

TRACe M304-TR



EN50155 CERTIFIED 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
- ▶ IP50 Ingress Protection from all Directions
- ▶ EN50155 Class Tx (Operating -40°C to +70°C / 10 min @ +85°C)

▶ PRODUCT OVERVIEW

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

The M304-TR version is based on a COMExpress® CPU module featuring Intel® Atom E3845 quad-core @ 1.91 GHz (Bay Trail). 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.

▶ TECHNICAL INFORMATION

PROCESSOR		Intel® Atom™ E3845 quad-core @ 1.91 GHz (Bay Trail-I Platform)
MEMORY	System Memory Flash	2 GB DDR3 with ECC 8 GB soldered SLC Flash (eMMC)
CONNECTIVITY	LAN WLAN MVB	2x Gigabit Ethernet (M12) 1x Wi-Fi 802.11 a/b/g, 802.11n 2T2R up to 300 Mbps 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
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 DisplayPort / 1366x768@112 MHz
OPERATIONAL PLATE	MVB Serial Ethernet Audio Controller Audio Interface Digital Input Digital Output LED	2x SUBD9-F 2x serial ports (RS232-RS422-RS485), software configurable 2x Ethernet 10/100/1000 Mb/s, M12 X-coded 8-poles Female connectors Intel® High Definition Audio w/ HDMI 1.3a support Stereo Line In, Stereo Line Out 4x Inputs (sink current 10 mA, 1.5 Kv insulation) 4x Outputs (open drain 24 VDC/10 mA, 1.5 Kv insulation) 1x System Power LED
MAINTENANCE PLATE	Serial port USB Ethernet Display LEDs	1x serial port 1x USB 3.0 (Super Speed 4 Gb/s), 1x USB 2.0 (Hi Speed 480 Mb/s) 1x Ethernet 10/100/1000 Mb/s 1x DisplayPort 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) ⁽¹⁾
EXTENSION		2x SIM card holders (Dual SIM support), 2x 2.5" SATA Disk holders 1x mSATA using Mini PCI-Express card slot (shared with one 2.5" SATA)
PROTECTION CLASS		IP50 on all faces
SUPPORTED OS		Linux (Fedora 22), Windows 7, Windows Embedded Standard 8
OPTION		Conformal coating

⁽¹⁾ Depending on hardware revision, nominal input voltage range might be limited to 24-48 VDC; please refer to "SDDTG45 - TRACe-TR Family User's Manual" for detailed information.

▶ ENVIRONMENTAL SPECIFICATIONS

OPERATING TEMPERATURE		-40°C up to +70°C (with 10 min at +85°C) EN50155 Class Tx
ENVIRONMENT / CERTIFICATIONS	ITE Safety Europe Railway Safety Thermal Operating Climatic Test Random Vibration Shock EMC Emission EMC Immunity Others Environmental Protection	EN 60950-1: 2006 +A1: 2010 +A2: 2013 + A11: 2009 +A12: 2011 . Safety Europe Directive Supply Voltage: EN 50155: 2007. Railway Class Tx EN 50155 / NF EN 60068-2-1: 2007 / NF EN 60068-2-2: 2007 . Railway Damp heat (55°C , 95% Relative Humidity), cyclic EN 50155 / NF EN 60068-2-30 Railway Operating, Long life testing EN 50155 / NF EN 61373: 2011-04 / NF EN 60068-2-64: 2008 EN 50155 / NF EN 61373: 2011-04 / NF EN 60068-2-27: 2009. Railway Class 1B EN 50155 / NF EN50121-3-2 / EN 55011 ^(*) EN 50155 / NF EN50121-3-2 / EN 61000-4-2 / -4-3 / -4-4 / -4-5 / -4-6 CE, UL, WEEE, RoHS IP50 rating (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 certified fanless Management Computer, Intel® Atom E3845 Bay Trail (quad core @ 1.91 GHz) COMe CPU, 2 GB DDR3 with ECC, 8 GB eMMC soldered Flash, MVB Class 1 : Process Data + Bus Administrator, Wi-Fi 802.11 a/b/g/n 2T2R up to 300 Mbps, 128GB SSD MLC I-TEMP, Railway certified Wide range PSU 24 VDC-110 VDC, EN50155 Class TX (-40° to 70° C / 10min @ 85°C)
TRACe	TRACE-B304-TR	EN50155 certified fanless Operational Computer (Generic Baseline), Intel® Atom E3845 Bay Trail (quad core @ 1.91 GHz) COMe CPU, 2 GB DDR3 with ECC, 8 GB eMMC soldered Flash, OS less , 3 mPCIe slots, Railway certified Wide range PSU 24 VDC-110 VDC, EN50155 Class TX (-40° to 70° C / 10min @ +85° C)
TRACe	TRACE-B314-TR	EN50155 certified fanless Operational Computer (Generic Baseline), Intel® Atom E3845 Bay Trail (quad core @ 1.91 GHz) COMe CPU, 2 GB DDR3 with ECC, 8 GB eMMC soldered Flash, OS less , 3 mPCIe slots, Railway certified Wide range PSU 24VDC-110VDC, EN50155 Class TX (-40° to 70° C / 10min @ +85° C), USB on M12 connector, IP54
TRACe	TRACE-V304-TR	EN50155 certified fanless Network Video Recorder, Intel® Atom E3845 Bay Trail (quad core @ 1.91 GHz) COMe CPU, 2 GB DDR3 with ECC, 8 GB eMMC soldered Flash, Wi-Fi 2T2R up to 300 Mbps, 2x disks tray for up to 2x removable 2.5" SATA disks. Railway certified Wide range PSU 24 VDC-110 VDC, EN50155 Class TX (-40° to 70° C / 10min @ 85°C)
TRACe	TRACE-G304-TR	EN50155 certified fanless Gateway, Intel® Atom E3845 Bay Trail (quad core @ 1.91 GHz) COMe CPU, 2 GB DDR3 with ECC, 8 GB eMMC soldered Flash, Wi-Fi 802.11 a/b/g/n 3T3R up to 450 Mbps, 3G/4G/GNSS, 128 GB SSD MLC I-TEMP, Railway certified wide range PSU 24 VDC-110 VDC, EN50155 Class TX (-40° to 70° C / 10min @ 85°C)
CABLE	TRACE-KIT-CAB-EVAL	Set of Cables for TRACe™ evaluation, consisting of: <ul style="list-style-type: none"> ► 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-1	Set of SATA cables to install one 2,5" SSD on TRACe™, consisting of: <ul style="list-style-type: none"> ► 1xSATA Pow cable, ► 1x SATA Data cable, ► 4x screws and spacers
CABLE	TRACE-STARTERKIT-1	Complete set of cables / accessories for TRACe evaluation, consisting of: <ul style="list-style-type: none"> ► 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

► CORPORATE OFFICES

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