly driven from $V_{in.}$
Therefore V_{in} must be within the voltage limits of backlight converter and panel as well.
Note (3): Permissible current depends on general 5V power consumption. The 5V power rail can provide max. **5.1A**, this current is available for backlight, panel supply and USB. Example: If 2A backlight current and 2A panel current is needed, only two of the three available USB ports can be loaded with the max. USB current of 0.5A.

5.2 Environmental Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit	Note
Storage Temperature	T_{st}	-35	+85	°C	1
Operating Temperature	T_{op}	-25	+80	°C	1, 2

Note (1): This is the temperature range of the ArtistaMedia-III Base Board without Compute Module.

Note (2): Thermal Derating Characteristic of Compute Module 3
The maximum allowed ambient temperature of Compute Module 3 highly depends on the CPU load. The thermal derating characteristic shown in the diagram below is the result of internal load and temperature tests. All tests were done without airflow and without any additional cooling elements. By applying airflow or a passive heat sink to the Compute Module, the maximum allowed ambient temperature can be increased. For further details concerning temperature limitations please refer to the original datasheet of the Raspberry Compute Module.



(*) The standard Raspbian OS includes a mechanism that throttles the performance of the CM3 at high temperatures. It is the responsibility of the user to make use of this mechanism and to monitor and limit the Die-Temperature of the CPU.

6 Interfaces

6.1 Display Power Supply and LVDS Data Output

ArtistaMedia-III-BB is designed to drive almost every available TFT panel with LVDS interface. The display connectors follow the Distec standard, therefore a huge range of TFT panels and matching cables are available. All display parameters can be set by Distec upon request or by the optional available configuration software ChandlerRover. For eDP panels an optional LVDS-to-eDP interface is available too.

Features of the LVDS interface:

- 18 bit or 24 bit per pixel
- Conventional (JEIDA) or non-conventional (VESA) data mapping
- Single channel or dual channel configuration
- Supports panel resolutions up to WUXGA (1920 x 1200 @ 60Hz)

The display interface has 4 general purpose option pins controlled and sequenced by firmware with 0V, 3.3V or 5V level. These pins can be used to configure display options like data mapping, scan direction or pixel depth.

Supported display power supply levels (configured by firmware):

- +3.3V
- +5.0V
- +12.0V

6.2 Backlight Power Supply and Backlight Control Signals

The backlight power and control port directly connects to a DC-AC inverter or LED power supply for the display backlight. Additional control lines for switching the backlight on/off and to regulate the display brightness are available.

- +12V backlight supply voltage
- +5V backlight supply voltage
- Brightness DC control voltage in the range of 0V to 5V (actual range can be configured by firmware)
- Brightness PWM control with 3.3V or 5V level, 0 … 100% duty cycle and 100 Hz … 20 kHz frequency (configured by firmware)
- Backlight enable signal with 0V, 3.3V or 5V level (configured by firmware)

6.3 HDMI Video Input Port

For external video sources a standard HDMI 1.4 input port is provided. It has the following capabilities:

- Single Link TMDS Rx for up to 12-bit 1080p
- Captures up to 225MHz
- HDCP
- CEC (on request)
- Supported input resolutions: VGA (640x480) up to WUXGA (1920x1200)
- Variable zoom scaling: Up-scaling is possible from any of the supported input resolutions to any supported output resolution.
- Horizontal and vertical shrink: An arbitrary horizontal and vertical reduction of the input is possible down to 50% + 1 pixel/line of the input. For example, this allows an input signal with UXGA (1600x1200) resolution to be displayed on an SXGA (1280x1024) TFT panel.

6.4 Audio Input and Line Out

- Audio input via standard HDMI input
- Audio Line Out: Single-ended 2.1VRMS ground centered analog outputs supporting loads down to 1kOhm per pin (left and right channel)

6.5 Ethernet Port

- Support for 100BASE-TX and 10BASE-T with RJ-45 connector
- Half-duplex and full-duplex operation
- Auto-negotiation and parallel detection

6.6 Three USB Host Connectors (Type A)

- On-board USB 2.0 Host for high speed (480Mbit/s), full speed (12Mbit/s) and low speed (1.5Mb/s) operation
- Two ports on front side, one port on back side

6.7 Mini USB Connector (Type B)

- Used to access the eMMC flash memory on the Raspberry Pi Compute Module with a PC as mass storage device for firmware installation

6.8 MicroSD Card Reader

- Supports microSD and microSDXC cards (tested up to 128 GB)

6.9 I2C and USB Touch Screen Interface

- Support of USB-HID touch screen controller. Project based firmware adaption required.
- Support of I2C touch screen controller. Project based firmware adaption required.

