

M1N-TKH0401



Revision History

Date	Revision Version	Description	Author
April 9, 2021	V 2.1	Added the description of the frequency bands supported by 4G and Wi-Fi.	Wang Xiaoyong
April 14, 2021	V 2.2	Added the description of AI functions.	Wei Yiwen
December 14, 2021	V 2.3	Modified the description of AI functions.	Lyons Liu
December 14, 2022	V 2.4	Added description of AI capability and video resource configuration, and some text optimizations (supporting M1N V1.3).	Zhou Hao / Wang Xiaoyong

Overview

Streamax M1N-TKH0401 is a highly integrated AI MDVR for fleet video monitoring services. It has a high-speed processor and embedded operating system, combined with the most advanced H.265 video compression/decompression technology, GPS positioning technology. It supports video recording in 1080P, 720P, WD1, WHD1, WCIF, D1, HD1 and CIF formats. It is easy to use with simple design, multiple functions, superior anti-vibration performance, flexible installation and high reliability.

Highlight

- Supports 4-channel AHD (1080P) +1-channel IPC (1080P)
- Supports H.265
- Supports 2 x SD card
- Supports WIFI/BT4.0
- Supports 3G/4G
- Supports GPS
- Supports Remote Wake-up
- Supports Low Consumption Sleep Mode
- Support AI event detection (equipped with 2 channels)

Active Safety Features

Streamax M1N-TKH0401 is equipped with a two-channel AI algorithm (supporting DMS, ADAS, and BSD scenarios), and supports external ADKit (supporting DMS and ADAS scenarios). The DMS algorithm can detect dangerous driving behaviors, and the ADAS algorithm can assist drivers in safe driving. The ADAS algorithm can be replaced with BSD as needed. Any detected event will trigger audible and visual reminders to warn the driver in real time, and the event video will also be uploaded to the cloud at the same time.

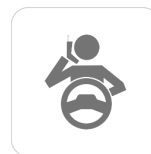
DMS Features



Lens Covered



Fatigue



Phone Call



Smoking



Distraction



No Driver Detected



Safety Belt Not Fastened

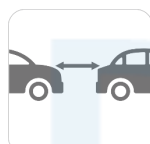


Yawning

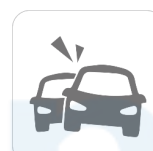
ADAS Features



LDW



HMW



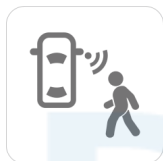
FCW

Optional Active Safety Features

BSD Features



Left Blind Spot Detection



Right Blind Spot Detection



Front Blind Spot Detection

Specifications

Product Model	
	M1N-TKH0401
Function Overview	
	Preview, video recording, playback, network transmission, and positioning
System	
Operating System	Linux 4.9
Control Mode	CP4, mouse, EasyCheck, network (3G/4G/Wi Fi)
Video	
Input	4-channel AHD + 1-channel IPC
Output	1-channel (CVBS)
Total Resources* (equipped with 2-channel AI)	PAL: 1*1080P@25fps (ADAS) + 1*720P@25fps (DMS) + 2*720P@15fps (AHD) + 1*1080P@15fps (IPC) Or 4*720@25fps (AHD) + 1*1080P@15fps (IPC) NTSC: 1*1080P@30fps (ADAS) + 1*720P@30fps (DMS) + 2*720P@15fps (AHD) + 1*1080P@15fps (IPC) Or 4*720@30fps (AHD) + 1*1080P@15fps (IPC)
Total Resources (not using self-equipped AI)	PAL: 4*1080P@15fps (AHD) + 1*1080P@25fps (IPC) Or 4*720@25fps (AHD) + 1*1080P@25fps (IPC) NTSC: 4*1080P@15fps (AHD) + 1*1080P@30fps (IPC) Or 4*720@30fps (AHD) + 1*1080P@30fps (IPC)
Video Signal Standards	Level: 1 Vpp; impedance: 75 ohm NTSC/PAL (optional)
Audio	
Input	5 channels (1-channel IPC audio)
Output	1 channel
Audio Signal Standards	Level: 2 Vpp; input impedance: 4.7 kilohm
Display	
Screen Split	1/4/9-screen display
Screen Display	Positioning information, alarms, license plate numbers, driving speed, time, etc.
Operating Interface	GUI

