TRACe M304-TR

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EN50155[*] TRAIN MANAGEMENT COMPUTER

▶ Fanless Box Computer with MVB Interface for Coach Management & Monitoring

▶ MVB up to Class 4. Process Data, Message Data, Bus Administrator, EMD/ESD+

▶ Intel® Atom™ E3845 quad-core @ 1.91 GHz

▶ P50 (Desktop) / IP51 (Wall Mount) Ingress Protection from all directions

▶ EN50155 Class Tx (Operating -40°C to +70°C / 10 min @ +85°C)

[*] Conformal coating of internal components is optional.

POSSIBILITIES START HERE **kontron**

▶ PRODUCT OVERVIEW

Kontron TRACe M304-TR is an EN50155 compliant[*] fanless Operational Computer. This "M" version is a specifically designed for Train Management.

The M304-TR version is based on an Intel® Atom E3845 quad-core @ 1.91 GHz Bay Trail processor. It has been designed to ensure stable operation in harsh environments.

Offering MVB and Ethernet field busses, Kontron TRACe M304-TR is the ideal building block for any Train Control Monitoring System:

▶ Kontron TRACe M304-TR allows communication between equipment in each coach, and then can control and monitor doors, air conditioning, seat reservation, light, power, brakes, … Its MVB interface (up to Class 4) features process data, message data (opt.), bus administrator (opt.) on EMD/ESD+ physical interfaces.

▶ Kontron TRACe M304-TR offers 2 independent Gigabit Ethernet LAN through isolated and lockable M12 connectors. Then TRACe M304-TR can be used as an Ethernet-MVB gateway.

▶ Moreover TRACe M304-TR features 1x WLAN 802.11 a/b/g/n Wi-Fi network interface.

The Kontron TRACe M304-TR features a wide range power supply (from 24 VDC to 110 VDC). Its front plate is dedicated to the operational connectors (certified I/O according to EN50155 standard: Ethernet, Serial ports, Audio, Digital Inputs and Outputs) whereas the rear plate hosts maintenance connectors (DisplayPort, USB, Serial, Ethernet). Internally, Kontron TRACe M304-TR also provides 2 x 2.5" SATA disks connections.

TRACe M304-TR has been designed to support a comprehensive health management capability, thanks to sensors and a microcontroller for system health monitoring. The integrated microcontroller monitors boards and in-box ambient temperature, voltages, current and even manages Vital Product Data (P/N, S/N, EC Lvl…) of main components. Health management middleware by Kontron covers all the vital resources of TRACe™ to report, log, and transmit any out of specs parameters and/or any failures at power-on and during operations of TRACe M304-TR.