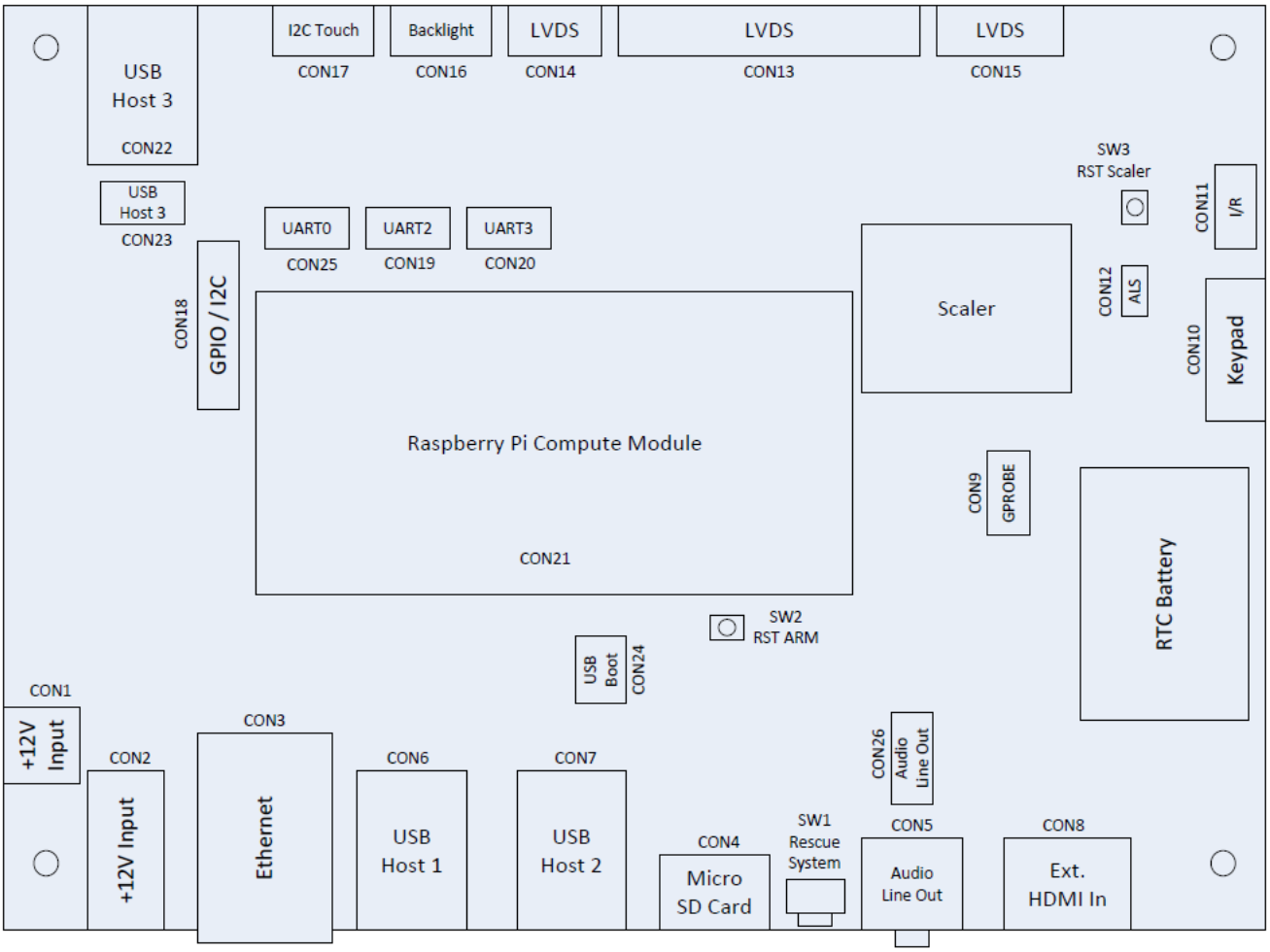
6.10 General Purpose Interfaces

- One I2C interface connects to the Raspberry Pi Compute Module (for touch screen etc.)
- One I2C interface connects to the scaler chip (can be used for a light sensor to automatically adjust the panel backlight)
- One UART connects directly to the Compute Module (for debug console)
- Two UARTs connect to the Compute Module via an USB-to-UART bridge
- 10 GPIOs of the Compute Module accessible via pin header connector

6.11 Scaler OSD Interface

- The On Screen Menu of the scaler chip is used to adjust display parameters like sharpness, contrast, color temperature and many more. It can be controlled with an I/R remote control and with an external 4-button keypad (both available from Distec).

7 Connector Overview



Connector	Description	Type	Manufacturer
CON1	Internal 12V Power Input	691322310002 Alternative with flanges: 691325310002	Würth Elektronik
CON2	External 12V Power Input	PJ-002AH	CUI Inc.
CON3	Ethernet RJ45	69347J121AEO1	Nexus Components
CON4	MicroSD Card Reader	0201D	Nexus Components
CON5	External Audio Line Out	STX-3200-5NB	Kycon
CON6	External USB Host 1, Type A	3862RJW	Nexus Components
CON7	External USB Host 2, Type A	3862RJW	Nexus Components
CON8	External HDMI Input	3600HFR	Nexus Components
CON9	UART1 (GPROBE)	DF13-5P-1.25V	Hirose
CON10	Keypad for Scaler (OSD)	DF13-6P-1.25H	Hirose
CON11	I/R for Scaler (OSD)	DF13-4P-1.25V	Hirose
CON12	Light Sensor (ALS) for Scaler (I2C)	501331-0407	Molex
CON13	Dual LVDS Output	DF14-25P-1.25H	Hirose
CON14	LVDS Power & Options	DF14-5P-1.25H	Hirose

