EASILY ESTIMATE AN AREA CROWDING

Instek Digital VTrack OccupanyRate automatically and in real-time estimates and collects the percentage of occupancy of subject of interest in a virtual area and signals the occupancy percentage that is higher than a defined threshold.

VTrack OccupancyRate can be utilized for three general purposes:
- customers flow and behaviour analysis
  create more targeted and effective marketing actions and increase effectiveness of trade promotion throught collecting related data of the presence of customers for verifying the ratio between the presence and the selling, or the best placement of a product, or impact of a promotional campaign.
- optimize service and management activities
  increase the efficiency of personnel and facilities and reduce management costs significantly, including monitoring of the utilization of services and facilities by estimate the length of queues at cash, or box offices, or check-in, or accomodations. Or by verifying the irstic data related to the presence of people, for the optimization of displacement of the personnel, or of the opening/closure time of shops, cash, public services or facilities, or of the timetables of public transports.
- effective video surveillance for safety and security
  prevent critical situations for personnel and facilities or possible criminal acts by estimating the overcrowding of people in areas with limited accessibility, or the detection of abnormal gatherings within sensitive areas or environments.

Key Features

- Full integration with Instek Digital VMS Command Center
- Real-time estimate and collect percentage of occupancy
- Business intelligence (marketing actions)
- Optimize services and management activities
- Windows based software architecture
- Unlimited configurable virtual zones of any shape of interest in the scene
- Filtering out false alarms due to atmospheric phenomena, variations in environmental condition, vegetation
- Specific algorithmes for filtering shadows and light changes
- Watchdog functionality: for automatic restart of the module in case of critical errors or hardware unit restart
- Automatic and real-time alarm notifications

Functional Specifications

- Integrate within Instek Digital VMS Command Center

- Modular, scalable and flexible software architecture, available for Windows/Linux o.s. 32/64bit

- Unlimited configurable virtual zones, of any shape and size

- Detection and tracking of unlimited subjects of interest in the scene

- Robust and reliable in filtering false alarms due to atmospheric phenomena, changing of environmental conditions, vegetation, thanks to the most advanced self-adaptive algorithms based on Self Learning Background Modelling, Foreground Filtering and Multitarget Tracking

- Specific algorithms for filtering shadows and lighting changes

- Filtering of objects by size, type and dynamics

- Morphological filtering for improving the efficiency of the detection and separation of subjects by shape enhancement

- Ability to select several active points of the detected subjects (ex. baricenter and/or ground point and/or left upper point ...)

- Filtering of subjects of interest with specific size for each configured alarm zone (ex. Zone1: alarm only on little objects detection, Zone2: allarm only on big objects detection, ...)

- 3D perspective management by linear interpolation on image, or by image calibration

- Unlimited configurable no-processing virtual zones, to inhibit not-of-interest areas in the image

- Unlimited configurable crops of the image, each one processed as separate video source

- Enabling/disabling of the module by external input or time scheduling

- Calendar function, for the scheduling of different configurations in different timeframes

- Ability to process at resolution and frame rate different from the source ones

- VirtualAlertRule function, for the generation of alarms by correlating in AND within a certain time the occurring of multiple configured alarms

- Visualization on a centralized graphic map of the position and trajectory of the detected subjects

- Interface for the simulation of the processing results, to verify the correctness of the configuration

- VTClient interface for the real time visualization of live and alarms, with bounding boxes and trajectories overlays

- Watchdog function, for the automatic restart of the module in case of critical error or hw unit restart

- Automatic and real time alarms sending to:
  - VMS or NVR compatible platforms
  - I/O contacts, electrical devices, external DVR or NVR units, through Modbus I/O units
  - e-mail, with in attachment the image related to the generated alarm
  - FTP server
  - serial port, PLC
  - unit connected in web through http/TCP call, customizable

- VTrack-Recorder function, for the storage in local directories of continuous or event-based videos

