

User Manual

TD-2000 3D Intelligent Sensor

Quick Configuration Guide



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Introduction

TD-2000 embeds data capturing, stereo vision analytics and deep learning technology into one single device, which represents state-of-the-art technology and next generation video sensor for traffic intelligence purpose. Compared to other 3D sensors, its patented 'DeepCount' technology based on deep learning renders it superior in accuracy as it incessantly improves its count quality over time with the sensor being deployed over time. TD-2000 is ideal for use in both indoor and outdoor environments and any levels of traffic flow by brick-and-mortar businesses and organizations to build applications based on traffic analytics.

The TD sensor technical documentation suite includes:

- Quick Start Guide
- Quick Configuration Guide (this document)
- TD Remote Access Manager User Guide

About this Document

The TD-2000 3D Intelligent Sensor Quick Configuration Guide details basic configuration instructions for IT departments and implementation engineers to set up the device properly for operating in most cases. For advanced configurations, contact our technical representatives for assistance.

Prerequisites for Configuration

Before attempting to configure the sensor, make sure that you have installed the Sensor hardware components by following the steps as described in the TD-2000 3D Intelligent Sensor Quick Start Guide.



TD-2000 3D Intelligent Sensor Web Interface

Using the Web Interface

The TD-2000 3D Intelligent Sensor includes the browser-based web interface, which allows you to configure and manage the sensor directly.

To fully access the web interface, your computer should be installed with Internet Explorer 10.0 or newer, or the latest version Google Chrome or Mozilla Firefox.

Accessing the Web Interface

To access the web interface, use the default IP address of 192.168.1.8. All sensors are shipped to customers with this default IP address. Input it into browser address bar, then access into the following setting page.





Configuring TD-2000 3D Intelligent Sensor

Once you access the web interface, navigate the menu options on the left side and start configuring all necessary parameters by following the forthcoming instructions.

Device Configuration

2018/02/05 15:22		Version: 0.1.12/0.1.31/0.1.0 English 中文
🕞 тд-2000	Real Time Image	O Host Name Host-202017000210
Device Config	Date to a local date of the lo	Device SN 202017000210
Network Config	2	3 Store ID HenanFuyang
Service Config	•	Store Name Dajguzhen
Camera Config		S Device ID DJGZ-KL-02
Passenger Flow		Device Name DJG2:4L-02
Statistics		Device Type 0
Passenger Stay Statistics		Password Option
Heat Map		Username
Height Map		Password
Advanced Options		Reset to Default
920 		

- 1. Real Time Image: Select the left or right lens' captured image as the real time image for displaying.
- 2. Host Name: Enter the Hostname for the sensor on your network.
- 3. Store ID: Enter the customer-specific classification for a store or site number.
- 4. Store Name: Enter the customer-specific classification for a store or site number, often a reference to the city or locale where the store is.
- 5. Device ID: Enter an alphanumeric code to uniquely identify the sensor within a site.
- 6. Device Name: Enter a brief name for the sensor that is derived from Device ID.
- 7. Password Option: Sensor can be password protected to prevent unauthorized users from accessing the web. Enable Password Option then input the username and password, click [Save].
- [Save]: Use the permanent, non-volatile memory (Flash) of the sensor to store the effects of a change. [Reset to Default]: Restore the current values back to the factory defaults. The values are not permanently saved until you click the [Save] button.



Network Configuration

2018/02/05 15:27			Version: 0.1.12/0.1.31/0.1.0 English 中文	Log Out
🖵 тд-2000	Device IP	172.18.100.151	Прнсь	
Device Config	Subnet Mask	255.255.255.0		
Network Config	3 Gateway IP	172.18.100.1		
Service Config	ONS Server IP	202.102.227.68		
Camera Config	Device MAC	ea:fo:oc:e9:1o:08		
Passenger Flow Statistics	S Local Web Server Port	80		
Passenger Stay Statistics	6	Save Import Config Export Config		
Heat Map				
Height Map				
Advanced Options				

- Device IP: Enter the IP address for the sensor on your network. Default IP Address is 192.168.1.8. DHCP is supported, and you may enable it by ticking the choice.
- 2. Subnet Mask: Enter the Network Mask for the sensor on your network.
- 3. Gateway IP: Enter the Default Gateway IP address for the sensor on your network.
- 4. DNS Server IP: Enter the DNS (Domain Name System) Server for the sensor on your network.
- 5. Local Web Server Port: Enter the Port number for the sensor for HTTP/HTTPS communication.
- 6. [Save]: Store the effects of a change.