CON15	LVDS Options	DF14-8P-1.25H	Hirose
CON16	Backlight Power Supply	DF13-10P-1.25H	Hirose
CON17	I2C Touch	DF13-6P-1.25V	Hirose
CON18	I2C + 10xGPIOs	DF13-14P-1.25V	Hirose
CON19	UART2 (ARM)	DF13-5P-1.25V	Hirose
CON20	UART3 (ARM)	DF13-5P-1.25V	Hirose
CON21	DDR2 SODIMM Socket for Raspberry Pi Compute Module	1612618-4	TE Connectivity
CON22	Internal USB Host 3, Type A	3862RJW	Nexus Components
CON23	Internal USB Host 3, Pin Header	DF13-5P-1.25V	Hirose
CON24	Internal USB Slave: Mini USB 5 Pin, Type B, Top Entry	3856SJBY	Nexus Components
CON25	UART0 (ARM Debug)	DF13-5P-1.25V	Hirose
CON26	Internal Audio Line Out	DF13-4P-1.25V	Hirose

8 Buttons

SW1	Rescue System	1301.9501	Schurter
SW2	Reset ARM (optional)	B3U-1000P	Omron
SW3	Reset Scaler (optional)	B3U-1000P	Omron

9 Status LEDs

LED	Color	Status	Description
LED1	Red	On	On-board scaler is in standby/sleep mode because no input signal was detected
		Flashing	Blank or corrupted panel configuration, please contact Distec support
LED2	Green	On	On-board scaler synched to input signal and processing it
		Flashing	On-board scaler is searching for an input signal
LED3	Green	On	LCD panel power supply is switched on
		Off	LCD panel power supply is switched off
LED4	Blue	On	12V panel power supply selected (1)
		Off	Either 3.3V or 5V panel power supply selected (1)
LED5	Red	On	5V panel power supply selected (1)
		Off	Either 3.3V or 12V panel power supply selected (1)

(1): If neither LED4 nor LED5 is ON then 3.3V panel power supply is selected

10 Connector Pinout

10.1 CON1 – Internal 12V Power Supply Connector

Connectors CON1 and CON2 are connected in parallel. Use either CON1 or CON2.

Pin	Signal	Description
1	Vin	+12V DC Input (max. 7A)
2	GND	Ground

10.2 CON2 – External 12V Power Supply Connector

Connectors CON1 and CON2 are connected in parallel. Use either CON1 or CON2.

Pin	Signal	Description
1 (center tap)	Vin	+12V DC Input (max. 5A)
2	GND	Ground
3	GND SW	Ground

10.3 CON3 – RJ45 Ethernet Connector

Pin	Signal	Description
1	TCT	Transmitter Center Tap
2	TD+	Transmitted Data +
3	TD-	Transmitted Data -
4	RD+	Received Data +
5	RD-	Received Data -
6	RCT	Receiver Center Tap
7	SPEED LED C	Orange LED Cathode
8	SPEED LED A	Orange LED Anode
9	LINK LED C	Green LED Cathode
10	LINK LED A	Green LED Anode

10.4 CON4 – MicroSD Card Reader

Pin	Signal	Description
1	DAT2	SD Serial Data 2
2	DAT3	SD Serial Data 3
3	CMD	Command
4	VDD	3.3V Power Supply
5	CLK	Clock
6	VSS	Ground
7	DAT0	SD Serial Data 0
8	DAT1	SD Serial Data 1
9	SDCARD_DETECT	SD Card Detection
10	GND	Ground

10.5 CON5 – External Stereo Audio Line Out Connector

Connectors CON5 and CON26 are connected in parallel. Both can be used at the same time, if the impedances are considered accordingly.

Pin	Signal	Description
1	GND	Ground
2	LINE ROUT	Right Channel Line Out
3	nc	Not connected
4	nc	Not connected
5	LINE LOUT	Left Channel Line Out

10.6 CON26 – Internal Stereo Audio Line Out Pin Header

Connectors CON5 and CON26 are connected in parallel. Both can be used at the same time, if the impedances are considered accordingly.

Pin	Signal	Description
1	GND	Ground
2	LINE ROUT	Right Channel Line Out
3	LINE LOUT	Left Channel Line Out
4	MUTE_N	Mute Signal (active low): Open drain output with 47.5kOhm pull up resistor to 3.3V. This pin is pulled low in mute mode and can be used to mute an external audio device.

10.7 CON6 – External USB Host 1 Type A Connector

Pin	Signal	Description
1	+5V	5V Power Output for external device (max. 0.5A, fuse protected)
2	D-	USB Data - Line
3	D+	USB Data + Line
4	GND	Ground

10.8 CON7 – External USB Host 2 Type A Connector

Pin	Signal	Description
1	+5V	5V Power Output for external device (max. 0.5A, fuse protected)
2	D-	USB Data - Line
3	D+	USB Data + Line
4	GND	Ground

10.9 CON8 – HDMI Input Connector

Pin	Signal	Description
1	TMDS2+	Differential TMDS Data 2+
2	GND	Ground
3	TMDS2-	Differential TMDS Data 2-
4	TMDS1+	Differential TMDS Data 1+
5	GND	Ground
6	TMDS1-	Differential TMDS Data 1-
7	TMDS0+	Differential TMDS Data 0+
8	GND	Ground
9	TMDS0-	Differential TMDS Data 0-
10	TMDSCLK+	Differential TMDS Clock+
11	GND	Ground
12	TMDSCLK-	Differential TMDS Clock-
13	CEC	Consumer Electronic Control
14	Reserved	Not connected
15	HDMI SCL	DDC Clock
16	HDMI SDA	DDC Data
17	GND	Ground
18	HDMI VCC	+5V Input
19	HPD	Hot Plug Detection

10.10 CON9 – UART1 Pin Header Connector (GPROBE & ARM)

This connector is only used for scaler debugging. Do not use in normal operation.