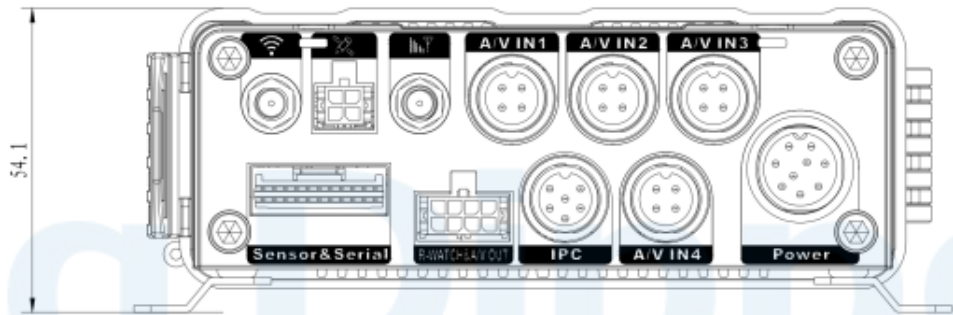
Recording	
Video Compression Format	H.264/H.265
Audio Compression Format	ADPCM,G.711U
Image Quality	Levels 1–8 adjustable (preferably Level 1)
Recording Mode	Startup/Manual/Scheduled/Alarm event recording
Alarm Prerecording	0 – 60 min
Alarm Recording Delay	0 - 30 min
Playback	
Playback Channel	1-channel local playback
Search Mode	By date/time, channel, or event
Network	
IPC Ethernet	6-pin aviation plug (1 × 100M, PON power supply)
WIFI(Optional)	Supported 1 × SMA female connector 802.11a/b/g/n/ac
2G/3G/4G(Optional)	Supported 2 × SMA female connectors For North America EC25-AF LTE FDD: B2/B4/B5/B12/B13/B14/B66/B71 WCDMA: B2/B4/B5 For Europe and Asia EC25-EC LTE FDD: B1/B3/B7/B8/B20/B28A WCDMA: B1/B8 GSM: B3/B8 For Latin America EC25-AU LTE FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE TDD: B40 WCDMA: B1/B2/B5/B8 GSM: B2/B3/B5/B8
Positioning	
GPS(Optional)	Positioning, speed detection, and time synchronization GPS L1 1575.42 MHz BDS B1 1561.098MH GALILEO E1B/C1 GLONASS L1OF 1602MHz SBAS: WAAS, EGNOS, MSAS, GAGAN
Sensor	
G-Sensor	Built-in 6-axis inertial sensor
Storage	
SD	2 × SD card slots

Port	
USB	1 × USB2.0 (Type A)
RS485	1-channel (R-WATCH)
RS232	2
IO	8-channel input and 2-channel output
Speed	1 channel pulse speed detection
Control Panel	CP4 (accessories optional)
Intercom	1 × MIC port
CAN	1
UPS	Supported (external)
UTC	Supported
G-MOUSE	Supported and connected with the 5559 connector
Power Supply	
Input	DC 8 - 36 V
Output	5V@500 mA
Maximum Typical Power Consumption	29 W(5 Channels with IR on connected, CP4 connected, 5V_OUT connected)
Standby Power Consumption	0.7 W
Physical Characteristics	
Dimensions (mm)	167.3 × 146.3 × 54.1
Weight (kg)	0.83
Environment	
Operating Temperature	-40°C - +70°C
Operating Humidity	8% to 95% (non-condensing)

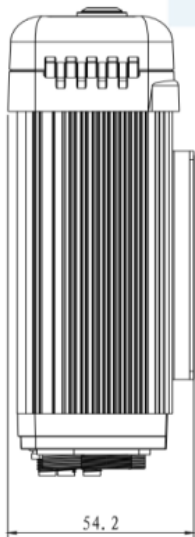
AI Capability Configuration of M1N+ADKit