[Import Config]: Click the button, a pop-up window will appear for you to select the configuration file that you created and exported before for easy setting up.

[Export Config]: Click the button to export current network settings and save the file in your specified directory for future use.



Server Configuration

2018/02/05 15:35			Version: 0.1.12/0.1.31/0.1.0 English 中文 Log Out
🖵 тр-2000	Primary Report Server Address	61.152.122.187	
Device Config	Primary Report Server Port	2010	
Network Config	Primary Report Server Directory		
Service Config	0	Upload Setting Clear Report	
Camera Config	Secondary Report Server Address	61.152.122.167	Activate
Passenger Flow Statistics	Secondary Report Server Port	2010	
Passenger Stay Statistics	Secondary Report Server Directory		
Heat Map	U	Upload Setting Clear Report	
Height Map	Time Server Selection	Primary Report Server	Test Setting
Advanced Options	Time Server Address	61.152.122.167	
	Time Server Port	2010	
	Time Zone	8	
	•	Time Correction	
	Remote Control Server Address	61.152.122.169	Test Setting
	Remote Control Server Port	30001	
	6	Save Import Config Export Config	

- Primary/Secondary Report Server Address: Enter the primary/secondary data delivery
 destination server. Make sure to tick Activate if you will use Secondary Report Server.
 Primary/Secondary Report Server Port: Enter the primary/secondary server port number to
 which the sensor should attempt to deliver data.
 Primary/Secondary Report Server Directory: Enter your specified primary/secondary report
 server directory. (Note that server end configuration also needs to be set, contact our technical
 representatives for details).
- [Upload Setting]: Click the button into the Upload Setting page to set parameters for uploading reports to the Primary/Secondary Report Server respectively.
 [Clear Report]: Clear all historical count data.
- Time Server Selection: Specify the server that you wish to use its time for synchronizing the date and time on the sensor by selecting from the listed options (Primary Report Server, Secondary Report Server, NTP Server).Click [Test Setting] to see if the connection with your selected server is successful or not. You can set the time zone and activate DST based on the physical locations of devices.
 Time Server Address: Automatically filled up once the Time Server is selected.
 Time Server Port: Automatically filled up once the Time Server is selected.
- 4. [Time Correction]: Click the button, a pop-up window will appear. Click [Sync Time] to synchronize the date and time of the sensor with your selected server under properly functioning network situation. If there is no server connected on the site network, set time manually in Set Time and click [Confirm]. Note that this is a one-time setting when time synchronization is not used, which is subject to time drift.



Time Server Selection	Primary Report Server	
Time Server Address	61.152.122.167	
Time Server Port	2010	
Time Zone	8	
	Sync Time	
Set Time		
Jet fille		
	Contini Return	

- Remote Control Server Address/Port: Enter the IP address and Port number of your Remote Control Server. Click [Test Setting] to see if the connection with your Remote Control Server is successful or not.
- 6. [Save]: Store the effects of a change.

[Import Config]: Click the button, a pop-up window will appear for you to select the configuration file that you created and exported before for easy setting up.

[Export Config]: Click the button to export current service settings and save the file in your specified directory for future use.



Upload Setting

2018/02/05 15:36			Version: 0.1.12/0.1.31/0.1.0 English 中文 Log Out
🖵 TD-2000	Start Time	2018-02-05715:35	
Device Config	End Time	2018-02-05T15:35	
Network Config	٥	Re-Upload Issued Report	
Service Config	Delivery Protocol	UTT0	Test Sottion
Camera Config			rest detaing
Passenger Flow	Record Cycle (m)	1	
Statistics	Upload Cycle (m)	1	
Passenger Stay Statistics	Upload Time	上午 12:00:00 🔹 下午 11:59:00 🔹	✓ Anytime
Heat Map		(4) Save Return	
Height Map			
Advanced Options			

- [Re-Upload Issued Report]: Sensor can create on-demand report delivery requests for a specific range
 of dates and times in a designated format. This operation only resends the data within 90 days and can't
 resend if the cached data has been cleared. Set the Start Time and End Time accordingly and then click
 [Re-Upload Issued Report] for report delivery.
- 2. Delivery Protocol: Specify the protocol for uploading reports by selecting from the listed options (HTTP, HTTPS, FTP, FTPS).
- Record Cycle(m): Select a record level (time interval of every 1 min, 5 mins, 10 mins, 15 mins, 30 mins or 60 mins) for the count report .
 Upload Cycle(m): Select an upload level (time interval of every 1 min, 5 mins, 10 mins, 15 mins, 30 mins or 60 mins) for the count report.
 Upload Time: Select data upload time. By default, Anytime is checked.
- [Save]: Store the effects of a change.
 [Return]: Return to the previous main page (Server Configuration).