Pin	Signal	Description
1	UART1 TX	Serial Output from Scaler
2	UART1 RX	Serial Input to Scaler
3	+3.3V	3.3V Power Output
4	+5V	5V Power Output
5	GND	Ground

10.11 CON10 – Keypad Connector

Keypad connector for the scaler chip. When an external keypad is connected to CON10, the OSD menu of the scaler chip can be used to adjust panel brightness, sharpness and many other parameters. See chapter 12.2 for more details.

Pin	Signal	Description
1	KEY DATA	Analog Keypad Signal
2	GND	Ground
3	LED RED	Status LED – Red (Sleep Mode)
4	LED GREEN	Status LED – Green (Sync Mode)
5	GND	Ground
6	+3.3V	3.3V Power Output

10.12 CON11 – Infrared Sensor Connector

I/R input connector to the scaler chip. When an I/R sensor is connected to CON11, the OSD menu of the scaler can be operated with an I/R remote control to adjust panel brightness, sharpness and many other panel parameters. See chapter 12.3 for more details.

Pin	Signal	Description
1	IR DATA	Data Input from IR Sensor
2	+3.3V	3.3V Power Output
3	+5V	5V Power Output
4	GND	Ground

10.13 CON12 – I2C Light Sensor Connector

I2C input connector of the scaler chip. When a light sensor is connected to CON12, the scaler automatically adjusts the panel brightness according to the ambient light. See chapter 12.4 for more details.

Pin	Signal	Description
1	+3.3V	3.3V Power Output
2	GND	Ground
3	SCL	I2C Clock
4	SDA	I2C Data

10.14 CON13 – Dual LVDS Output Connector

Pin	Signal	Description
1	SVCC	Switched panel power supply: 12V, 5V or 3.3V, configured by FW
2		
3	GND	Ground
4		
5	TXA3+	LVDS data 1st pixel
6	TXA3-	LVDS data 1st pixel
7	TXACL+	LVDS clock 1st pixel
8	TXACL-	LVDS clock 1st pixel
9	TXA2+	LVDS data 1st pixel
10	TXA2-	LVDS data 1st pixel
11	TXA1+	LVDS data 1st pixel
12	TXA1-	LVDS data 1st pixel
13	TXA0+	LVDS data 1st pixel
14	TXA0-	LVDS data 1st pixel
15	TXB3+	LVDS data 2nd pixel
16	TXB3-	LVDS data 2nd pixel
17	TXBCL+	LVDS clock 2nd pixel
18	TXBCL-	LVDS clock 2nd pixel
19	TXB2+	LVDS data 2nd pixel
20	TXB2-	LVDS data 2nd pixel
21	TXB1+	LVDS data 2nd pixel
22	TXB1-	LVDS data 2nd pixel
23	TXB0+	LVDS data 2nd pixel
24	TXB0-	LVDS data 2nd pixel
25	BKLT_EN	Backlight Enable Signal, 3.3V or 5V, configured by FW

10.15 CON14 – LVDS Power & Option Connector

Pin	Signal	Description
1	LVDS_OPT_0	LVDS Option Signal 0 (3.3V, configured by FW) Function depends on panel and cable
2	SVCC	Switched panel power supply: 12V, 5V or 3.3V, configured by FW
3		
4	GND	Ground
5	GND	Ground

10.16 CON15 – LVDS Option Connector

Pin	Signal	Description
1	GND	Ground
2	nc	Not connected
3	nc	Not connected
4	nc	Not connected
5	nc	Not connected
6	LVDS_OPT_1	LVDS Option Signal 1 (3.3V, configured by FW) Function depends on panel and cable
7	LVDS_OPT_2	LVDS Option Signal 2 (3.3V, configured by FW) Function depends on panel and cable
8	LVDS_OPT_3	LVDS Option Signal 3 (3.3V or 5V, configured by FW) Function depends on panel and cable

10.17 CON16 – Backlight Power Supply Connector

Pin	Signal	Description
1	+12V_BKLT	12V backlight power supply
2	GND	Ground
3	BKLT_EN	Backlight Enable Signal: 3.3V or 5V, configured by FW
4	BRT_ADJ	Backlight Dimming: Analog (DC) or PWM, configured by FW
5	+5V_BKLT	5V backlight power supply
6	+5V_BKLT	5V backlight power supply
7	+12V_BKLT	12V backlight power supply
8	+12V_BKLT	12V backlight power supply
9	GND	Ground
10	GND	Ground

10.18 CON17 – I2C Touch Connector

This connector can be used to connect an I2C touch or any other I2C device to the Compute Module.

