DVR

General
- Metal
- 12V to 36V
- -45°C~85°C
- GPS (ver 2023)
- 7" touchscreen monitor

Main features:
- Waterproof
- Connect up to 8 cameras
- Live view / download / playback videos
- G-Force Alert System
- Checklist Start
- Vehicle lock feature
- Alarm Trigger
- Wireless connectivity
- 7" touchscreen monitor waterproof (2022 version. NOT waterproof)
- Access device from anywhere if connected to a server

Cameras
- Can install up to 8 cameras: view, play, record
- 4 wired cameras
- 4 IP cameras (accessories required)
- Can install any type of cameras:
  - Ai Cameras
  - Wireless Cameras: fork and rear camera
  - Old generation camera from Panacea Aftermarket Co
  - New generation wireless camera from our new HD wireless system

Checklist Start
- Can write up to 4 forms of checklist.
- Each checklist can have up to 20 questions.
- Checklist fill will show up:
  - Every time you start vehicle
  - Or after any number of hours for the last checklist filled.
- Checklist follow up: it is a feature to show up a message in DVR monitor after a defined time within the last checklist validation.

- After filling the checklist, the checklist will be stored in storge media of DVR as text file and DVR will upload it to the server and send email notification of completion.

Vehicle lock feature
- Within checklist settings, you can lock the vehicle with a password.
- After entering the password, the DVR will unlock the vehicle.
- The DVR will send a trigger signal 5V
- If 5V not enough, you can install relay.

G-Force Alerts
- Set by mg Sensitivity and milliseconds
- Alerts Via Email with Video Footages of event.
- G-Force Alert Triggers:
  - Accidents
  - Aggressive Accelerating
  - Harsh Braking
  - Dangerous Maneuvering
  - Idle (You can set the time by minutes)

Alarm Trigger
- 6 channels of alarm inputs
- Motion detection alarm
- To send a signal to another wire (Like to Alarm)
- Change the view of monitor (For Example from front to back)
- Record event and send to server (For example, you can make switch in vehicle, when you press it, the DVR will record 45 second and send the recorded footage to the server.)

Storage Media
- SD card or SSD up to 2TB, slots inside the DVR for waterproof
- 2TB records in 1 camera:
  - 1200 hours at 1080p/ 4Mbps (150 shifts/8 hours per shift)
  - 2400 hours at 720p/ 2Mbps (300 shifts/8 hours per shift)
- Lock storage media with key
- Storage media will store:
  - Normal video footages
  - Event video footages
  - Checklist files

Connectivity
- Ethernet
- Wireless
- DVR built Wireless Broadcast
- 4G (optional)

Recording Video
- Formats: AVI, MP4
- Current DVR can record audio in AVI format.
- New DVR will be able to record audio in MP4 and AVI format.
- Normal Recorded video files can be stored every 5 min, 10 min or 15 min
- Recorded video quality 1080 or 720 up to 30 frame per second
- Schedule recording (For example from 8AM to 8pm, weekdays)
- Upload to server options:
  - Upload all videos. Normal record and event videos
  - Upload only event videos

Display Ports
- Touchscreen monitor port
- Non-Touchscreen monitor port
- VGA port

Interact
- DVR touchscreen monitor
- Web browser by DVR local IP address via router
- Web browser by DVR local IP address via DVR built Wireless Broadcast
- VIA server
- Access storage media by DVR local IP address using FTP

DVR Web interface
- Cross Platform Web Based Access
- Locked with username and password
- Live view, Playback
- Configure DVR

Ai Camera

The pedestrian detection and identification camera adopt deep learning technology, which can realize intelligent and high-precision pedestrian detection.

- Pedestrians can be detected in the detection zones.
- 125-degree Wide View.
- Waterproof
- 3 Zone areas. Each Zone can be triggered separately.
  - When pedestrian enter green Zone: green zone wire will be triggered.
  - When pedestrian enter yellow Zone: green and yellow zone wires will be triggered both in the same time.
  - When pedestrian enter red Zone: green, yellow and red zone wires will be triggered all in the same time.
- Able to change the range of any zone or remove it.
- Able to change the sensitively of pedestrian detection
- 1080 quality video view.
- Ai Camera can work with DVR or just by itself.
- The power adaptor for the Ai camera to work by itself is not included with the camera.
- Calibration tool is required to access Ai Camera Settings.
- Settings have a live view of the camera for easy calibration.
- The framerate of live view via Calibration tool is 10 frames per second.

