

ASPC102 Passenger Flow Sensor User Guide



Applicable Model: T633L



Change History

File Name	ASPC102 Passenger Flow Sensor User Guide						
Project	T633L	Creation Date	2023-01-06				
		Update Date	2023-06-30				
Subproject	Accessory User Guide	Total Pages	14				
Version	V1.2	Confidential	External Documentation				

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2 Product Introduction

2.1 Product Functions

- Count the number of passengers entering or leaving a vehicle from the front or back door.
- Count the total number of passengers entering or leaving a vehicle from the front or back door.
- Count the number of remaining passengers inside a vehicle.

2.2 Product Overview

The ASPC102 is a compact and precise embedded AI passenger flow sensor based on contactless deep learning algorithms. The ASPC102 can collect 3D stereoscopic information about customers for analysis and recognition, and accurately capture the moving people. Even in densely populated areas, the sensor can reach more than 95% of the accuracy rate. While implementing real-time video surveillance, it can collect and analyze the number of people in the specified area and direction. This provides real-time accurate flow data for managers, which facilitates efficient management. The sensor is applicable to buses, long-distance coaches, shopping malls, and other scenarios.

3 Passenger Flow Sensor and Accessories

Standard Accessory	Quantity	Picture
Passenger flow sensor	1	





Optional Accessory	Quantity	Picture
4-pin cable with two aviation		
connectors (optional. It is		
recommended that you select a		
cable 3 meters, 5 meters, 10	1	
meters, 15 meters, or 20 meters in		
length based on your business		0
requirements.)		

4 Product Specifications

Item	Specifications
Weight	0.52KG
Dimensions	136 mm × 60mm × 38mm
Operating voltage	12–60 V DC
Power Consumption	<5W
Communication interface	RS485 port
Video output	RTSP
Operating temperature	-20°C to +70°C
Operating humidity	10%–95%. Non-condensing
Water resistance rating	IP45 (water and dust resistance)
Counting height	1.8–10.0 meters

5 Installation

5.1 Installing the ASPC102

The ASPC102 shall be installed at an angle of 90 degrees to the ground. Both ends of the sensor have an L-shaped bracket, so that the installation location of the sensor's camera can be adjusted at a maximum angle of 90 degrees.
 The installation height of the ASPC102 should be kept within 190–250 cm (applicable to vehicle scenarios).

Installation method 1: The sensor is installed above a door at an angle of 90 degrees to the first step of a vehicle. This installation method is suitable for large buses with two doors more than 1.9 meters in length.



Installation method 2: The sensor is installed on the roof or air duct of a vehicle. This installation method is suitable for vehicles whose top door has a small gap or whose door is short. If the sensor is installed on a vehicle whose top door has a small gap, the door may not be opened or closed.





5.2 Connecting the ASPC102 to the T633L



6 Configuring the ASPC102

6.1 Configuring Sensor Parameters by Using a Configuration Tool

Contact us to obtain the ASPC102 configuration tool. The following section describes the ASPC102 configuration tool.



Click Search to search for ASPC102 sensors in the same local area network (LAN). If ASPC102 sensors cannot be found, change the IP address of the LAN and make sure that the IP addresses of the LAN and the sensor are in the same network segment. The IP address of the sensor is in the 192.168.3.xxx network segment. For more information about how to change an IP address, see the video tutorial at https://www.youtube.com/watch?v=7p3pbsCFouE.
 Select a sensor and click Play to play a live video about the sensor.



3. Select a sensor and click Settings to configure the sensor. You can change an address code and modify a detection

area and detection line where passengers enter and leave a vehicle.