Pin	Signal	Description
1	+3.3V	3.3V Power Output
2	SDA1	Touch Controller I2C Data
3	SCL1	Touch Controller I2C Clock
4	GND	Ground
5	INT_N	Touch Controller Interrupt
6	RESET_N	Touch Controller Reset

10.19 CON18 – GPIO Connector

General purpose connector of the Compute Module.

Pin	Signal	Description
1	+3.3V	3.3V Power Output
2	CLK0/GPIO4	ARM multi-purpose GPIO
3	CLK1/GPIO5	ARM multi-purpose GPIO
4	CLK2/GPIO6	ARM multi-purpose GPIO
5	CE1N/GPIO7	ARM multi-purpose GPIO
6	CE0N/GPIO8	ARM multi-purpose GPIO
7	MISO/GPIO9	ARM multi-purpose GPIO
8	MOSI/GPIO10	ARM multi-purpose GPIO
9	SCLK/GPIO11	ARM multi-purpose GPIO
10	PWM0/GPIO12	ARM multi-purpose GPIO
11	PWM1/GPIO13	ARM multi-purpose GPIO
12	SCL1	I2C Clock
13	SDA1	I2C Data
14	GND	Ground

10.20 CON19 – UART2 Connector

UART port from an internal USB-to-UART bridge. This bridge is connected via an USB hub to the Compute Module.

Pin	Signal	Description
1	UART2 TX	Serial Output from USB-to-UART bridge
2	UART2 RX	Serial Input to USB-to-UART bridge
3	+3.3V	3.3V Power Output
4	+5V	5V Power Output
5	GND	Ground

10.21 CON20 – UART3 Connector

UART port from an internal USB-to-UART bridge. This bridge is connected via an USB hub to the ARM controller/Compute Module.

Pin	Signal	Description
1	UART3 TX	Serial Output from USB-to-UART bridge
2	UART3 RX	Serial Input to USB-to-UART bridge
3	+3.3V	3.3V Power Output
4	+5V	5V Power Output
5	GND	Ground

10.22 CON22 – Internal USB Host 3 Type A Connector

Connectors CON22 and CON23 are connected in parallel. Use either CON22 or CON23.

Pin	Signal	Description
1	+5V	5V power Output for external device (max. 0.5A, fuse protected)
2	D-	USB Data - Line
3	D+	USB Data + Line
4	GND	Ground

10.23 CON23 – Internal USB Host 3 Pin Header Connector

Connectors CON22 and CON23 are connected in parallel. Use either CON22 or CON23.

Pin	Signal	Description
1	+5V	5V Power Output for external device (max. 0.5A, fuse protected)
2	GND	Ground
3	D-	USB Data -
4	D+	USB Data +
5	GND	Ground

10.24 CON24 – Internal Mini USB Type B Connector (Slave)

This connector is only used for FW programming. Connecting an external host PC to this connector automatically resets the ARM controller and simultaneously disabled the internal eMMC flash memory on the Compute Module. Thus the ARM controller falls back to booting from USB, allowing a FW update by using for example the following USB Boot SW:
https://www.raspberrypi.org/documentation/hardware/computemodule/cm-emmc-flashing.md

Pin	Signal	Description
1	VBUS	5V Power Input from an external host
2	D-	USB Data -
3	D+	USB Data +
4	ID	Not connected
5	GND	Ground

10.25 CON25 – UART0 Connector

ARM/Compute Module Debug Console.

Pin	Signal	Description
1	UART0 TX	Serial Output from ARM
2	UART0 RX	Serial Input to ARM
3	+3.3V	3.3V Power Output
4	+5V	5V Power Output
5	GND	Ground

