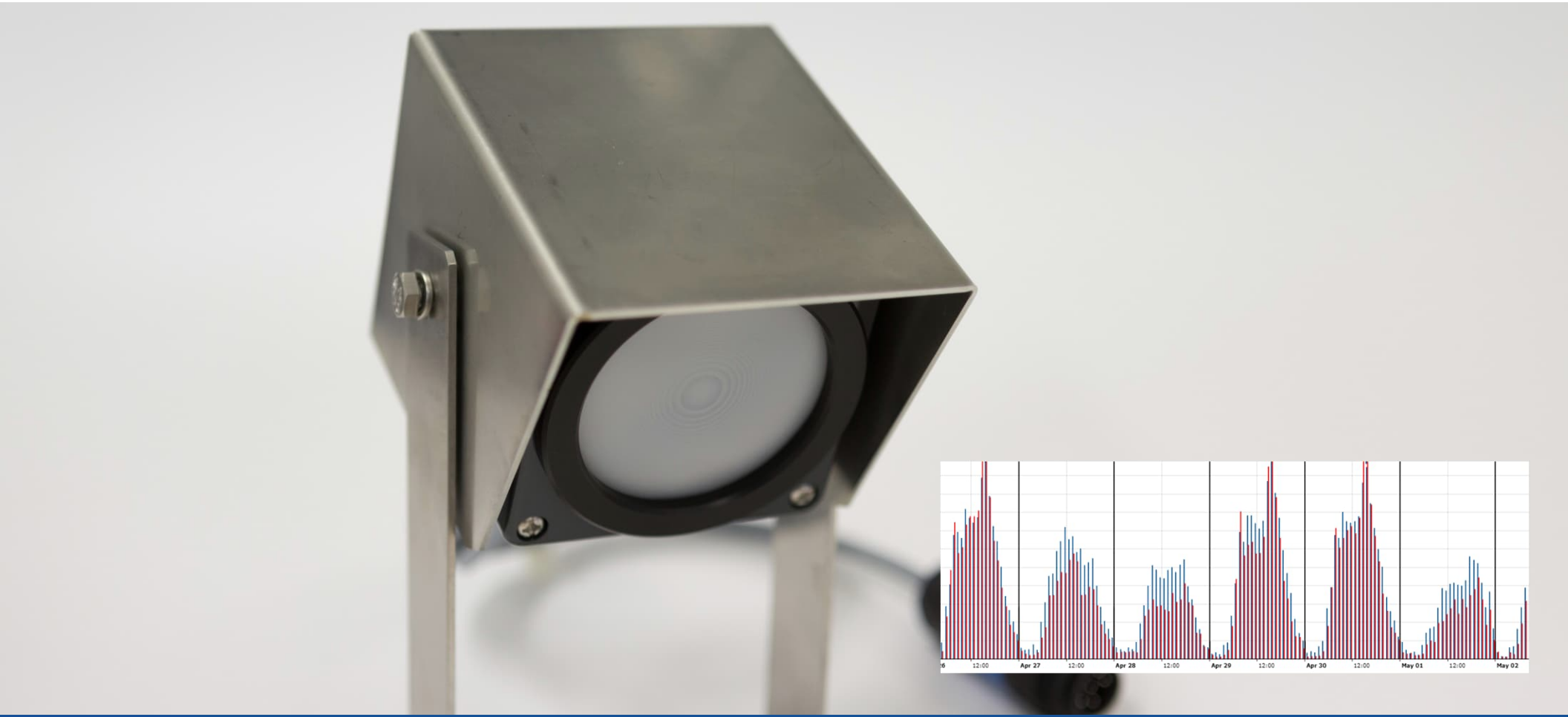
Traffic Data Collection

Cloud-integrated and solar-powered



Agenda

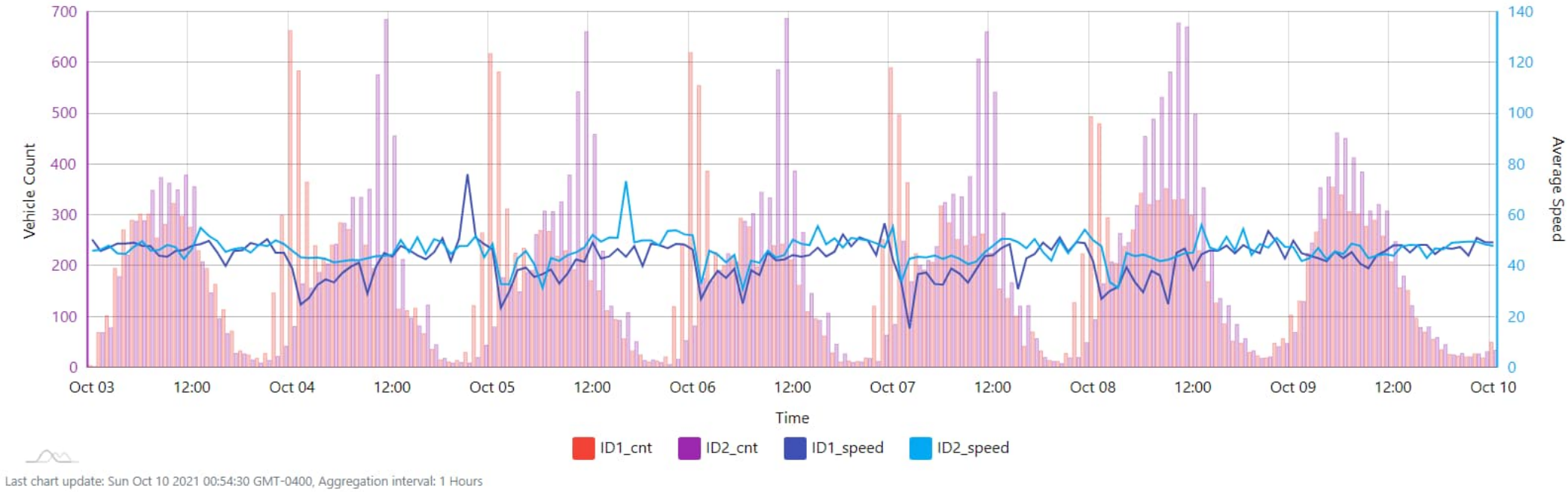
- About Us
- BS2: ADEC IoT Gateway
- BS2: Mounting & Installation
- ADEC Cloud Access via Browser
- TDC1-PIR: 5-Channel PIR Traffic Detector
- TDC1-PIR: Installation & Commissioning