Sevice mile					
Name	ASPC101		Soft Ver 3.	.0.0.20	
ID	90BBD5082F73		SDK Ver 5.	.640	
Model Ver	5.01.640				Set
Detect Param	eter				
Line: 2		Are	a: 4		
x	Y		x	Y	
▶ 10	360		10	100	
1270	360		1270	100	
			1270	620	
			10	620	
					Set
:\$485					Set
S485 Baud Rate	9600	Add	ress Code 0		Set
S485 Baud Rate Work Mode	9600 Passive mode	Addu	ress Code 0	Data Check	Set

Set an address code: You must set multiple address codes if multiple sensors are connected to the same T633L tracker. For example, the address code of the sensor installed at the front door of a vehicle is set to 0, while the address code of the sensor installed at the back door of the vehicle is set to 1.

Modify a detection area and detection line where passengers enter and leave a vehicle:

Under Detect Parameter, the left side is the setting area of a detection line. You can modify the detection line by changing two coordinates.

The right side is the setting area of a detection area. You can modify the detection area by changing four coordinates. The camera resolution is 720p (1280*720). The coordinate of the upper left corner is (0,0), while the coordinate of the lower right corner is (1280,720), as shown in the following figure. You can set a detection area and detection line based on the preceding coordinates.



You can set a proper detection area and detection line based on your business requirements, as shown in the



following figure. This helps improve the counting accuracy of the sensor.



6.2 Configuring the Counting Mode on Meitrack Manager

Mode 1: Count the number of people by opening and closing vehicle doors. This is the default mode.

1. Configure input ports. Input 2 and input 4 of the T633L are connected to the sensors at the front and back doors respectively.

Meitrack Manager 6.0.3.0										
Basic	IO Config OUT1)								
	Туре	Output	~ 1	~	Trigger Mode	High level	~	Trigger Time(10ms)	100	
TIACKING	OUT2									
GeoFence	Туре	Output	~ 2	~~	Trigger Mode	Low level	~	Trigger Time(10ms)	100	
	OUT3									
Event	Туре	Output	× 3	~	Trigger Mode	High level	~	Trigger Time(10ms)	100	
	SOS									
Peripheral	Туре	Input	~ 1	~	Trigger Mode	Negative	~			
	IN2									
~	Туре	Input	~ 2		Trigger Mode	Negative	~			
	IN3									
	Туре	Input	~ 3	×	Trigger Mode	Positive	~			
	AD1									
	Туре	Input	v 4	~	Trigger Mode	Negative	~			
	AD2									
	Туре	Input	~ 5	\sim	Trigger Mode	AD Input	~			
	Sen									
	Туре	1-Wire	~							
	·									

2. Configure sensor 1, sensor 2, door 1, and door 2, and make sure that the vehicle doors and input ports correspond to the sensors.



Passenger flo	w count con	figuration –		0 1	ala ala
	unting reset	Resett	ng time	0 🖶 0	CIOCK
Passenger n	low sensor co	Door	1 Door	2 Door 3	Door 4
Sensor 1(RS485)	۲	0	0	0
Sensor 2(RS485)	0	۲	0	0
Sensor 3(RS485)	0	0	0	0
Sensor 4(RS485)	0	0	0	0
Passenger fl	ow count con	dition			
While Op	en/Close	~			
Door open	and close sigr	nal detection	n		
	IN1	IN2	IN3	IN4	
Door 1	0	۲	0	0	
Door 2	0	0	0	۲	
Door 3	0	0	0	0	
Door 4	0	0	0	0	

Mode 2: Count the number of people by entering and exiting a geo-fence.