Fork Camera 720 HD

Wireless Vehicle Camera is easy to install. It offers clear front view, helping you to avoid blind spots and secure safety

- Wireless Connectivity
- 62-degree Wide View
- Waterproof
- Built-in Strong Magnet Mount
- 720 quality video view
- Night vision
- Requires wireless receiver to use it with DVR
- Requires battery pack (up to 14 hours battery life)

Wire Camera 720 HD

- Built-in work light
- Built-in blue light

Server App V1.0

Main Equipment requirement
- Intel processor
- 2GB memory at least

Software requirement
- Proxmox or Esxi hypervisor (optional, strongly recommended)
- Ubuntu operating system
- Curl
- Mysql
- php
- apache
- ffmpge
- Nginx Proxy manager (For SSL and access via internet)

Network requirements
- Internet is not required after installing the required software, but
  - the server won't be able to send emails over the internet
  - 2 factors authentication will be disabled automatically
- Server app can work in local network without any internet,
- Access the web app over the internet requires to open 433 port in router/modem
- If the server local network is different from the devices network, other 5 ports are required to be opened.
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Backend stack
- DVR Control Server
- DVR Transfer Server
- Php Server
- Apache Server
- FFmpge software
- Mysql Server
- Crontab tool

Frontend stack
- Html
- CSS
- JavaScript
- Bootstrap 5
- jquery

App Features Summary
- Cross Platform Web Based Access
- Security features: SSL (encrypted data send between server and user), IP tracking, CSRF Protection, 2 factors authentication, Brute Force Protection, Security log
- Live View devices from anywhere
- Playback / Download videos from Server or device directly
- Email Alerts
    - Alert G- force Notifications with videos
    - Completed Checklist Notification
- View / Download Checklists
- Reports
- User Management
    - User Levels: Super Admin, Admin, User
    - Structural levels: Clients, Groups, Users, Devices
    - Restriction access: Enable and disable any settings for any user

Login Page
- Protected Login page (sessions)
- Reset Password from Login
- Keep login features (regenerate sessions)
- Web log
- Security log

Client Page
- View list of Clients
- Add, remove Clients with Web log access
- Check Status of clients, number of users, groups, devices
- Enable and disable Clients
- Set Date to disable client access (subscription)
- Limit storge size per client

Group Page
- View list of Groups
- Add, rename, remove group
- check Status of groups, number of users, devices
- Group update or create log

User Page
- View list of users
- Add, rename, remove user, Check number of users
- Add user, full name, email, time zone
- Enable and disable user feature
- Admin receives alert notification, switch
- Admin receives login and checklist notifications, switch
- Users receive login, alert and checklist notifications, switch
- 3 Level roles, super admin, admin, user
- Enable and disable user feature
- Enable and disable Settings Devices page access
- Enable and disable View Device page access
- Enable and disable Users page access
- Enable and disable Reports page access
- User Status, number of groups, devices, last login info
- Send welcome email to new user or reset password email
- About User and location fields
- Profile picture
- User update or create log

Device Page
- View list of devices, Device ID, type, Status online or offline
- Add, rename, remove devices
- Get the number of users that has access to this device
- Assigned Client to device
- Change group of the Device after created
- About device, time zone and location fields
- Assigned multiple users to a device
- Assigned multiple devices to a user
- If a device added by user, admin will have access to the device
- Profile picture
- Access Device settings (Will ask Alicia for Apis)

Live View Page
- 4, 9, 12 views (View 9 and View 12 work only in https because most of browsers will block 6 request and more in the same time in http. View 9 and View 12 will show up if your protocol connection is https)
- Select any channels from any devices for Each view
- Status of device for each view

View Devices Page
- View Devices with Status online or offline
- View Devices by groups
- Search by Device ID, Plate, Group, type
- Live view (1 view or 4 views/4channels)
- Receive instant alerts
- View all alerts with search, filter, download alerts table
- Login report sessions, search, filter, download sessions table
- Checklist report
- Checklist view or Download PDF
- Checklist, search, filter, download Checklist table
- Playback/Download Recorded videos from Server
- Download Recorded videos from Device

Alert Notification Page
- For all devices Live New Alerts update every 10 seconds
- For all devices Weekly and total alerts
- For all devices Sort by alert type
- View all alerts with search, filter, download alerts table

Report Page
- Alert Notification report
- Devices sessions report
- Checklist report
- User Logs
- Security Logs

Profile Page
- Change username
- Change password
- Change email
- Change location, Time Zone,
- Notification settings
- Profile summary: groups, devices, last login info

Super Admin pages
- Server Settings page
  - Change ports
  - Change number of processing in the same time
  - Change where videos will be saved
  - Change database
- App settings page
  - Turn on/off tracking
  - Turn on/off 2 factors authentication
  - Turn on/off CSRF Protection (Tokens)
  - Turn on/off Brute Force Protection (number of attempts)
  - Reset login attempts
- System email settings Page
  - SMTP Secure option
  - Password email store encrypted
- WhatsApp settings Page
  - Instant ID
  - Token

Email Notifications
- Login Notification
- Reset Password Notification
- Welcome Email
- Alert G-force Notifications for admin
- Alert G- force Notifications for assigned users to devices
- Alert G- force Notifications with video screenshot
- Completed Checklist Notification
- Incorrect password entered in DVR Notification

Other Web Features
- 2 Main Menu views for easy access
- Alert notifications when login at top
- Dark mode theme
- Dashboard page
- Server Status
- Server Time
- Mobile friendly
- Mobile web version

DVR General FAQ

Does the system work in different vehicles other than forklifts?
Yes, you can install smart vision in any vehicle run in 12v to 32v. If the vehicle runs over 32v, we can supply you with a converter that will step down the voltage to 12v.