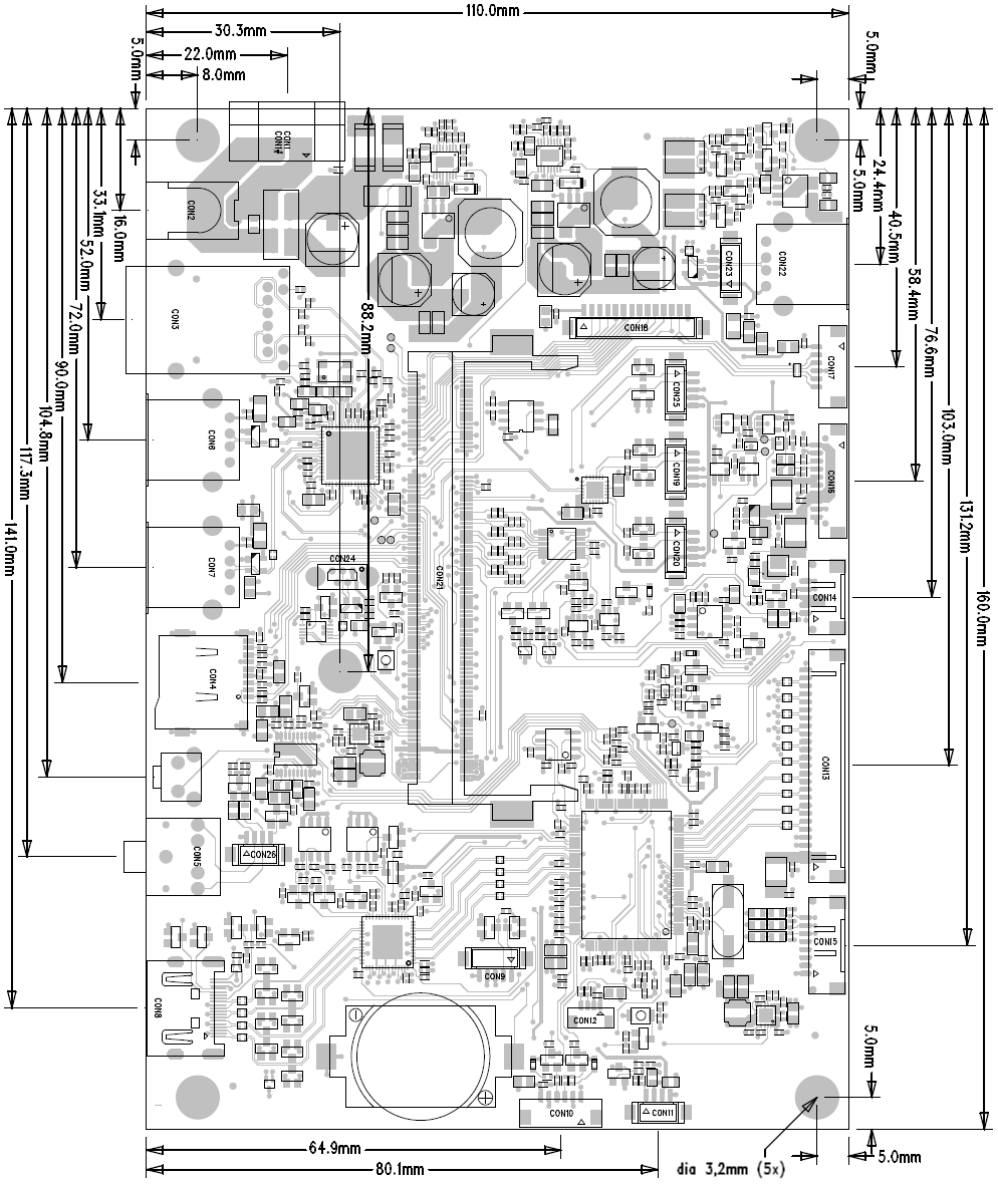
10.26 CON21 – Raspberry Pi Compute Module Connector

Pin	Signal	Description
1, 7, 13, 19, 25, 26, 31, 32, 37, 38, 43, 44, 49, 50, 55, 56, 61, 62, 67, 68, 73, 74, 79, 80, 85, 86, 91, 92, 97, 98, 103, 104, 109, 110, 115, 116, 121, 122, 127, 133, 134, 139, 140, 145, 146, 151, 152, 157, 163, 164, 169, 170, 181, 182, 187, 188, 195, 196	GND	Ground
39, 40, 41, 42	GPIO_VREF	Connected to +3.3V Power Supply
183, 184, 185, 186	1V8	Connected to +1.8V Power Supply
189, 190	VDAC	Connected to +3.3V Power Supply
191, 192, 193, 194	3V3	Connected to +3.3V Power Supply
197, 198, 199, 200	VBAT	Connected to +3.3V Power Supply
2	EMMC_DISABLE_N	ARM will fail to boot from eMMC if this input pin is low and will fall back to booting from USB. This happens if a Host PC is connected to CON24.
3	EP5	Engineering test point
5	EP1	Engineering test point
52	INT_N	Touch Controller Interrupt (to CON17)
54	RESET_N	Touch Controller Reset (to CON17)
9	SDA1	I2C Data (to CON17 and CON18)
11	SCL1	I2C Clock (to CON17 and CON18)
15	CLK0/GPIO4	ARM multi-purpose GPIO (to CON18)
17	CLK1/GPIO5	ARM multi-purpose GPIO (to CON18)
21	CLK2/GPIO6	ARM multi-purpose GPIO (to CON18)
23	CE1N/GPIO7	ARM multi-purpose GPIO (to CON18)
27	CE0N/GPIO8	ARM multi-purpose GPIO (to CON18)
29	MISO/GPIO9	ARM multi-purpose GPIO (to CON18)
33	MOSI/GPIO10	ARM multi-purpose GPIO (to CON18)
35	SCLK/GPIO11	ARM multi-purpose GPIO (to CON18)
28	+5V_PWR_GOOD	+5V System Power Good Signal (input) LOW: 5V system power is OFF HIGH: 5V system power is ON
30	SDCARD_DETECT	SD Card Detection (to CON4, input) LOW: Card inserted HIGH: Card ejected
34	EP3	Engineering test point