1. Set Passenger flow count condition to via GEO-Fence and click Goto Geofence to go to the Geo-Fence page.

Basic Image: Sease of the flow count configuration Daily counting reset Reserver flow sensor configuration Door 1 Door 2 Door 3 Door 1 Door 1 Door 2 Door 3 Door 1 Door 1 Door 1 Door 2 Door 3 Door 1 Door 1 Door 1 Door 2 Door 3 Door 3 Door 4 Sensor 1(R5485) Sensor 2(R5485) Sensor 4(R5485) Sensor 7(R5485) Sen	Meitrack Manager 6.0.3.0														-		×
Passenger flow count configuration Door 1 Door 2 Door 3 Door 4 Sensor 1(R5485) Sensor 2(R5485) Passenger flow count configuration Passenger flow count conf	-														Sec		
In Tracking Image: Sensor 1 (R5485) Image: Sensor 2 (R5485)	Basic	Passenger flow count configuration	ion														
Passenger flow sensor configuration Decrit Decrit Decrit 2 Decrit 2 Decrit 2 Decrit 3 Decrit 4 Sensor 2 (R5485)		Daily counting reset R	eseting	time 0	÷ 0'	clock											
Sensor 1 (R5485) Sensor 2 (R5485) Event Sensor 3 (R5485) Pessenger four coult condition While [vig GeO-Fence] Vig GeO-Fence Goto Geofence] Low OI Alarm Value(%) 0 Low OI Alarm Value(%) 0	Tracking	Passenger flow sensor configura	boor 1	Door 2	Door 3	Door 4											
Sensor 2(R5485) Sensor 3(R5485) Sensor 4(R5485) Sensor 4(R5485) Perpheral Vhile [vs 660-Fence] Goto Geofence Upper(Voice) Goto Geofence Value (Sensor Type 0-Hone] Set Fuel Sensor Set Fuel Sensor Set Upper(Voice) 0 Upper(Voice) 0 Upper(Voice) 0	Castance	Sensor 1(RS485)	0	0	0	0											
Sensor 3(R5485) Pasenger flow count condition White yee debo Fence Ot A Barro High Oil A karro High Oil A karro Low Oil A karro Low Oil A karro	Georence	Sensor 2(RS485)	0	0	0	0											
Sensor 4(RS483) Sensor 4(RS483) Sensor 4(RS483) Sen	Fvent	Sensor 3(RS485)	0	0	0	0											
Percharal Percharal Passenger flow count condition Under/Cose Coto Georence Coper/Cose Coto Georence Coto Georence Coto Georence Coto Georence Set		Sensor 4(RS485)	0	0	0	0											
Fastering Into Colling College While Weile GED-Fence GED-Fence Set Fuel Sensor Fuel Sensor Type Ol Alarm High Ol Alarm Value(%) Low Ol Alarm Value(%)	Peripheral	Parronger few count condition															
Fuel Sensor Fuel Sensor Fuel Sensor Of Alarm High Of Alarm Value(%) 0		While who GEO Eanco	Goto	Geofenc	•												
Fuel Sensor Fuel Sensor Fuel Sensor Type Of Abrm High Of Abrm Value(%) 0 Example	æ	Open/Close	GOLO	Georenc	e												
Fuel Sensor Fuel Sensor Type Ol Alarm High Ol Alarm Value(%) Low Ol Alarm Value(%)		via GEO-Fence															
Fuel Sensor Fuel Sensor Type Of Alarm High Of Alarm Value(%) Low Of Alarm Value(%)																	
Fuel Sensor Fuel Sensor Ol Alarm High Ol Alarm Value(%) 0 Low Ol Alarm Value(%)																	
Fuel Sensor Fuel Sensor Type Ol Alarm Hoh Ol Alarm Value(%) Low Ol Alarm Value(%)																	
Fuel Sensor Fuel Sensor Type Of Alarm High Of Alarm Value(%) 0 Low Of Alarm Value(%)																	
Fuel Sensor Fuel Sensor Type OI Alarm High OI Alarm Value(%) Low OI Alarm Value(%)																	1
Fuel Sensor Fuel Sensor Of Aarm Hgh Of Alarm Value(%) 0																	
Fuel Sensor Fuel Sensor Type OI Alarm Hoh OI Alarm Value(%) Low OI Alarm Value(%) 0															Set		
Fuel Sensor Type 0-None OI Alarm High OI Alarm Value(%) 0 Low OI Alarm Value(%) 0		Fuel Sensor															
Oil Alarm 0 High Oil Alarm Value(%) 0 Low Oil Alarm Value(%) 0		Fuel Sensor Type 0-None		~													
High Ol Alarm Value(%) 0 😨 Low Ol Alarm Value(%) 0 🖃		Oil Alarm															
Low Ol Alarm Value(%) 0		High Oil Alarm Value(%)	0		*												
		Low Oil Alarm Value(%)	0														
Option COM Tool Synchronize Parameters Factory Load Settings From File Save Settings To File	6	Option COM Tool					Synchro	nize Paramel	ters	Facto	лý	Load	Settings Fr	om File	Save Sett	tings To	File
Get device settings succeed! ID Library Version:2022.09.20.01	Get device settings succeed!													ID Librar	y Version:2	022.09.2	20.01 .::

