

# T2000 – Rail

## SY-T2000-TBR

**The T2000 TBR is an adaptive, rail-certified hardware platform with the versatility to meet the needs of any customer. Featuring capacity for two removable hard drives, it is an ideal solution for rolling stock.**



Featuring a range of expandable module configurations for seamless access to Synectics Cloud Services, the combination of the T2000 and our cloud-based software enables security and fleet management in one, unified platform.

With an internet connection via GSM, the integration to Synectics Cloud Services enables:

- Access to live CCTV, telematics, and vehicle health data
- Historical route analysis, incident creation, and footage export
- End-to-end evidence management and collaboration with emergency services, insurers, and other third parties
- Easy management of footage requests
- Fleet-wide asset management

As a standalone NVR, the T2000 features core functionality that transport operators depend upon including GPS and CAN bus support and a secure proprietary file system.

The T2000 can be tailored to specifications and operational requirements. In addition to the removable hard drives, optional storage expansion through Network Attached Storage (NAS) offers increased retention or higher frame rates and resolutions.

A highly reliable device in a wide range of environmental conditions, the unit is designed to comply with EU standards and transport-specific standards for various vehicle types relating to EMC, shock, vibration, and temperature.

### Features

- Up to 32 digital IP video streams
- Up to 2x 2.5" removable hard disks
- Customisable expansion modules to provide dual SIM GSM modem, digital I/O, M12/ethernet expandable LAN, tri-axis accelerometer, and CAN bus
- EN 50155, EN 50121, ISO 7637, DNV 2.4, EN 45545-2, and IEC 60945 certification

# Specifications

GENERAL	
Dimensions (WxHxD) mm	321 x 73.3 x 210.2mm (excluding connections / mounting brackets)
Mounting	Wall mount brackets included
Chassis Construction	Extruded aluminium and heavy-duty steel (IP30)
CPU (Processor)	Intel® Celeron® 3965U 2C @ 2.2 GHz
RAM (Memory)	2 x 4GB DDR4 -1866/2133 SO-DIMM (8GB total)
PSU Input	16.8 ~ 137.5 VDC, typical: 24/48/72/96/110 VDC (EN 50155)
Consumption	PoE power output maximum 120W 15.4W/8 ports (802.3af), 30W/4 ports (802.3at)
Operating System	Linux with proprietary VM-based application
CAMERA	
Video Inputs	Up to 16 full-HD digital IP cameras (PAL / NTSC)
Streams per Input	Total: 2 (1 HD for recording and 1 SD for display output)
Maximum Resolution / Frame Rate	3840 x 2160: up to 25/30 fps
RECORDING	
Hard Drive	2x removable & lockable caddies supporting 2x 2.5" SATA III 6Gb/s Hard drive(s) not included
Maximum Hard Drive Height	15mm
Hard Drive Size	Up to 4TB
Resolution IP Camera	Determined by camera stream resolution
Frame Rate	Up to 25/30 fps per channel
File System	Synectics File System for lower-energy use and maximum recording efficiency, integrity, and security
Recording Disk Write Cycle	1 second
VIDEO COMPRESSION	
Compression	Selectable H.264 AVC high profile / main profile (MPEG4 part 10)
Data Rate	Maximum 6Mb/s per IP camera Maximum total throughput for all connected IP cameras ~64Mb/s
MONITOR OUTPUTS	
Digital	1 x DVI-I (3840 x 2160 @ 60Hz)
Display Format	All monitor outputs configurable as full-screen, 1x2, and 2x2
AUDIO	
Inputs	4 mono channels via IP camera microphone
Input Level	1V RMS
Compression	G.711
Sampling Rate	8K / 16K

**NETWORK**

Interface	1 x RJ-45 10/100/1000 Mbps Ethernet
Protocols Supported	RTP/RTSP / TCP/IP / UDP / IGMP / SNMP / HTTP / NTP
Password Levels	Administrator / Super User / User
Supported Internet Browsers	Internet Explorer 11 / Edge / Chrome / Firefox

**OPERATION**

USB 3.0	Communications interface (peripherals), 4 ports
GPS	Via RS-232 COM port
Serial Data	Serial COM port, RS-232/422/485
Events	Comprehensive health and event recording Comprehensive data recording (geofencing and real-time tracking via Synectics Cloud Services) Event-driven incident retrieval (via Synectics Cloud Services)

**ENVIRONMENTAL**

Environment	IP30 protection
Cooling	Fanless passive cooling to prevent dirt/dust ingress
Operating Temperature	-40°C ~ +70°C with W.T. SSD -25°C ~ +55°C with W.T. HDD
Storage Temperature	-40°C ~ +80°C
Humidity	5% ~ 95% non-condensing
Operating Shock	IEC\EN 61373:2010 Section 9 Table 2 Category 1 Class B, IEC\EN 61373 Section 10 Table 3 Category 1 Class B, half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction) compliant
Operating Vibration	5 Grms w/ SSD (5 ~ 500Hz, X/Y/Z direction; random) 1.5 Grms w/ HDD (5 ~ 500Hz, X/Y/Z direction; random)
Weight (Net/Gross)	3.5 kg / 4.5 kg
Certifications	EN 50155, EN 50121, ISO 7637, DNV 2.4, EN 45545-2, IEC 60945

**PART CODES****MODULE FEATURES**

SY-T2000-TBR	Base NVR
SY-T2000-TBR-100	4 x 4-wire isolated RS-232/422/485
SY-T2000-TBR-101	4 x isolated CAN bus 2.0A/B

**SY-T2000-TBR Rear View**

Specifications subject to change. E &amp; OE.