Camera Configuration

2018/02/05 15:38				Version: 0.1.12/0.1.31/0.1.0	English 中文	Log Out
🖵 тр-2000	Real Time Image					
Device Config						
Network Config						
Service Config		and the second second				
Camera Config						
Passenger Flow Statistics	Box Color	White	•			
Passenger Stay Statistics	 Device Angle 	X 0	3 Auto	o Adjust Reset		
Heat Map	Device Height	460 😫 CM				
Height Map	Hihgt Filter	High Limit 250		Used 🗹		
Advanced Options	(d) Count Once	v				
	(5) Zoom	2	~			
	Brightness	10	•			
		Save				
	G Video Type :	Verified Video				
	Video Recording :	•				
	Recording Time :	Quick Recording				
	Start Time :	2018-02-05T15:37	Start	Recording		
	End Time :	2018-02-05T15:37	Clea	r Videos		
		Download address : http://172.16.100.151:80/list	/ideo			

- 1. Box Color: Select either Black or White as the color of the selection frame.
- Device Angle: Set the mounting angles (X and Y axes accordingly) for tilt installation.
 Device Height: Set the sensor height within the range of 250cm-500cm and based on the height of installation on site.

Height Filter: The Sensor supports counting objects within a specified height range. Set the High and Low limits you wish to use for filtering objects. Make sure to tick **Used** if you need to enable the filtering option.

- 3. [Auto Adjust]: You may click the button to automatically adjust the angle and height value. [Reset]: Click the button to reset the parameters to default settings.
- 4. Count Once: This function is provided in order to set the sensor to count people only once if they cross over enter and exit areas multiple times while in the sensor field of view. If the count once box is not selected, a single person can cause multiple enter and exit counts if they stay in sensor field of view and cross over the enter and exit areas multiple times.
- Zoom: Zoom the captured image (1X, 2X, or 4X) when necessary. Zooming is usually used for better viewing the captured image when the sensor is installed at a height above than normal.
 Brightness: Increase the brightness value when necessary. It is usually used for better viewing the captured image when the sensor is installed in dim light environment.

Make sure to click [Save] to store the parameters as set.

- 6. Video Type: Verify video and Original video can be selected to record. Video Recording: Showing recording status.
 - The sensor is not recording The sensor is recording

[Quick Recording]: Click the button to record a 10 minutes video clip immediately. This operation can be stopped by clicking [Quick Stop]. Recording Time: Enter the recording start and end time. [Start Recording]: Start recording a video clip based on the time slot as set. [Clear Videos]: Clear all recorded videos on this sensor.



7. Download Address: Click the URL link to manage the video clips through the pop-up Video Management Page as shown below. All recorded videos can be downloaded or removed by clicking corresponding buttons. You may set the file server for keeping the recorded videos by clicking the [File Server Setting] and set the server address, port etc. to your designated location.

Video Management Page		File Se	erver Setting
200017000126_C_2018_02_22_15_59_16.avi (20.3MB)	Upload	Download	Delete
200017000126_R_2017_12_18_14_46_18.avi (11.9MB)	Upload	Download	Delete
200017000126_C_2017_12_18_14_46_02.avi (0.3MB)	Upload	Download	Delete
200017000126_R_2017_12_08_14_14_44.avi (48.0MB)	Upload	Download	Delete
200017000126_R_2017_12_08_13_54_04.avi (72.0MB)	Upload	Download	Delete
200017000126_C_2017_08_19_16_42_28.avi (0.1MB)	Upload	Download	Delete
			Return



Customer Flow Statistics

2018/02/05 14:36						Version	1: 0.1.12/0.1.31/0.1.0 Eng	lish 中文 Log
🕞 TD-2000	Passenger Ente	er and Exit Image						
Device Config							Aug EDS 15.978	
etwork Config							Avgira	
rvice Config		Cannon Anna	And the second day					
amera Config								
Passenger Flow			1					
Statistics	Management fo	r Enter and Exit Area						
assenger Stay tatistics	(1) Num	Zone Name	Zone ID	Enter Number	Exit Number	Active State	Operation	Reset
at Map		DJGZ-RL-02	U	43	53		Modity	Reset
ight Map	2	Zone-PF2	1	0	0	•	Modity	Reset
lvanced Options	3	Zone-PF3	2	0	0	•	Modify	Reset
	4	Zone-PF4	3	0	0	•	Modify	Reset
	5	Zone-PF5	4	0	0	•	Modify	Reset
	6	Zone-PF6	5	0	0	•	Modify	Reset
	7	Zone-PF7	6	0	0	•	Modify	Reset
	8	Zone-PF8	7	0	0	•	Modify	Reset
	Management fo	r Abnormal Passenger Fl	w					
		Switch 🔘		Identify Abnormality	Record	Evidence	Clear Im	ages
				Set	5	Set	Clear	

1. The Sensor can support setting up to 8 zones for counting in and out traffic flow. Enter / Exit Numbers represent real time statistics of Customers flowing in and out. Active State shows whether a zone is active.

