Traffic Data Collection

Cloud-integrated and solar-powered







- About Us
- BS2: ADEC IoT Gateway
- BS2: Mounting & Installation
- ADEC Cloud Access via Browser
- TDC1-PIR: 5-Channel PIR Traffic Detector
- TDC1-PIR: Installation & Commissioning



About Us



- ADEC founded in 2009
- ADEC designs and manufacturers
 - Single-lane traffic detectors
 - IoT-Gateways
 - Cloud-based queue zone management
- ADEC is
 - Privately held, owner-managed
 - ISO 9001 certified since 2010



ADEC Traffic-Data Collection

Sample web-browser view of volume and speed on 2 lanes



Last chart update: Sun Oct 10 2021 00:54:30 GMT-0400, Aggregation interval: 1 Hours

- Cloud integrated
- Solar powered



Key Features

ADEC traffic-data collection

- Autonomous, solar powered
- Cloud integrated via built-in modem
- Low-cost operation
- Provides data for: Level of Service, Volume-to-Capacity ratio
- Vehicle classification (by length)
- Daily or weekly reporting
- Real time or averaged data
- Quick installation using aerial work platform



Working Principle

Traffic data collection – solution overview





BS2-TS

Product Details

- Traffic Data Collection
- Manages up to 3 TDC1 detectors
- Forwards traffic data to ADEC cloud





BS2-TS Technical Specification

Electrical

- Capacity:
- Solar Panel:
- Communication:
- Mobile Network:

10Ah* 10W/30W Polycrystalline RS485, half-duplex 2G-4G

* for up to 5 days autonomous operation with 3 TDC1s



BS2-TS Technical Specification

Mechanical

- Dim. (10 W): 30 W:
- Housing:
- Weight:

100×260×360mm (4×10.2×14.2") 100×360×560mm (4×14.2×22.1") IP 64 weather-proof, plastic app. 3.4kg (7.5lbs) incl. panel & bracket (30W: 5.2 kg / 11.5 lbs)

Environment

- Operating Temp. -20° to +55°C (-4° to 130°F)
- Humidity: max. 95% (non condensing)



Typical Applications

ADEC traffic-data collection



- Temporary or permanent traffic data collection
- For both urbane and inter-urbane applications
- Feeding traffic models using real time data
- Single vehicle details available through web browser
- Data storage virtually unlimited using the ADEC cloud service



Installation

Temporary traffic-data collection







About us – BS2 IoT Gateway – Cloud Access via Browser – TDC1-PIR

Installation

Temporary traffic-data collection







About us – BS2 IoT Gateway – Cloud Access via Browser – TDC1-PIR

Installation

Temporary traffic-data collection







Device Overview (Map)

Cloud access and integration, web-browser view

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Device Overview (List)

Cloud access and integration, web-browser view

Filter		clea	r Online Offline							show
UID †= (")	Connected †	Name 11	Application 1	Battery ↑≜	Signal †	Battery 🏦	Detector †	Mode † ±	Last Heartbeat †	FW 1
0xfffb5e 💣	Offline	42 Standort 5.3 3072-001a	Det. 1.273	70%	-	4988V	6.9V	SV	4 days	BS2-T-S 1V20 R004 CID0 BK4561
0xfffb4a 🖌	Offline	Test	double click to add application name	100%	-79dBm	5.6V	11.8V	SV	6 months	BS2-T-B 1V30 R000 CID0 BK4550
0xfffb44 🖌	Online	2 Standort 1.1 3053-003b	Det. 2.283	100%	-65dBm	5.9V	7V	SV	47 seconds	BS2-T-B 1V30 R003 CID0 BK4610
0xfffb3b 🖌	Online	22 Standort 2.10 3322-010b	Det. 2.273	100%	-51dBm	5.9V	6.8V	SV	48 seconds	BS2-T-W 1V30 R003 CID0 BK4609
0xfffb3e ∎	Online	4 Standort 1.1 3053-003d	Det. 2.303	100%	-65dBm	5.9V	6.8V	SV	47 seconds	BS2-T-B 1V30 R003 CID0 BK4610
0xfffb53 🗗	Online	5 Standort 1.1 3053-003e	Det. 2.313	100%	-65dBm	5.8V	6.9V	SV	49 seconds	BS2-T-B 1V30 R003 CID0 BK4610
0xfffb4f ∎î	Online	3 Standort 1.1 3053-003c	Det. 2.293	100%	-59dBm	5.8V	6.9V	SV	46 seconds	BS2-T-B 1V30 R003 CID0 BK4610
0xfffb4e 🖬	-	40 Standort 5.1 3000-034b	Det. 1.283	0%	- 1	OV	0V	SV	n/a	n/a
0xfffb56 🗗	Offline	7 Standort 2.1a 3322-004a	Det. 1.273	70%	-	4970V	6.9V	SV	4 days	BS2-T-S 1V20 R004 CID0 BK4561
0xfffb24 🖬	Offline	19 Standort 2.6 3302-006b	Det. 1.283	19%	-69dBm	5.2V	0.8V	SV	3 days	BS2-T-S 1V30 R003 CID0 BK4610
0xfffb25 🗗	-	double click to add name	AU-202108132	096	-	ov	0V	SV	n/a	n/a
0xfffb50 €	Online	1 Standort 1.1 3053-003a	Det. 2.273	100%	-75dBm	5.7V	6.9V	SV	47 seconds	BS2-T-B 1V30 R003 CID0 BK4610
0xfffb66 💣	Online	37 Standort 4.7 Det. 1.273	Det. 1.273	95%	-51dBm	5.2V	6.8V	SV	48 seconds	BS2-T-S 1V30 R003 CID0 BK4610
0xfffb23 🗗	Offline	45 Standort 5.4 3072-003	Det. 1.273	10%	-71dBm	5.1V	6.8V	SV	3 days	BS2-T-S 1V30 R003 CID0 BK4610
0xfffb5c €	Offline	35 Standort 4.3 3063-008c	Det. 1.293	18%	-71dBm	4V	0.8V	SV	2 weeks	BS2-T-S 1V30 R003 CID0 BK4610
	-	50 Standort 5.5a 2000-030c	Det. 2.283	100%	-1	0V	6.9V	SV	n/a	BS2-T-B 1V20 R004 CID0 BK4561