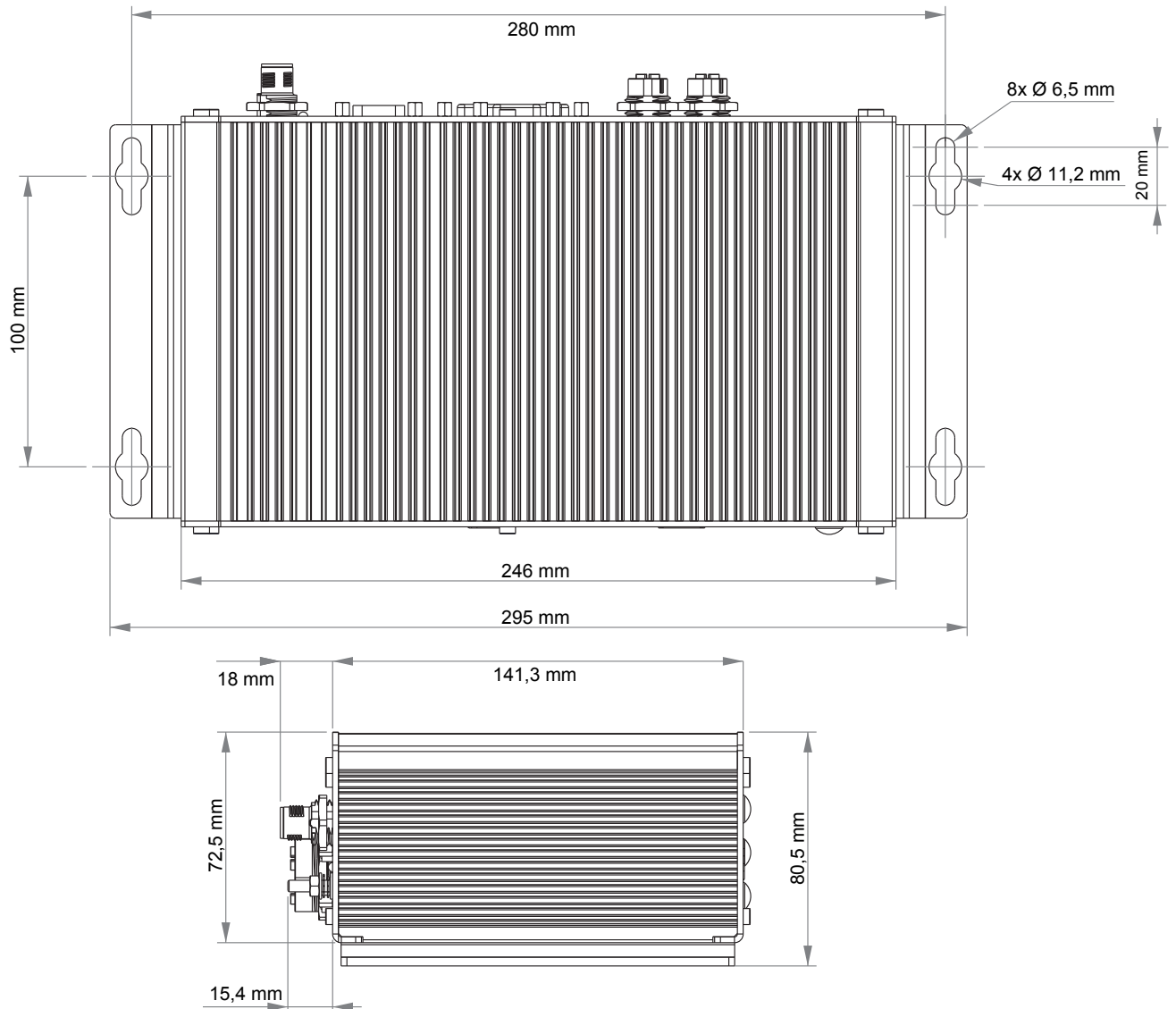[*]Conformal coating of internal components is optional.

▶ TECHNICAL INFORMATION

PROCESSOR		Intel® Atom™ E3845 quad-core @ 1.91 GHz (Bay Trail-I Platform)
MEMORY	System Memory	2 GB DDR3 with ECC
	Flash	8 GB soldered SLC Flash (eMMC
CONNECTIVITY	LAN	2x Gigabit Ethernet (M12)
	WLAN	1x Wi-Fi 802.11 a/b/g, 802.11n 2T2R up to 300 Mbps
	MVB	MVB Class 1 on EMD interface. Process Data, Bus Administrator. Message Data (opt), ESD+ (opt).
MASS STORAGE		2x SATA connections –for 2.5 inch HDD or SSD
		By default : 1x internal 128GB SSD MLC Industrial Grade Temperature
GRAPHIC CONTROLLER		Integrated 1D/3D Graphics Engine, GMA 3650/3600, Gfx clock 640/400 MHz, DirectX®9.1, Video Decode: MPEG2, Blu-Ray Disk 2.0, VC-1, H.264, WMV9 up to 1080p
	Interface/resolution	DisplayPort / 1366x768@112 MHz
OPERATIONAL PLATE	MVB	2x SUBD9-F
	Serial	2x serial ports (RS232-RS422-RS485), software configurable (insulated)
	Ethernet	2x Ethernet 10/100/1000 Mb/s, M12 X-coded 8-poles Female connectors (insulated)
	Audio Controller	Intel® High Definition Audio w/ HDMI 1.3a support
	Audio Interface	Stereo Line In, Stereo Line Out
	Digital Input	4x Inputs (sink current 10 mA, 1.5 Kv insulation)
	Digital Output	4x Outputs (open drain 24 VDC/10 mA, 1.5 Kv insulation)
	LED	1x System Power LED
	Input Power	1x DC IN power (1.5 kV insulation), M12 A-coded 4 Pin Male connector (with Ignition Pin for Power Control)
MAINTENANCE PLATE	Serial port	1x serial port
	USB	1x USB 3.0 (Super Speed 4 Gb/s), 1x USB 2.0 (Hi Speed 480 Mb/s)
	Ethernet	1x Ethernet 10/100/1000 Mb/s
	Display	1x DisplayPort
	LEDs	2x User LEDs, 1x Power LED, 1x Alarm LED, 1x System LED
POWER SUPPLY		Input Voltage wide range 24 VDC…110 VDC (Class S2, 10 ms interruption)
EXTENSION		2x SIM card holders (Dual SIM support), 1x free 2.5" SATA Disk holder left
		1x mSATA using Mini PCI-Express card slot (shared with one 2.5" SATA)
SUPPORTED OS		Pre-installed Linux Fedora 64bits (default), Windows 7, Windows Embedded Standard 7, Windows Embedded Standard 8
OPTION		Conformal coating

