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Specification for Approval

Model: FW7930-HXM



Customer	
Description	2MP Bullet IP Camera
Model	FW7930-HXM
Version	1.0
Issued date	2021.07.01

1. Table of specifications

Camera	
Imaging sensor	1/1.9" 2.42MP Sony Progressive Scan CMOS
Minimum illumination	Color: 0.04 Lux @ DSS Off, 0.0005 lux @ DSS On; Black-White: 0 lux (IR On)
Lens	Motorized zoom & focus f3.6~11mm (option f6.0~22mm), DC Iris
Frequency setting	30Hz/ 25Hz
Exposure setting	<ul style="list-style-type: none"> - Mode: Day/ Night/ Motion detection/ Digital Input - AE metering: Center/ Average/ Spot/ Center flip - Shutter mode: Shutter Auto/ Manual - Min shutter/ Max shutter (2s ~ 1/32.000s) - Max AGC gain - Sense-up level
Backlight setting	BLC, DOL WDR level (> 120dB)
Day/ Night setting	<ul style="list-style-type: none"> - Type: True Day/ Night with ICR filter - Mode: Auto/ Manual/ Custom, - Day <-> Night threshold level - Day <-> Night dwelling time
Image filtering	<ul style="list-style-type: none"> - Brightness Contrast, Hue, Saturation, Sharpness levels - Color modes: Default/ Standard/ Vivid) - 3DNR level
White Balance	Auto/ Manual Temp. Mode/ Custom
Privacy	8 Zones
Image flip	Corridor mode, vertical/ horizontal flip
Text OSD	9 lines settable: size, position, color, bold/ normal, outline
Video	
System hardware	Ambarella 32 bit Embedded Linux SOC, 256MByte SDRAM, 128GByte NAND flash
Video compression	H.265, H.264, MJPEG, JPEG
Streaming	Quadruple streaming
Resolution	<ul style="list-style-type: none"> - Primary stream: 1920x1080, 1280x1024, 1280x720, 704x480, 640x480, 320x240 - Secondary stream: 704x480, 640x480, 320x240 - Tertiary stream: 320x240 - Quaternary stream: 2688x1520
Streaming rate	Max. 30fps @ 2MP

Streaming setting	VBR/ CBR/ AVBR/ ACBR, Target bitrate/ image quality, GOP
Smart video	Yes (ROI: Region of Interest)
Audio	(option)
Audio streaming	2-way transmission (full-duplex)
Audio encoding	G.711 u-LAW / G.711 A-LAW / SPEEX / AAC-LC
Function	Audio detection
Onboard recording	
Recording stream	Multi stream selectable
Recording model	Always, Event, Schedule, Event & Schedule
Event	Motion detection, Digital input, Serial input
SD card management	<ul style="list-style-type: none"> - Overwrite when disk full - Overwrite data older than number of days - Stop recording when disk full - Support up to 512GB per SD card - Support RAID 0 config
Network	
Protocol	HTTP, RTP/RTSP (Unicast, Multicast), TCP/IP (v4, v6), UDP, FTP, Telnet, HTTPS, RARP, SNMP, DHCP, NTP, SMTP client, UPnP, ZeroConf, vv...
DDNS	www.ipcctvdns.com
VMS/ NVR	ONVIF Profile S, FlexWATCH SDK
User	Max. 16 user concurrently
User configuration	<ul style="list-style-type: none"> - Full access - Live view and playback only - Selective access (Stream, Playback, DO, PTZ, Audio)
Security	<ul style="list-style-type: none"> - Basic Authentication/ Encrypted Authentication - IP filtering - HTTPs - Management White List - FTP/Telnet Disable/ Enable
Event & Alarm	
Motion detection	Settable 4 zones with sensitivity
Video analytic	Optional: Tripwire, Tampering, Face Detection