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



- Cloud integrated
- Solar powered

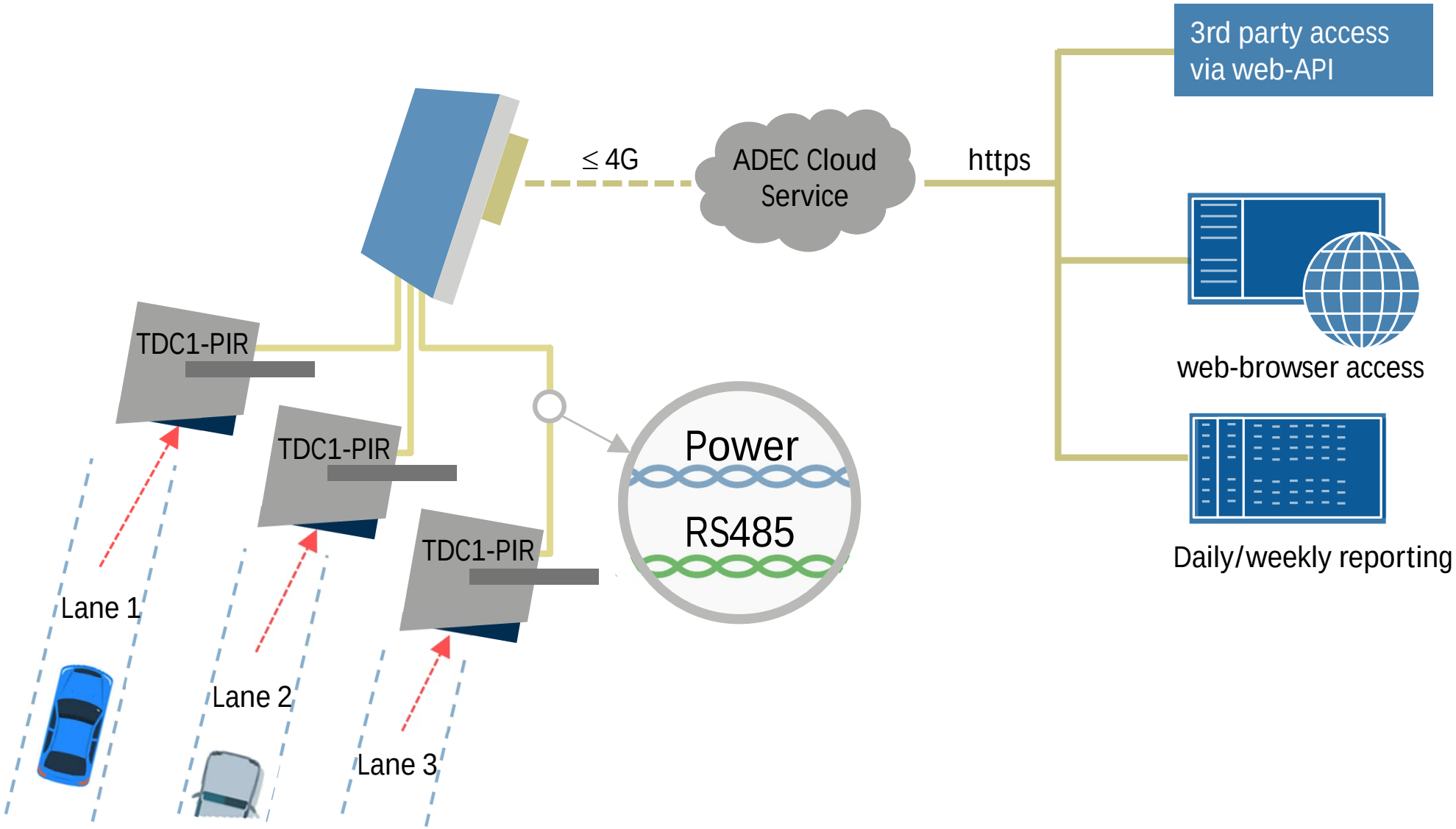
Key Features

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: 10Ah*
- Solar Panel: 10W/30W Polycrystalline
- Communication: RS485, half-duplex
- Mobile Network: 2G-4G

*for up to 5 days autonomous operation with 3 TDC1s

BS2-TS Technical Specification

Mechanical

- Dim. (10 W): 100×260×360mm (4×10.2×14.2")
  30 W: 100×360×560mm (4×14.2×22.1")
- Housing: IP 64 weather-proof, plastic
- Weight: 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)