Traffic Chart

Cloud access and integration, web-browser view





Traffic Data Export

Cloud access and integration, CSV data export

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8	Device ID:	0xfffb6a												
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10	Device:	BS2-T-S												
11	FW info:	BS2-T-S 1	10mE-D16	B-LEDC										
12	Name:	VZ184	Kriessern	Zoll										
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23	Date	Time	Detector I	Detector	Speed[km	Length[m]	Occupanc	Gap[s]	Class	Lifetime c	ounter[#]			
24	10.10.2021	7:40:48	1	A->CH	54	3.7	0.25	85.76	1	22548				
25	10.10.2021	7:39:22	1	A->CH	46	4.1	0.32	114.38	1	22547				
26	10.10.2021	7:38:57	2	CH->A	53	3.7	0.25	77.63	1	28127				
27	10.10.2021	7:37:39	2	CH->A	54	3.9	0.26	85.47	1	28126				
28	10.10.2021	7:37:28	1	A->CH	46	3.5	0.27	25.88	1	22546				
29	10.10.2021	7:37:01	1	A->CH	39	4.3	0.4	1.62	1	22545				
30	10 10 2021	7:36:59	1	A->CH	44	4	0 33	16 3	1	22544				



Detector Settings

Via web-browser

Configure detector settings via browser

ADEC	Technologies	ADEC	Technologies
>>	Attached Nodes	>>	Attached Nodes
	Traffic data configuration		Traffic data configuration
	Select device		Select device
	TDC1 ~		TDC1 ~
	Select operating mode		Select operating mode
	single-vehicle 🗸		single-vehicle
	Select datafields		Select operating mode single-vehicle
	V V L O O G CL VLTC DS		aggregated intervals
	select all select none		select all select none
	Save		Save



Base Station / IoT Gateway Status

Battery charge level and temperature log





Cloud Data Export

Easily exports into CSV files

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1	А	В	С	D	E	F	G	н	1	
1	Date	Detector	Speed [km/h]	Length [m]	Occupancy [s]	Gap [s]	Class	Life time	counter	[#]
2	28.02.2018 11:20:49	TDC1-ID1 to North	17	4.5	0.95	2.62	1	35096		
3	28.02.2018 11:20:46	TDC1-ID1 to North	49	9.8	0.72	12.13	3	35095		
4	28.02.2018 11:20:33	TDC1-ID1 to North	74	4.2	0.20	15.75	1	35094		
5	28.02.2018 11:20:17	TDC1-ID1 to North	51	6.1	0.43	9.51	3	35093		
6	28.02.2018 11:20:07	TDC1-ID1 to North	35	4.8	0.49	1.97	1	35092		
7	28.02.2018 11:20:04	TDC1-ID1 to North	36	4.5	0.45	24.04	1	35091		
8	28.02.2018 11:19:40	TDC1-ID1 to North	46	4.5	0.35	6.93	1	35090		
9	28.02.2018 11:19:33	TDC1-ID1 to North	44	5.2	0.43	13.52	1	35089		
10	28.02.2018 11:19:19	TDC1-ID1 to North	49	5.0	0.37	34.85	1	35088		
11	28.02.2018 11:18:43	TDC1-ID1 to North	49	4.4	0.32	72.63	1	35087		
12	28.02.2018 11:17:25	TDC1-ID1 to North	43	4.5	0.38	10.27	1	35086		
13	28.02.2018 11:17:15	TDC1-ID1 to North	60	5.0	0.30	92.85	1	35085		
14	28.02.2018 11:15:41	TDC1-ID1 to North	40	4.7	0.42	50.62	1	35084		
15	28.02.2018 11:14:50	TDC1-ID1 to North	47	4.1	0.31	10.19	1	35083		
16	28.02.2018 11:14:40	TDC1-ID1 to North	46	11.5	0.90	63.85	3	35082		
17	28.02.2018 11:13:35	TDC1-ID1 to North	56	5.1	0.33	11.65	1	35081		
18	28.02.2018 11:13:23	TDC1-ID1 to North	46	5.3	0.41	11.20	1	35080		
19	28.02.2018 11:13:12	TDC1-ID1 to North	44	4.2	0.34	2.83	1	35079		
20	28.02.2018 11:13:08	TDC1-ID1 to North	51	4.5	0.32	9.69	1	35078		
21	28.02.2018 11:12:58	TDC1-ID1 to North	43	21.8	1.83	27.00	4	35077		
22	28.02.2018 11:12:30	TDC1-ID1 to North	57	4.7	0.30	12.62	1	35076		
23	28.02.2018 11:12:17	TDC1-ID1 to North	31	3.9	0.45	2.41	1	35075		
24	28.02.2018 11:12:14	TDC1-ID1 to North	30	11.7	1.40	20.33	3	35074		