Solution Configuration	AI Portfolio	Channel Resources				
		Channel 1	Channel 2	Channel 3	Channel 4	Channel 5
M1N-TKH0401	ADAS+DMS	ADAS 1080P, 30fps, image quality 3	DMS 720P, 30fps, image quality 3	AHD 720P, 15fps, image quality 3	AHD 720P, 15fps, image quality 3	IPC 720P, 30fps, image quality 1
	DMS	Ordinary monitoring 720P, 30fps, image quality 3	DMS 720P, 30fps, image quality 3	AHD 720P, 30fps, image quality 3	AHD 720P, 30fps, image quality 3	IPC 720P, 30fps, image quality 1
	ADAS	ADAS 1080P, 30fps, image quality 3	Ordinary monitoring 720P, 30fps, image quality 3	AHD 720P, 15fps, image quality 3	AHD 720P, 15fps, image quality 3	IPC 720P, 30fps, image quality 1
	ADAS + Top View BSD (either left/right/front)	ADAS 1080P, 30fps, image quality 3	BSD 720P, 30fps, image quality 3	AHD 720P, 15fps, image quality 3	AHD 720P, 15fps, image quality 3	IPC 720P, 30fps, image quality 1
	DMS + Top View BSD (either left/right/front)	BSD 720P, 30fps, image quality 3	DMS 720P, 30fps, image quality 3	AHD 720P, 15fps, image quality 3	AHD 720P, 15fps, image quality 3	IPC 720P, 30fps, image quality 1
	2* Top View BSD (any two of left/right/front)	BSD 720P, 30fps, image quality 3	BSD 720P, 30fps, image quality 3	AHD 720P, 15fps, image quality 3	AHD 720P, 15fps, image quality 3	IPC 720P, 30fps, image quality 1
	1*side-mounted BSD (either left or right)	BSD 1080P, 30fps, image quality 3	AHD 720P, 30fps, image quality 3	AHD 720P, 15fps, image quality 3	AHD 720P, 15fps, image quality 3	IPC 720P, 30fps, image quality 1
M1N-TKH0401+ADKIT (If ADAS and DMS algorithms are involved, they shall be processed in ADKIT)	ADAS+DMS	AHD 1080P, 25fps, image quality 1	AHD 1080P, 25fps, image quality 1	AHD 1080P, 25fps, image quality 1	ADAS 1080P, 25fps, image quality 1	DMS 960P, 25fps, image quality 1

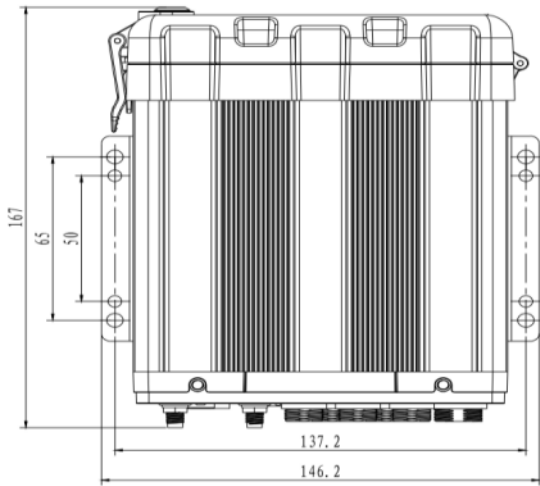
Dimensions (mm)