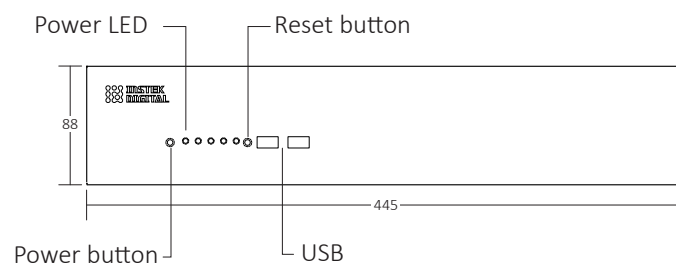|		
System	Operating system	Microsoft® Windows™ 10
	CPU	Intel® Core™ i7
	Resolution	CIF
	Frame rate	10
	Streaming protocol	RTSP / ONVIF
	CMS / NVR behavior	trigger, recording, live/map, popup, PTZ, DO
	Keyboard | mouse	PS/2 | USB
	Ethernet	1 x Gigabit
	USB	4 x USB3.0 + 4 x USB2.0
	Display port	1 x VGA / 1 x DVI-D / 1 x HDMI
Environmental	Operating temperature	0 ~ 40ºC
	Humidity	Max. 90%, non-condensing
Electrical	Power input	AC 100V ~ 240V
	PSU	300W
Mechanical	Form factor	2U
	Dimensions w / wo box (WxHxD mm)	570 x 535 x 245 / 445 x 402 x 88
	Weight w / wo box (kg)	12.2 / 8.6

a) The actual video display performance may vary according to type of camera(s) and lighting condition.
b) Product specifications and availability are subject to change without notice.
c) Instek Digital is a registered trademark of Good Will Instrument Co., Ltd.

Models:	Description:	Models:	Description:
HR-RV3900-2U	Turnkey	**HR-RV30C5-SW**	License, 1 channel + 5 rule
HR-RV30S1-SW	Standard software	**HR-RV30C6-SW**	License, 1 channel + 6 rule
HR-RV30C1-SW	License, 1 channel + 1 rule	**HR-RV30C7-SW**	License, 1 channel + 7 rule
HR-RV30C2-SW	License, 1 channel + 2 rule	**HR-RV30C8-SW**	License, 1 channel + 8 rule
HR-RV30C3-SW	License, 1 channel + 3 rule	**HR-RV30C9-SW**	License, 1 channel + 9 rule
HR-RV30C4-SW	License, 1 channel + 4 rule	**HR-RV30CA-SW**	License, 1 channel + unlimited rules

Technical requirements for VTrack Software solution:

• Video flow acquisition from:
  - IP cameras (optical or thermal), through standard protocols rtp/rtsp, mjpeg or ONVIF
  - analogue cameras (optical or thermal), by IP video encoders through standard protocols rtp/rtsp, mjpeg or ONVIF, or by compatible frame grabber cards
  - NVR compatible or through standard protocols rtp/rtsp, mjpeg or ONVIF
  - off-line videos in all standard formats (avi, asf, mpg, mov, ...)
• Conditions of the subjects of interest in the image in order to be effectively detected:
  - clearly visible to the naked eye in the image, even in difficult environmental conditions (night, heavy rain, fog, glare from the sun or other sources of artificial light, snow, ...)
  - entirely visible in the image for at least 10-15 continuous frames
  - minimum size: area of 100 pixels
  - maximum size: about 1/4 of the image
• Minimum frame rate: 8fps
• Suggested image resolution: CIF (352x288) or QVGA (320x240)
• Computational need:
  - CPU: up to 6 video flows in CIF/QVGA resolution at 8fps per single 2,8GHz core
  - RAM: about 80MB per single video flow
  - Intel® HD Graphics / NVIDIA® GT730 or higher graphics card
  - Windows (XP or next) or Linux, 64 bit operating system

Front View RV3900-2U

Power LED — — Reset button

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Power button — — USB

Rear View RV3900-2U

USB2.0   VGA   Ethernet

PS/2   HDMI
                         USB3.0   Audio
Power socket   DVI-D   USB2.0

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