▶ ENVIRONMENTAL SPECIFICATIONS

OPERATING TEMPERATURE		-40°C up to +70°C (with 10 min at +85°C) EN50155 Class Tx
STORAGE TEMPERATURE		-40°C to +85°C
ENVIRONMENT / CERTIFICATIONS	ITE Safety Europe	EN 60950-1: 2006 +A1: 2010 +A2: 2013 + A11: 2009 +A12: 2011 . Safety Europe Directive
	Railway Safety	Supply Voltage: EN 50155: 2007. Railway
	Thermal Operating	Class Tx EN 50155 / NF EN 60068-2-1: 2007 / NF EN 60068-2-2: 2007 . Railway
	Climatic Test	Damp heat (55°C , 95% Relative Humidity), cyclic EN 50155 / NF EN 60068-2-30 Railway
	Random Vibration	Operating, Long life testing EN 50155 / NF EN 61373: 2011-04 / NF EN 60068-2-64: 2008
	Shock	EN 50155 / NF EN 61373: 2011-04 / NF EN 60068-2-27: 2009. Railway Class 1B
	EMC Emission	EN 50155 / NF EN50121-3-2 / EN 55011 [*]
	EMC Immunity	EN 50155 / NF EN50121-3-2 / EN 61000-4-2 / -4-3 / -4-4 / -4-5 / -4-6
	Others	CE. UL, WEEE, RoHS
	Environmental Protection	IP50 in Desktop position / IP51 in Wall Mounting position (NF EN 60529: 2000) [*]

[*] Tests validated with optional Cover Plate P/N TRACE-KITMT-1-V01 on Maintenance side.

▶ DIMENSIONS

▶ ORDERING INFORMATION

ARTICLE	ORDER CODE	DESCRIPTION
TRACe	TRACE-M304-TR	EN50155(*) fanless Management Computer. Intel® Atom E3845BayTrail (quad core @ 1.91 GHz) COMe CPU / 2 GB DDR3 with ECC, 8 GB SLC eMMC soldered Flash, MVB on EMD interface: Process Data + Bus Administrator, Wi-Fi 802.11 a/b/g/n 2T2R up to 300 Mbps, 128 GB SSD MLCI-TEMP, Pre-installed Linux OS. EN50155 class S2 Ultra Wide Range PSU 24 VDC-110 VDC / EN50155 Class TX (-40° to 70° C / 10min @ 85°C). IP50 horizontal position (desktop), IP51 vertical position (wall mount) with optional cover plate TRACE-KITMT-1-V01 (to be purchased separately) (*) conformal coating of internal components is optional
CABLE	TRACE-KIT-CAB-EVAL	Set of Cables for TRACe™ evaluation, consisting of: ▶ 1x Cable ASSY - Power (M12-A coded to free end), ▶ 1x Ethernet (M12-X coded to RJ-45), ▶ 1x Serial (RJ-12 to dual DB9) (see TRACe-TR Family User's Manual)
CABLE	TRACE-KITSATA-2	Set of SATA cables to install one 2,5'' SSD on TRACe™, consisting of: ▶ 1x SATA Pow cable, ▶ 1x SATA Data cable, ▶ 4x screws
CABLE	TRACE-STARTERKIT-1	Complete set of cables / accessories for TRACe evaluation, consisting of: ▶ 1x AC/DC converter cable assembly for DC-IN ▶ 1x USB Key Fedora 22 TRACe Live Image ▶ 1x M12 to RJ-45 Ethernet Cable ▶ 1x DisplayPort to VGA adapter ▶ 1x Serial cable (RJ-12 to dual DB9: CPU_A, CPU_B) : 1x KIT-2X-RJ12DB9 ▶ 3x Wi-Fi antennas Dual Band 2,4 GHz-5 GHz , ▶ 2x 3G/LTE antennas 5 dBi, ▶ 1x GPS antenna
COVER PLATE	TRACE-KITMT-1-V01	Maintenance Cover Plate for Dust & Water Protection
AC/DC PSU	TRACE-PSUASSY	TRACe AC PSU / Adapter 100-240 VAC to 24 VDC with M12 DC-INConnector. FOR LAB USE

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