Event trigger	<ul style="list-style-type: none"> - Motion detection - Digital input - Serial input (POS/ ATM, etc....) - Video analytic - Camera booting, booting finished
Event action	<ul style="list-style-type: none"> - Send SMTP email - Upload FTP (Buffer, Periodic) - Google FCM protocol - CGI alarm message - Schedule event action
Illuminator	
Type	4pcs Hi-power 850nm IR LED
Range	Up to 50m
General	
Connectors & Peripherals	<ul style="list-style-type: none"> - Ethernet: RJ45 10/100Mbps PoE 802.3at - Power: DC 12V (1.5mm) - Video: 1 BNC (CVBS) - Audio: Line in + Mic in + Line out - Alarm: 1 DI + 1 DO - Serial: RS485 - SD card: 2 slots (support up to 2x 512GB, RAID 0)
Power	DC 12V + IEEE 802.3at PoE
Dimension	85(∅) x280(L) x80(H) mm
Approval	KCC, FCC, CE, RoHS, IP66, IK10
Operating environment	-20 ~ 60°C, 10 ~ 90% RH
Client	Microsoft Windows 10 (support ActiveX) Internet Explorer, CMS, iOS/ Android mobile app
Bundle software	IP Installer, Smart Multi Viewer and Player (CMS), SmartNVR-SV-9 (VMS 9 channel)

2. Technical notes and tips

Device Independent SDK

All FlexWATCH products use the same user interface, the same SDK. If one device is integrated to partner products, it means that all FlexWATCH products are already integrated. It alleviates the development and customization burden. Even though hardware platform is changed, the SDK is forward and backward compatible

Modular Architecture

FlexWATCH system including IP cameras, NVR even mobile application uses the same software platform which is called “Modular Architecture”. FlexWATCH products are composed of several software modules comprised of RX, TX, REC(recording), VMFD(Proprietary middle engine), Display modules. By the combination of each module, it becomes different products like IP camera and NVR. The modular architecture enhances the operating performance such as the lowest streaming performance. It is used to all models whatever operation system and hardware CPU are used.

Unified User Interface

Based on the Modular Architecture, all FlexWATCH products provide the same user interface regardless of product models. It provides common user interface to all devices such as IP camera and NVR. By glance, it is hard to distinguish what OS and SOC are used for the products. The same and unified user interface helps customer reduce the technical support burden.

Perfect Compatibility

All FlexWATCH products supports forward and backward compatibility such as newly released models and the oldest model from more than 10 years ago.

Backdoor Issue free

Majority of FlexWATCH Camera uses backdoor issue free USA Ambarella platform.

Tips for color setting

When you feel the color of the image is not so brilliant or strong, it is recommended to set Saturation in the camera setting menu higher. To get a crystal clear bright image, it is strongly recommended to set Auto Exposure weight higher. Auto Exposure weight needs to be set lower when specific area such as number plate is too much bright due to the reflection from sunlight or spotlight.

Independent color modes

FlexWATCH camera has 3 independent color modes Such as DEFAULT, STANDARD, VIVID. According to the customer needs, this mode can be chosen.

Independent parameter setting

FlexWATCH camera has 4 independent one- shot camera parameter setting modes. Default (Day mode), Night mode, DI mode by external sensor and Motion Detection mode by built in

motion detection. Most of IP cameras provide the fixed setting. However, FlexWATCH camera supports dynamic change of parameter setting.

Add-on Services : Integration Enablement via Serial

FlexWATCH cameras have a capability to send the serial device information of data generation devices like POS or various IoT sensors. For the full integration, FlexWATCH system provides “Add-on-Service”. For the details, please contact technical support team.

Audio Detection

FlexWATCH camera supports Audio detection as alarms event similar to video motion detection. It gives alarm event when pre-configured audio level is detected.

DOL WDR

DOL WDR stands for digital overlap wide dynamic range, it's the next generation Sensor technology, which is based on WDR technology exclusively developed by Sony. DOL WDR can provide many advantages such as improved characteristics in low-light environments compared to conventional WDR that uses multiple frame set output. In challenging lighting conditions, DOL-WDR is capable of capturing both dark and bright part then combining the differences into a scene to generate a highly realistic image.

H.265 codec

H.265 codec gives more efficient file size than previous H.264 to save storage and bandwidth and to have interoperability with legacy systems.