[Modify]: Click the button into Count Setting page.

[Reset]: Rest count number to 0.

2. Management for Abnormal Customer Flow is used for warning operators when abnormal traffic flow is detected, which applies to specific customer needs. Check with our service representatives if you need more information about it.



Count Setting

2018/03/11 18:02			Version: 0.1.12/0.1.31/0.1.0 English 中文	Log Out
🕞 TD-2000	Real Time Image	Screenshot		
Device Config				
Network Config				
Service Config	9 C			
Camera Config				
Passenger Flow Statistics	Capture Image to Adjust Parameters		204 148	
Passenger Stay Statistics			Edit Enter Edit Exclude Reset	
Heat Map		3 Zone Name	DJGZ-KL-03	
Height Map		Zone ID	0	
Advanced Options		Enter Location	77 108 285 108 285 5 64 2	
		Exit Location	75 112 286 110 284 213 72 212	
		Exclude Location		
		Activate		
			Save Return	

- [Capture Image to Adjust Parameters]: Click the button, the most recent screenshot of real-time monitoring images will display on the right side for adjusting parameters.
- 2. The sensor counts traffic in when people move from the Exit area into the Enter area and counts traffic out when they move from the Enter area into the Exit area. The Enter area is close to site interior and the Exit area is close to site exterior. They are represented by drawing red line frame and green line frame respectively and shall not overlap with each other for accurate counting.

[Edit Enter]: Draw the red line framed Enter area by single-clicking points on the screenshot and double-clicking the final point so that all points are connected with lines to construct an automatic closed frame.

[Edit Exit]: Draw the green line framed Exit area by single-clicking points on the screenshot and doubleclicking the final point so that all points are connected with lines to construct an automatic closed frame. [Edit Exclude]: Exclusion lines are used to assist in discarding employee tracks or other activity that occurs in areas in which you do not wish to count. Draw the lines accordingly based on your need. [Reset]: Clear all settings in this page.



3. **Zone Name:** User-configurable text string to identify the zone. **Activate:** Start/Stop the function of this zone.



Customer Stay Statistics

Pa J	ssenge	r Stay Image	eda -				Min FPS 15 Avg FPS 16	1054	
ig ow			F			Min Occurre Max Merg	ence Time (s) 5 ging Time (s) 10	tave	
tay	anagem Num	ent for Stay Area Zone Name	Tone ID	Zone Occupied Time (s)	Total Serving Number	Average Serving Time (s)	Active State	Operation	Reset
-	1	Zone-PS1	8	0	0	0	• @	Modify	Reset
	2	Zone-PS2	9	0	0	0	•	Modify	Reset
tions	3	Zone-PS3	10	0	0	0	•	Modify	Reset
	4	Zone-PS4	11	0	0	0	•	Modify	Reset
	5	Zone-PS5	12	0	0	0	٠	Modify	Reset
	6	Zone-PS6	13	0	0	0	٠	Modify	Reset
	7	Zone-PS7	14	0	0	0	•	Modify	Reset
	8	Zone-PS8	15	0	0	0	•	Modify	Reset
] Dynami	c Display for Stay Tir	ne ③ Os	Zone-PS1 Zone-PS2					

1. Management for Stay Area: the Sensor can support up to 8 zones for counting traffic in the zones and presenting stay time.

Zone Occupation Time: time accumulates as long as the specific zone is not idle. Zone Occupation Time shows the total time.

Total Serving Number: Total number of clients served in a specific zone.

Average Serving Time: Average time served per client in a specific zone.

2. Min Occurrence Time: Set the minimum time a person shall stay in the zone. The Sensor counts the time and number only when the person stays in the zone longer than the Min Occurrence Time as set.

Max Merging Time: Set the maximum time a person may not show up in the zone. The Sensor will not count the person leaving the zone longer than the Max Merging Time.

- 3. Dynamic Display for Stay Time: Display clients' stay time in each activated zone in real time.
- 4. [Modify]: Click the button into Zone Setting page.