36	LAN_RUN	LAN & USB Hub Enable Signal (output) LOW: LAN and all USB Host-Ports OFF HIGH: LAN and all USB Host-Ports ON
45	PWM0/GPIO12	ARM multi-purpose GPIO (to CON18)
47	PWM1/GPIO13	ARM multi-purpose GPIO (to CON18)
46	UART_TX	Serial output connected to Scaler input UART1 RX (and to CON9)
48	UART_RX	Serial input connected to Scaler output UART1 TX (and to CON9)
51	UART0_TX	Serial output (to CON25)
53	UART0_RX	Serial input (to CON25)
57	SCALER_RST	Reset output to scaler chip LOW: Scaler in normal operation HIGH: Scaler in hard reset
58	RESCUE_SYSTEM	Rescue System
59	SCALER_INT	Direct connection to scaler GPIO (function TBD)
63	CPU_INT	Direct connection to scaler GPIO (function TBD)
65	PPWR_GOOD	Panel Power Good Signal (input) LOW: Panel Power OFF HIGH: Panel Power ON
69	EP2	Engineering test point
71	EP4	Engineering test point
60	HW_CONFIG_0	HW coded BOM revision with HW_CONFIG_0 being the LSB (input)
64	HW_CONFIG_1	
66	HW_CONFIG_2	
70	HW_CONFIG_3	
72	HW_CONFIG_4	
76	HW_CONFIG_5	HW coded PCB revision with HW_CONFIG_5 being the LSB (input)
78	HW_CONFIG_6	
84	HW_CONFIG_7	
82	LAN_CLK	25MHz output for LAN chip
90	EP6	Engineering test point
88	HDMI_HPD	HDMI hot plug detect (input)
111	HDMI_RXC-	Differential TMDS Clock-
113	HDMI_RXC+	Differential TMDS Clock+
117	HDMI_RX0-	Differential TMDS Data 0-
119	HDMI_RX0+	Differential TMDS Data 0+
123	HDMI_RX1-	Differential TMDS Data 1-
125	HDMI_RX1+	Differential TMDS Data 1+
129	HDMI_RX2-	Differential TMDS Data 2-
131	HDMI_RX2+	Differential TMDS Data 2+
171	HDMI_CEC	HDMI CEC Bus
173	HDMI_SDA	HDMI DDC Data

175	HDMI_SCL	HDMI DDC Clock
165	USB_DP	Differential USB Data+
167	USB_DM	Differential USB Data-
168	USB_OTGID	Connected to 1kOhm pull-down resistor
177	CPU_RESET	Reset input connected to optional reset switch SW2
All other pins of the Compute Module are not connected.		

11 Mechanical Dimensions

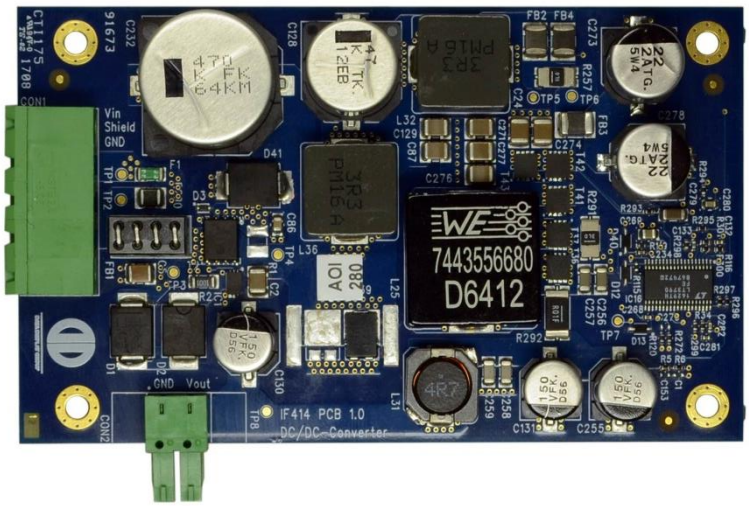


		Min	Typ	Max
Width		109,9 mm	110,0 mm	110,1 mm
Length		140,9 mm	141,0 mm	141,1 mm
Height	**PCB**	1,44 mm	1,6 mm	1,76 mm
	Components on Top			15,0 mm
	Components on Bottom			2,5 mm

12 Accessories

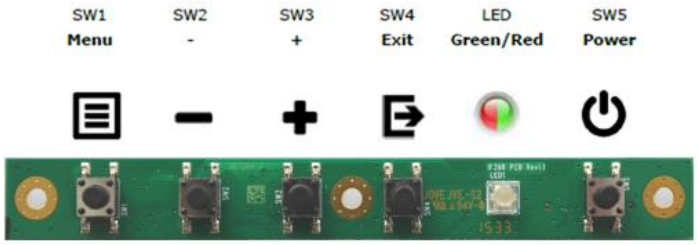
12.1 Wide Range DC/DC Regulator ZU-02-414

A wide range DC/DC converter is available that converts input voltages from 8V up to 36V to a stable output voltage of 12V. It can be connected directly to the power connector CON1 of ArtistaMedia-III.