Front View



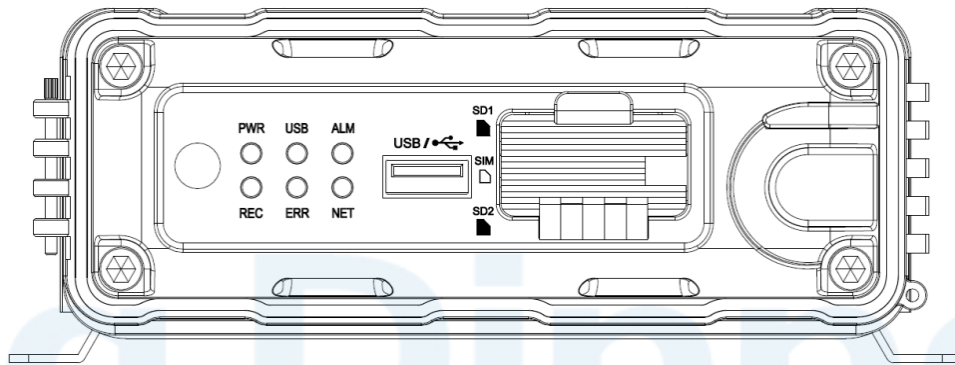
Left View



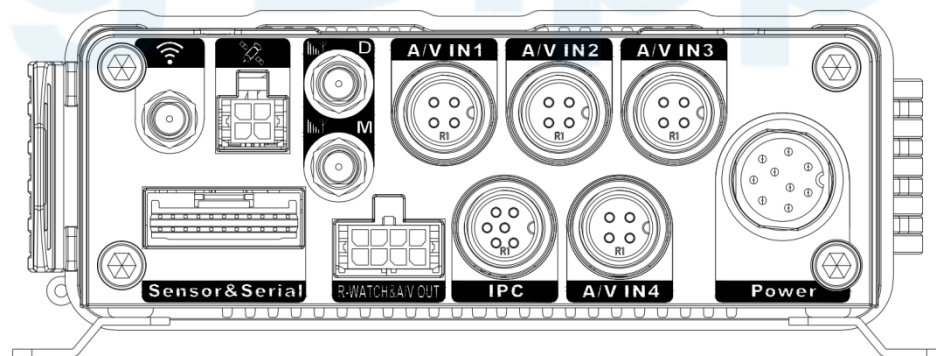
Top View

Panel Ports

Front panel:

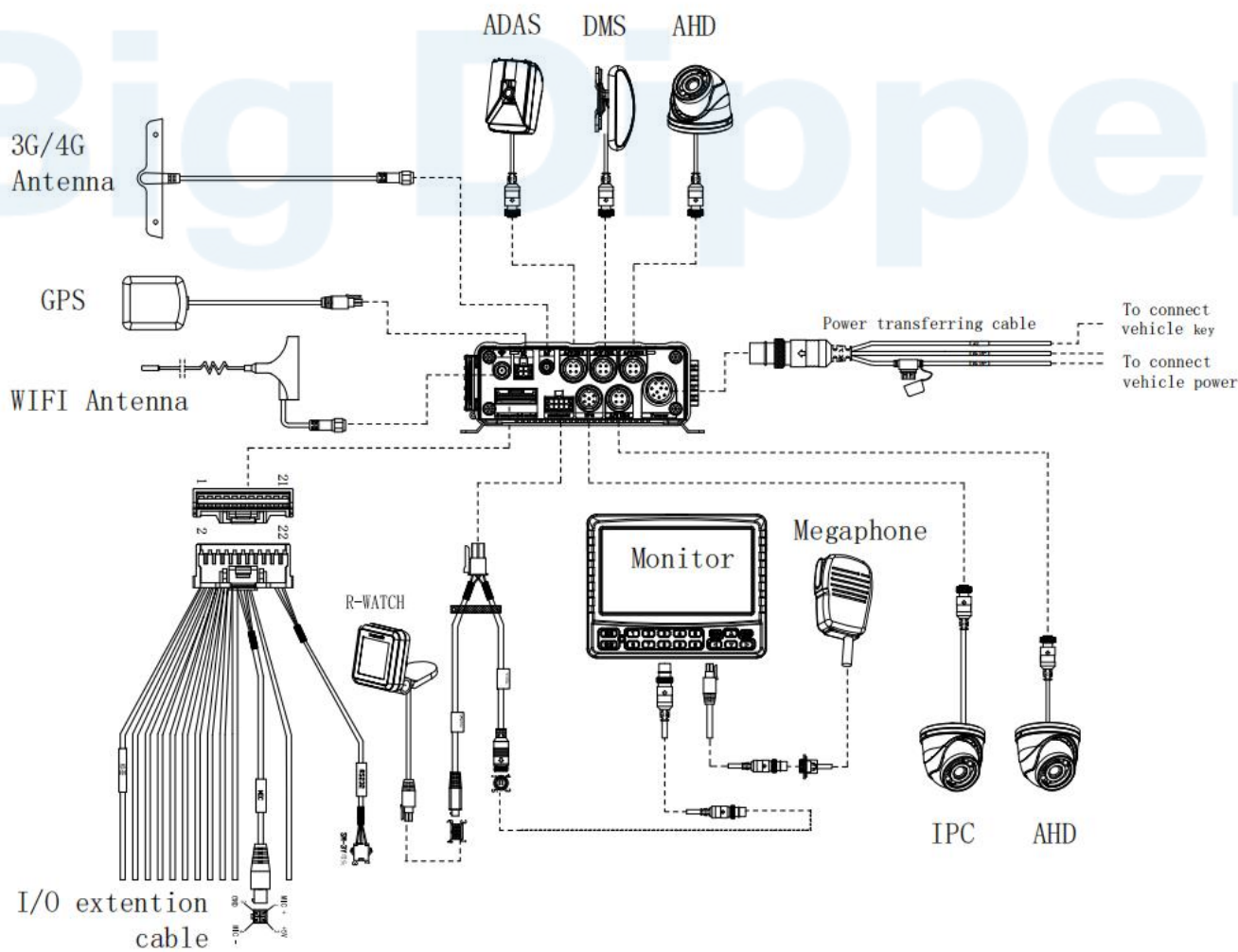


Rear panel:

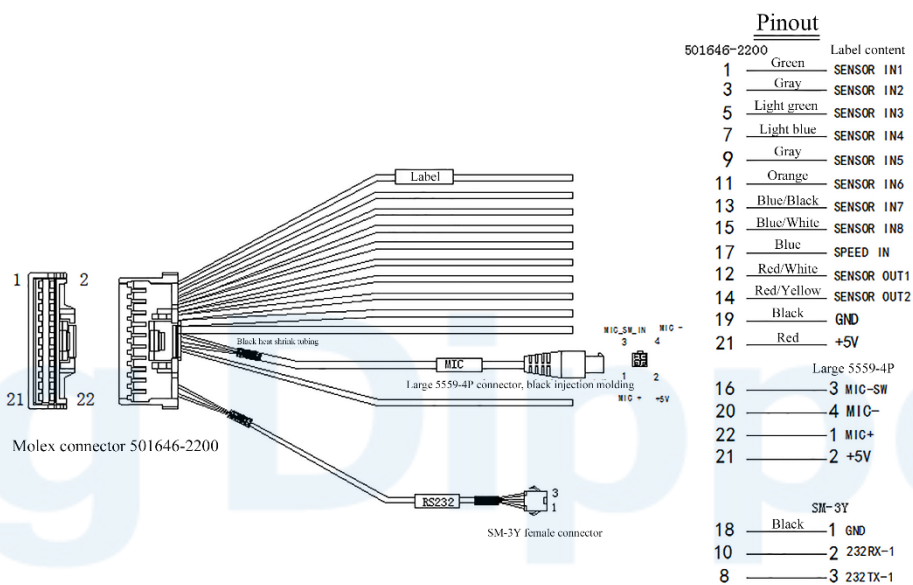


No.	Silk Screen	Description
1	Power	8–36 V DC power input
2	Sensor&Serial	Serial port and IO port
3	A/VIN1 1~4	Analog audio/video input ports 1 to 4
4	R-WATCH&A/V OUT	R-WATCH and audio/video output port
5	IPC	PON-powered IPC port
6		GPS/BD antenna connector
7		Wi-Fi antenna connector
8	 D/M	3G/4G antenna connector

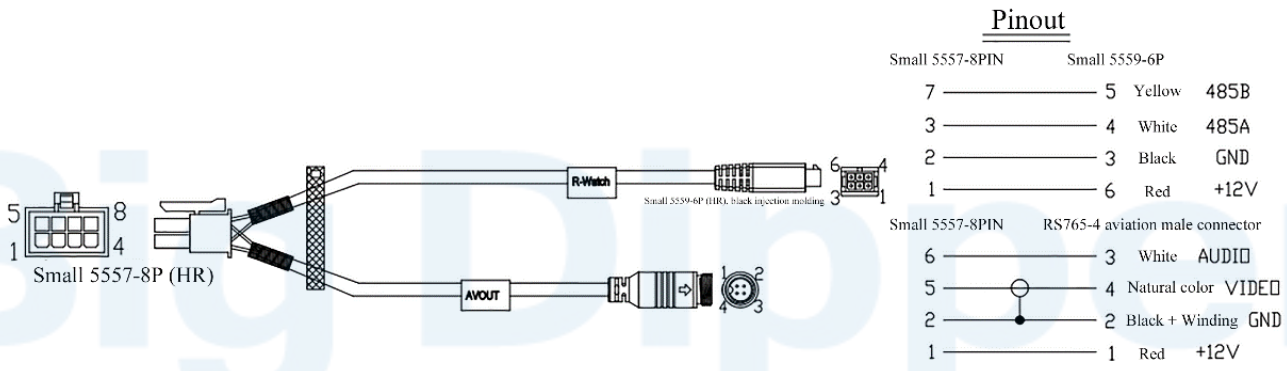
Installation
System Connection Diagram



Definition of External Cable Connector Pinouts
(1) Alarm serial cable connector pinout



(2) Signal cable connector pinout



(3) Power cable connector pinout