Highest performance at minimal power consumption

Preferred choice for:

- Counting
- Speed
- Vehicle length
- Solar or battery powered installations





- Multi-Channel Passive-Infrared Detector
 - Car breaks sequentially through detection zones
 - Speed, length & occupancy calculated through delays and strengths of signals





- Acquires speed and length of each vehicle
- Allows custom length based classification
- High accuracy:
 - Individual vehicle speed \pm 5% / \pm 5 km/h
 - Counting: ± 3%
- Ultra-low power consumption <60 mW</p>



- Vehicle classification:
- Num. of vehicle classes:
- Wrong-way driver detection:
- Traffic jam/queue detection:
- Mounting:

by length up to 3 yes yes overhead, side (>45°)



TDC1 Vehicle Classes

Built-in classification bins 1, 3 and 4

- Class 1: length < 5.6 m (~18 ft.)
- Class 3: 5.6 < length < 12.2 m (18 40 ft.)
- Class 4: length > 12.2 m (40 ft.)

Note: detector outputs vehicle length as well. Threshold lengths can be changed. Class numbers are arbitrary



Wide Mounting Range TDC1





About us – BS2 IoT Gateway – Cloud Access via Browser – TDC1-PIR

TDC1 Two-Lane Setup









TDC1 – Overhead Mount

Proper alignment is key for accurate traffic data

- Stable mounting point above middle of lane
- Verify alignment and traffic direction using label "parallel to road"
- Tilt the detector 10° to the lane
 - Accessory TDC-AH with build-in level



 View of the detector onto the lane is not obstructed





S	lide	28

ph1 too much information on this slide

are the mounting guidelines really useful in this presentation? phoerler, 5/2/2019



TDC1 – Side-Mount

Follow when mounting on street light or pole

- Mount detector on pole on side of road
- Verify "traffic direction" using label
- Align detector to lane using "parallel to road" – line on label
- Lift front of detector until top of housing is 10° to the road surface, for roads with no slope, the bubble level must be precisely levelled







Slide 29

ph3 too much information on this slide

are the mounting guidelines really useful in this presentation?

Don't use 3D-like elements phoerler, 5/2/2019



TDC1 – Side-Mount

- Turn the detector until it aims about 0.5 m (2 ft.) beyond the middle of the lane
- Verify the detector is still aligned in direction of the lane: Vehicles must pass through all detection zones!





Slide 30		
ph4	too much information on this slide	

are the mounting guidelines really useful in this presentation? phoerler, 5/2/2019

TDC1 Commissioning

Commissioning via Internet browser

EC Technologies Dev	ices Applications Map Logs		vip-sg@	@bluewin.ch 🛞
0xfffb6a - Co	onfiguration			
Attached Nodes				
Add				
Add	Name	Height	Offset	
Add ID 1	Name A->CH	Height 95 dm √	Offset 1 dm √	
Add ID 1	A->CH CH->A	Height 95 dm ✓ 95	Offset 1 dm ✓ 60	

Last update: Sun Oct 10 2021 07:49:04 GMT+0200

Refresh



What is needed?

1-2-3 Ready to collect and review traffic data!

- BS2-T(S) base station
- Up to 3 TDC1-PIR per base station
- GSM SIM card with data contract
- ADECLOUD account storage/service or direct upload to client server possible (https://adec.cloud)



Thank you!

If you have any questions please contact us at:

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- Phone +41-55-214-2400
- www.adec.swiss