Zone Setting

2018/02/05 14:47			Version: 0.1.1.2/0.1.31/0.1.0 English 中文 Log Out
TD-2000 Device Config Network Config Service Config Camera Config Camera Config Passenger Flow Statistics Passenger Stay Statistics Heat Map Height Map Advanced Options	Real Time Image Image: State St	Screenshot Screenshot Zone Name Zone ID Zone Location Activate	Image: Second

- 1. [Capture Image to Adjust Parameter]: Click the button, the most recent screenshot of real-time monitoring images will display on the right side for setting parameters of a zone.
- [Edit Zone]: Draw the blue line framed zone by single-clicking points on the screenshot and double- clicking the final point so that all points are connected with lines to construct an automatic closed frame.
 [Reset]: Clear all settings in this page.
- 3. **Zone Name:** User-configurable text string to identify the zone. **Activate:** Start/Stop the function of this zone.

After a zone is set and activated, the sensor will count the number of people served when they move into the zone and counts the time people stay.



Heat Map

Heat Map is a vivid way to demonstrate traffic density by using a color-coded heat map of all tracks. Red represents high density of traffic flow while blue represents low traffic volume.

5 14:50		Version: 0.1.12/0.1.31/0.1.0 English 中文	Ĩ
-2000	Real Time Heat Map		
Config	La real first first		
rk Config			
ice Config	A REAL PROPERTY AND A REAL		
era Config			
senger Flow istics	Reat		
senger Stay stics			
t Map			
pht Map			
vanced Options			



Height Map

The height map is used for the purpose of setting the height of sensor properly. When the height map shows mostly red, you may need to decrease the height value as set in **Camera Configuration**. When it shows mostly blue, then you need to increase the height value. If the height value is set properly, the height map should be presented green in general.

	Version: 0.1.12/0.1.31/0.1.0 English 中文
Real Time Height Map	
经汇益 但重要	
Reset	



Advanced Options

2018/02/05 14:52	l i	l ,			Version: 0.1.12/0.1.31/0.1	0 English 中文	Log Out
🖵 TD-2000	Refresh Time of Webpage Images	(ms) 1					
Device Config Network Config	Online Learning						
Service Config	Reboot Device 3						
Passenger Flow Statistics	Firmware Update (4)						
Passenger Stay Statistics	Update Validity of License : Unlimited						
Heat Map							
Height Map	Device Capacity (5)						
Advanced Options	Total Capacity	Used Capacity	Available Capacity	Used Percentage	Video Capacity	Image Capacity	
	7.0GB	2.8GB	3.9GB	42%	0.0MB	0.0KB	
	2018/02/05 14:03:45	Successful Upload (p) 2018/02/05 14:52:05	Failed Upload (p)	Successful Upload (s)	2018/01/26 13:52:57	Other History Record	

- 1. Refresh Time of Webpage Images: Set the time interval for refreshing images captured from the Sensor. 200ms/500ms/1000ms/1500ms/2000ms/5000ms are supported for selecting.
- 2. Online Learning: Switch the button to activate online learning, which is one of the most important features of the Sensor capable of improving its accuracy through deep learning technology. Make sure the Sensor is connected to internet for enabling the feature.
- 3. Reboot Device: Click the button [Reboot] to reboot the sensor.
- 4. Firmware Update: Update the firmware on sensor
 - Click [Select]
 - Choose firmware file
 - Click [Update]
 - · Wait for 60 seconds until the sensor reboots automatically after upgrading
- 5. Device Capacity: shows how the device capacity is being occupied.
- 6. Device Log: shows the main logs such as the start time and failure information of the device.
- 7. Other History Record: Click [Check] to see other relevant logs for technician troubleshooting.



TD-2000 Signal Lights Indicators

The TD-2000 3D Intelligent Sensor can diagnosed by observing its signal lights after being installed and configured through the web interface. There are two signal lights on the device. The signal light on the left (refer to the picture) indicates different status of device with three colors: red, orange and green.

Color of Signal Lights	Indicators
Constant red	Device error, hardware problem
Flashing orange	Connectivity issue, unable to connect with the server
Flashing green	Functioning properly

Other Settings

The TD-2000 3D Intelligent Sensor can be manually reset by pressing the [Reset] button located on one side (as shown in the picture) of the device.

[Reset]: Use the end of a paper clip, pin or SIM eject tool to press the button no less than 10 seconds and then release, the device will be reset to factory default settings and reboot automatically. Make sure the device is powered on when you reset it.