2. A maximum of 256 geo-fences can be configured. On the **Geo-Fence** page, you can select a round or polygonal geo-fence and set the geo-fence name (example: the name of a bus station). When the device enters the geo-fence, the passenger flow sensor starts to count the number of passengers entering a vehicle from the front or back door and the number of remaining passengers inside a vehicle. When the device exits the geo-fence, the passenger flow data is uploaded to the server.



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1-8	9-16 17-24 25-32 33-40 41-4	8 49-56 57-64 65-72 73-80 81-88 89	96 97-1	.04 105-112 113-120 1	21-128	129-136 137-144	145-152 153-160
-1	Shape: Round 🗸	🔲 In alarm	2	Shape:	~	🗌 In alarm	
	Name:	Out alarm		Name:		Out alarm	Map
	Velocity threshold: 0	Delete		Velocity threshold: 0			Delete
3			4		. Kolodi		
	Shape: 🗸	In alarm		Shape:	\sim	🔲 In alarm	Man
	Name:	Out alarm		Name:		🗌 Out alarm	map
	Velocity threshold: 0	Delete		Velocity threshold: 0	\$		Delete
5			6				
	Shape: ~	In alarm		Shape:	~	🔲 In alarm	Map
	Name:	Out alarm		Name:		Out alarm	Delate
	Velocity threshold: 0	. Michael Marine		Velocity threshold: 0	÷		and the first factor
-7-	Channel	To show	8	Change		To always	
	snape: v	Map		Snape:	~		Мар
	Name:	Delete		Name:		UUT alarm	Delete
	Velocity threshold: 0	20		Velocity threshold: 0	1		

6.3 Configuring the ASPC102 by Using a GPRS Command

GPRS Sending	BDA,A,[B,C]
GPRS Reply	BDA,OK
Description	A: indicates the setting type.
	0: Set the data clearing time.
	Data format: B,C
	B: The parameter value is 0 or 1. 0: The function is disabled. 1: The function is enabled.
	C: indicates time when data is deleted. Value range: 0:00 to 23:00.
	1: Clear data by using a command. After the data clearing command is received, data is
	cleared.
	2: Configure the location (address of the ASPC102) of the door on which a sensor is
	installed.
	Data format: A, door1, door2, door3, door4
	Doorx: indicates the location of a door. The parameter value is 0 to 4. 0: invalid. The same
	door location cannot be configured for the sensor.
	3: Configure triggering conditions.
	Data format: A,B,[C,D,E,F]
	B: indicates the triggering type. U: triggered by an I/O port. 1: triggered by a GPS geo-tence.
	When the value of parameter B is 0, [C,D,E,F] can be configured.
	[C,D,E,F]: indicate input ports corresponding to doors 1–4. The value of parameters C, D, E,
	or F is 0 to 4. 0: invalid. 1: input 1. 2: input 2. 3: input 3. 4: input 4.
	4: Quary passanger flow data
	4. Query passenger now usia.
	vehicle Total number of passengers leaving a vehicle Sensor 21 Door location Total number
	of nassengers entering a vehicle Total number of nassengers leaving a vehicle. Sensor