Integration Services via Email, FTP

Buffered and non-buffered email, ftp services are supported. According to event and schedule, pre-post alarm buffering is supported. There are various types of CGI command to active these services. For the details, please contact technical support team.

IP filtering

The IP filtering enables you to control what IP traffic you want to allow into and out of your IP camera. Use IP filtering to help protect your IP camera by filtering the access from the pre-configured IP address set.

Latency

Latency is a request and response time between IP cameras and client devices or servers remotely connected. FlexWATCH IP camera shows the lowest Latency time (25%~40% better) against popular other IP cameras from various brands.

Local SD Card Backup like NVR

Some important sequence of still images or moving frames can be stored in the SDHC memory card. This action can be configured to work with pre-post- alarm event or a given recording condition by motion and schedule. With FlexWATCH SD recording, NVR functions are perfectly

implemented at IP camera with various recording modes. Conditional search by motion, schedule and event is available through NVRs, PCs and mobile devices.

Management white list

A whitelist is a list of items that are granted the access to a certain system or protocol. When a white list is used, all entities are denied the access, except those included in the whitelist. Network administrator may configure a firewall with a whitelist that only allows specific IP addresses to access the IP camera or NVRs.

Min & Max Shutter Speed

Users can set Min & Max shutter speed according to the environment. This function is important when camera is installed for License Plate Number reading when car is moving fast. By setting Minimum shutter speed fast, it gives clear image without motion blur.

Night color mode

With most advanced Sony sensor, the excellent high sensitivity and low noise performance generate a wonderful full-color image even during night time without IR. IR will be automatically turned off at night time when the camera is set to Night color mode to avoid wrong color reproduction due to IR lighting.

NIR – Near IR Region

NIR is a region of the electromagnetic spectrum that has unique properties which make it very useful for characterizing materials. The NIR region is from 700 to 2500 nm. FlexWATCH IP cameras has the best image quality in NIR region by using the most advanced Sony sensor.

Optimized Multiple Profile Streaming

Up to 4 streams, many parameters can be set differently such as resolution, video encoding method and frame rate for different purposes

Region of Interest (ROI)

Some cameras offer the ability to transmit only a partial region of a sensor, which offers the option of concentrating on image areas containing the information relevant to image processing. Reducing the size of the image transmitted by the camera reduces the image size and the bandwidth required for each image. In configuring an ROI, the read out window is reduced to the area relevant for analysis, increasing the image frequency significantly.

Saturation

Saturation defines the brilliance and intensity of a color. When the color of the image is not so brilliant or strong, it is recommended to set Saturation higher. The term of “hue” refers to the color of the image itself, while saturation describes the intensity (purity) of that hue. When color is fully saturated, the color is considered in purest (truest) version.

STARVIS

STARVIS is a Sony technology which is a back-illuminated pixel technology used in CMOS image sensors for surveillance camera applications. The excellent high sensitivity and low noise generates a wonderful full-color imaging world in any scene, any time.

Text OSD

User can set 9 set of text strings to display direction of the camera or location of the camera. Each string can be extended up to 24 alphanumeric characters. In case of PTZ, user can set 8 different directions like to Las Vegas or -> Los Angeles by PAN angle. When PTZ moves to the pre-set PAN angle, it automatically displays the text string set on the PAN angle.

Unified Communication (Single HTTP port for live/ playback/ control) FlexWATCH camera uses only TCP port 80 of HTTP. All communication ports are integrated to single port. This is based on proprietary streaming protocol which helps reducing installation burden. Most of other vendors IP camera uses different TCP/UDP ports for video/audio/data communication. FlexWATCH camera supports other industrial standard protocols as well.

Zero-configuration networking (zeroconf)

is a set of technologies that automatically creates a usable IP camera network based on the Internet Protocol Suite (TCP/ IP) when IP cameras are interconnected with other device or server. It does not require manual operator intervention or special configuration servers. Without zeroconf, a network administrator must set up network services, such as Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS), or configure each computer's network settings manually.

3. Appearance and Dimensions