12.2 OSD Keypad ZU-02-398

An OSD keypad can be used to control the On Screen Menu of the scaler chip.
Fitting cables to CON10: KA-30-394 (80cm) or KA-30-613 (45cm)

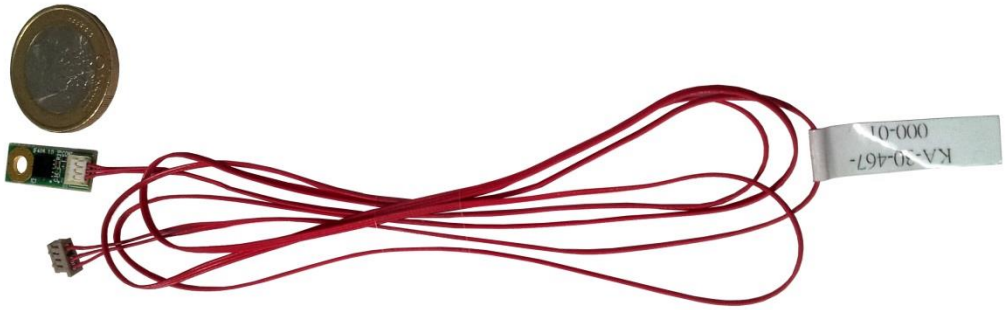


The following table gives an overview about the functionality.

	Menu	-	+	Exit	LED	Power
OSD closed	Open OSD		Hotkey Brightness	Input Select	Same as LED1+2 in chapter 9	Power ON/OFF
OSD open	Select	Down/Left/-	Up/Right/+	Exit/Back		

12.3 I/R Sensor ZU-02-406 and I/R Remote Control RC-10-005

As an alternative to the external keypad, the scaler chip can be controlled through infrared. IR sensor and IR remote control devices are provided by Distec.
Fitting cable to CON11: KA-30-467.



12.4 Light Sensor ZU-02-412

This light sensor can be connected to the scaler chip to automatically adjust the panel brightness according to the ambient light. Fitting cable to CON12: KA-30-786.

12.5 Temperature Sensor ZU-02-389

A temperature sensor is available to check the temperature of a TFT panel or any other hardware. FW support is provided upon request. Fitting cable to CON12: KA-30-323.

13 Reference Kits

13.1 Artista-IoT Starter Kits

The Artista-IoT Starter Kits are ready to use evaluation kits containing the ArtistaMedia-III Base Board, the Raspberry Pi Compute Module 3 (CM3) with preinstalled Raspbian OS, a 10.1” display, an I2C multi-touch sensor and further accessories like cables and adapters.

Artista-IoT is intended for developers who want to bring their own software applications on an industrial grade Raspberry Pi based product.

For further information please refer to the Artista-IoT User Manual.

Order numbers:

KI-53-000	10,1 Artista-IoT Starterkit TM
KI-53-002	10,1 Artista-IoT Starterkit AUO
KI-53-002_US	US-10,1 Artista-IoT Starterkit AUO

Main parts of the kit KI-53-000:

Part	Part Number	Part Description	Qty
Display (Tianma)	TI-01-001	TM101JDHG30-00 10,1/SFT/WXGA/500cd+C	1
Touch Sensor	TO-09-014R1.1	TP-DD1010-A04 (10.1w,PCAP,COF,I2C)	1
Artista-IoT Controller	PA-36-000	CP Artista-IoT/TM101JDHG30-00	1

Main parts of the kit KI-53-002 and KI-53-002_US:

Part	Part Number	Part Description	Qty
Display (AUO)	UP-02-096	G101EVN01.0 10,1/MVA/WXGA/300cd+C	1
Touch Sensor	TO-09-014R1.1	TP-DD1010-A04 (10.1w,PCAP,COF,I2C)	1
Artista-IoT Controller	PA-36-017	CP Artista-IoT/G101EVN01.0	1

Part list of the Artista-IoT Controllers PA-36-000 and PA-36-017:

Part	Part Number	Part Description	Qty
Base Board (1)	AR-02-201_A1	ArtistaMedia-III-BB-00 (Base Board)	1
Compute Module 3 (1)	PC-02-015	Raspberry Pi Compute Module 3 (CM3)	1
RTC Battery	ZX-42-128	Battery Button Cells CR2032 Blister Pack	1

(1): The parts listed here are not programmed with any firmware. The parts must be ordered as assembly PA-36-000 or PA-36-017 to be flashed with Raspbian OS firmware.

13.2 VideoPoster-IV Reference Kit

The VideoPoster-IV Reference Kit is a ready to use Media Player kit containing the ArtistaMedia-III Base Board, the Raspberry Pi Compute Module 3 (CM3) with preinstalled VideoPoster-IV firmware, a 21.5” FHD display and further accessories like cables.

VideoPoster-IV is intended for developers who require a ready to use industrial grade media player platform.

For further information please refer to the VideoPoster-IV User Manual.

Order number:

KI-49-001 21,5 G215HVN01.0/VP-IV

Main parts of the kit:

Part	Part Number	Part Description	Qty
Display	UP-02-086R1.1	G215HVN01.0 (S03) 21,5/A-MVA/FHD/300cd+C	1
VideoPoster-IV Controller	PA-35-001	VP-IV-00/G215HVN01.0	1

Part list of the VideoPoster-IV Controller PA-35-001:

Part	Part Number	Part Description	Qty
Base Board (1)	AR-02-201_A1	ArtistaMedia-III-BB-00 (Base Board)	1
Compute Module 3 (1)	PC-02-015	Raspberry Pi Compute Module 3 (CM3)	1
RTC Battery	ZX-42-128	Battery Button Cells CR2032 Blister Pack	1

(1): The parts listed here are not programmed with any firmware. The parts must be ordered as assembly PA-35-001 to be flashed with VideoPoster-IV firmware.

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