	3 Door location Total number of passengers entering a vehicle Total number of passengers leaving a vehicle, Sensor 4 Door location Total number of passengers entering a vehicle Total number of passengers leaving a vehicle, Total number of passengers entering a vehicle Total number of passengers leaving a vehicle Number of remaining passengers inside a vehicle
Applicable Model	T633L
Example	
GPRS Sending	@@V27,353358017784062,BDA,4*F6\r\n
GPRS Reply	\$\$S63,353358017784062,BDA,1 1 1 1,2 2 0 0,3 3 0 0,4 4 0 0,1 1 0*A7\r\n

7 Viewing Passenger Flow Sensor Data on the MS03 Platform

1633L485Cal	nera									
From: 202	2-10-12	00:00 v To:	2022-10-12	23:59 👻	Speed: >= v 0	🗌 Address 🗹	Ignore drift O	S. 🚺 📙 🍛		
ger Flow Se	nsor 1 Doo	r 1 Door State	1 Up Cou	nt 1 Down Co	unt 1 Total Up Co	ount 1 🕆 Total Down	Count 1 Passenger Flo	w Sensor 2 Door :	2 Door State 2	Up
										-
_	_	_	_	_						
	1	1	0	0	0	0	2	0	0	0
	1	2	0	0	0	0	2	0	0	q
										0
										Q
										o
	1	2	1	1	2	3	2	0	0	0 -
4										•
« (Page 26	Total27) N C	Display751	- 780 Total 788				Show driver	and license-plate

1. View passenger flow data from historical data or event reports.

2. View passenger flow sensor reports.

Before you view passenger flow sensor reports, your account must be grant the required permissions. Contact us to apply for the required permissions.

People	Counter Report(ASPC101)					•
From	2022-12-09 III 00:00 - To: 2022-12-09 III 23:59 -	् 💶 💄 🥯				
Θ	Passenger Flow Sensor 1	Door 1	Door State 1	Up Count 1	Down Count 1	
Ple	1	1	Invalid	0	0	
ISE I						
sele						
ct a						
trac						
ker.						
	4					•
	(() Page 1 Total1))) C	isplay1 - 13Total13			Show driver and license	-plate



8 GPRS Protocol for the ASPC102 Passenger Flow Sensor (CCE Protocol

Based on the T633L)

Notes: For more information about the GPRS protocol excluding the information about the ASPC102, see *MEITRACK T633L GPRS Protocol*.

Passenger	CCE ID:	<id_len><version><sensor 1=""><sensor 2=""><sensor 3=""><sensor 4=""><all data="" sensor=""></all></sensor></sensor></sensor></sensor></version></id_len>			
flow data	0XFE96	Sensor: signed. Its data structure is as follows:			
of the		typedef struct			
ASPC102		{			
		byte number; (1 byte) // Sensor number. Example: sensor 1 or sensor 2.			
		byte door_number; (1 byte) // Door number. 0: UNLL. 1: door 1. 2: door 2. 3: door 3. 4:			
		door 4.			
		byte state; (1 byte) // Sensor state. 0: invalid. 1: Detect door opening by an I/O port. 2:			
		Detect door closing by an I/O port.			
		// 3: Enter a geo-fence. 4: Exit a geo-fence.			
		dword up_car; (4 byte) // Number of passengers entering a vehicle			
		dword down_car; (4 byte) // Number of passengers leaving a vehicle			
		dword all_up_car; (4 byte) // Total number of passengers entering a vehicle			
		dword all_down_car; (4 byte) // Total number of passengers leaving a vehicle			
		}aspc_data;			
		All sensors: signed. Their data structure is as follows:			
		typedef struct			
		{			
		dword up_car; // Number of passengers entering a vehicle. The data is detected by			
		all sensors.			
		dword down_car; // Number of passengers leaving a vehicle. The data is detected			
		by all sensors.			
		dword all_up_car; // Total number of passengers entering a vehicle. The data is			
		detected by all sensors.			
		dword all_down_car; // Total number of passengers leaving a vehicle. The data is			
		detected by all sensors.			
		dword surplus; // Number of remaining passengers inside a vehicle			
		}all_data;			

If you have any questions, do not hesitate to email us at info@meitrack.com.