How many cameras can connect to DVR?
You connect up to 8 cameras. 4 wired cameras to DVR and 4 IP cameras. Accessories required to connect IP cameras.

Is Smart Vision waterproof?
Yes, all parts of Smart Vision system are waterproof (except the current monitor generation).

Does the system work without monitor?
Yes, for the initial setup, there are 2 ways:
1. you can use VGA port with your own external monitor.
2. Connect Ethernet network cable from DVR to your router and access user interface via web browser.

Does the system work without monitor and cameras?
Yes, for some applications Smart Vision can be used for Checklist start, lock the operation of vehicle and record g-force events using WIFI devices access like iPad or phone.

Does Smart vision kit come with pre-installed storage media?
No, you have to purchase storage SD card up to 128GB or SSD up to 2TB.

I only need the pedestrian detection feature and the trigger devices?
Our Ai cameras have their own operating system, you can buy only Ai cameras and power them up with 12V and connect any trigger you want. You just need to buy a calibration tool with Ai cameras to configure pedestrian zones.

I have Wireless Camera system P5000 from you, can I just buy the DVR and connect my existing cameras and monitor?
You can buy wireless receives for the DVR for you existing cameras to connect them to the DVR, but you can't use monitor.

DVR Installation FAQ

How to connect the DVR to vehicle?
The DVR comes power wire harness that you need connect one side to DVR and the other side to power source of vehicle.

Do I need to connect all the wires and cables for the system to work?
No, power wire and monitor cable are the main. Other wires and cables for:
- 4 wired camera channel cables
- Trigger wires
- Alarm wires
- Adaptors (Ethernet cable, VGA, USB)

Where to install the DVR in vehicle?
The DVR should be installed in a flat surface for the accelerometer (g-force sensor) to work correctly and in clear spot for the router/access point WIFI signal to connect to DVR. To install in a large vehicle, it is recommended to install the DVR in the center of vehicle, so the accelerometer works more preciously and in order to use less wire extensions for cameras.

DVR Recording FAQ

How many hours 2TB SSD storage can record?
2TB records in 1 camera:
- 1200 hours at 1080p/ 4Mbps (150 shifts/8 hours per shift)
- 2400 hours at 720p/ 2Mbps (300 shifts/8 hours per shift)

Do connected cameras start recording when the DVR power on?
Yes, the DVR will start recording in all 8 cameras in default settings. You still can turn off auto recording for all or for specific camera channel. Also, you can set cameras to record events only.

What will happen when storage media run out of space to record new footages?
In default settings, the DVR will start overwriting the old recording to save the new recording. You still can turn off this feature and when storage media run out of space. DVR will send buzzer sound every 30 seconds to empty the storge media and the monitor will show a message indicating the storage media is full and needs to replace or empty.

Can anyone remove the storage media from the DVR?
No, the storage media slots located inside the DVR that can be locked with a key.

How to access recorded videos?
There are 5 ways to access recorded videos:
- All videos are saved in storge media. You can remove the storge media and connect to any PC
- Via DVR monitor with Admin access or user access
- Via web browser if the DVR connected to a network
- Via FTP access if the DVR connected to a network
- Via app server of the DVR connected to a network

Who can access the DVR settings and recorded videos?
The DVR has 3 types of users:
- Admin has full access. Protected with password.
- User has access to recorded videos only. Protected with password.
- Operator has access to fill the checklist. Protected with password.

DVR G-force FAQ

Can I modify the sensitivity of g-force sensor?
Yes, you can from G-force advance settings. You can set the sensitivity and millisecond.

What will happen if g-force sensor triggered?
In Default settings:
- the DVR will save date, time, location, and g-force reading
- record the video footage 45 seconds. 30 seconds before and event and 15 second after the event and store them in a separate folder of the storage media that will not be overwrite when the storge media is full.
- Copy of reading and video footages will be uploaded to the assigned server.
- The server will send email notifications for assigned users with all details and video footages.

What is idle alert in g-force sensor?
It is a feature to send alert and record videos when the DVR is ON and no motions occur within certain period of time that can be set in G-force advance settings. This feature is off by default.

DVR Smart Start FAQ

What is Smart Start feature?
It is a feature can be enabled to ask an operator to answer multiple questions on the DVR touchscreen before operating the vehicles AND/OR lock operation of vehicle.

How many questions in checklist?
You can write up to 20 questions in checklist.

Can operators of vehicles have their own login usernames and passwords in DVR?
Yes, you can create up to 6 users in DVR with password or without password.

Can I lock the operation of vehicle until the completion of checklist?
Yes, you can lock operation of vehicle until the completion of checklist.

Can I just use the lock feature without checklist?
Yes, you can.

What will happen after completing the checklist?
- A copy of checklist will be saved in the storage media.
- Another copy will be sent to the assigned server.
- The server will send email notifications for assigned users.
- The vehicle will be able to operate if the lock feature enabled.