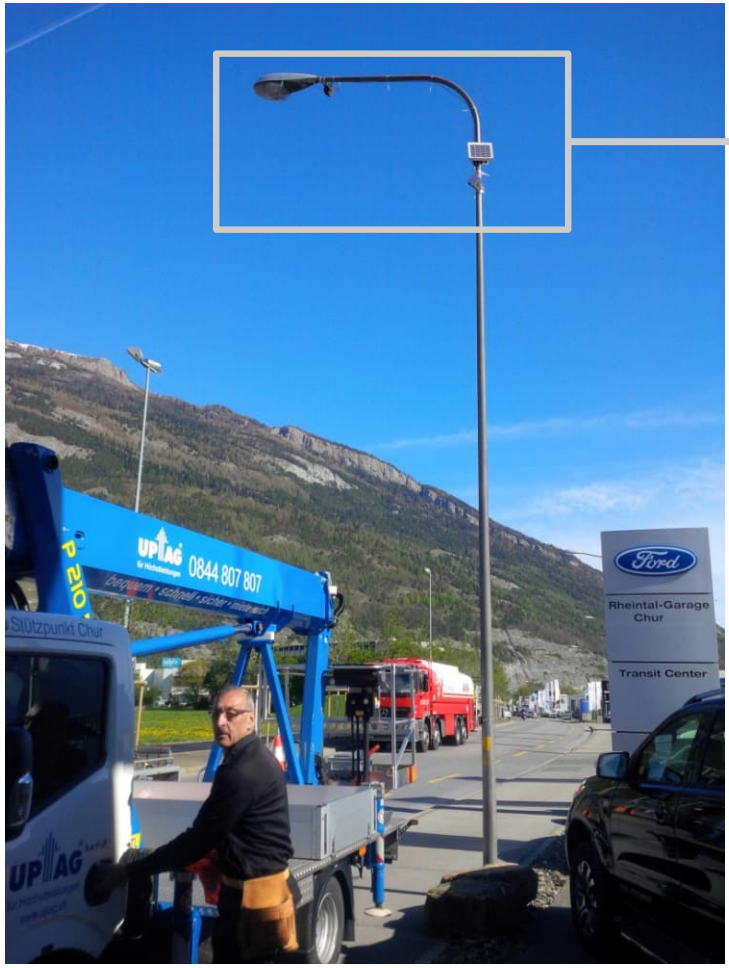
Typical Applications

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



Installation

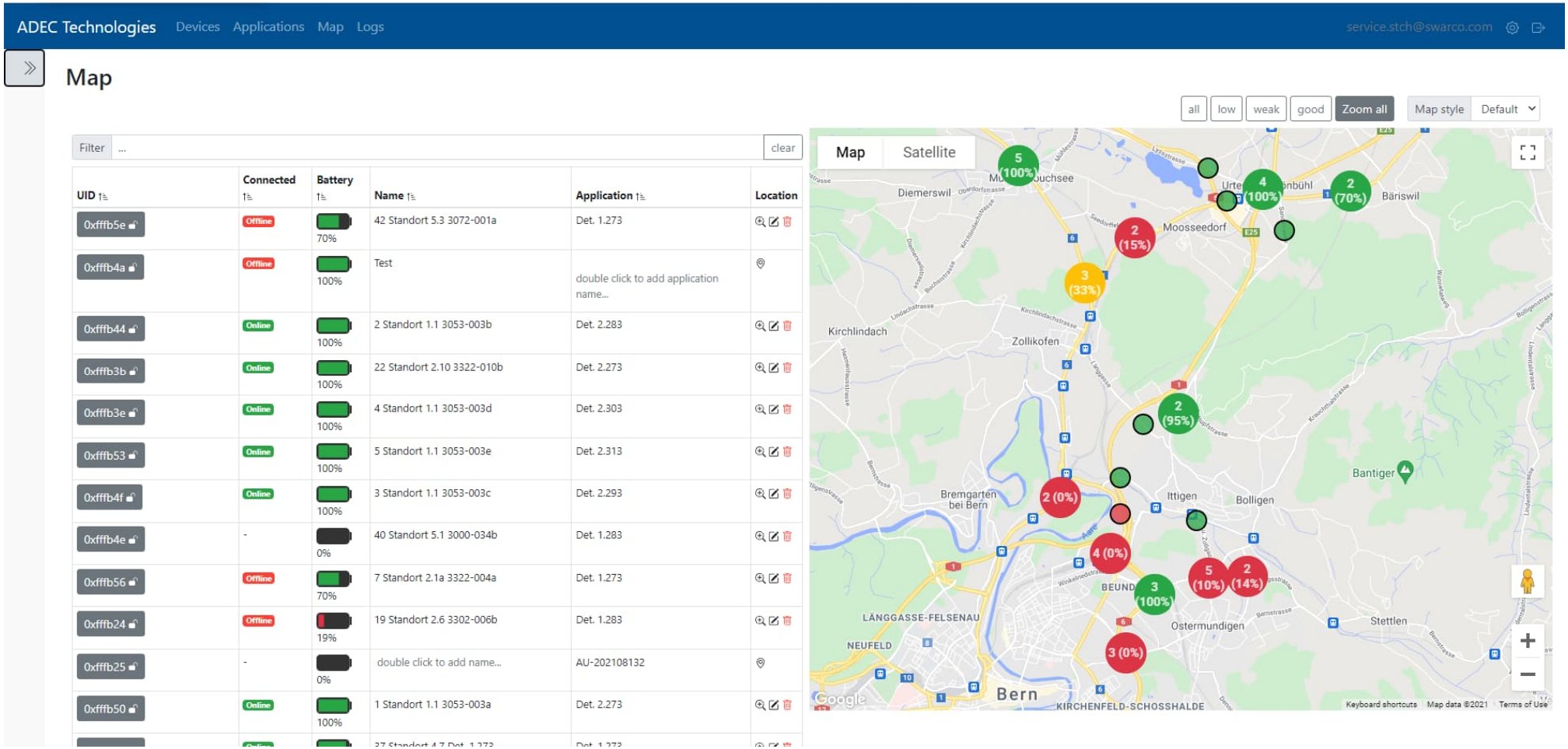
Temporary traffic-data collection

Installation

Temporary traffic-data collection

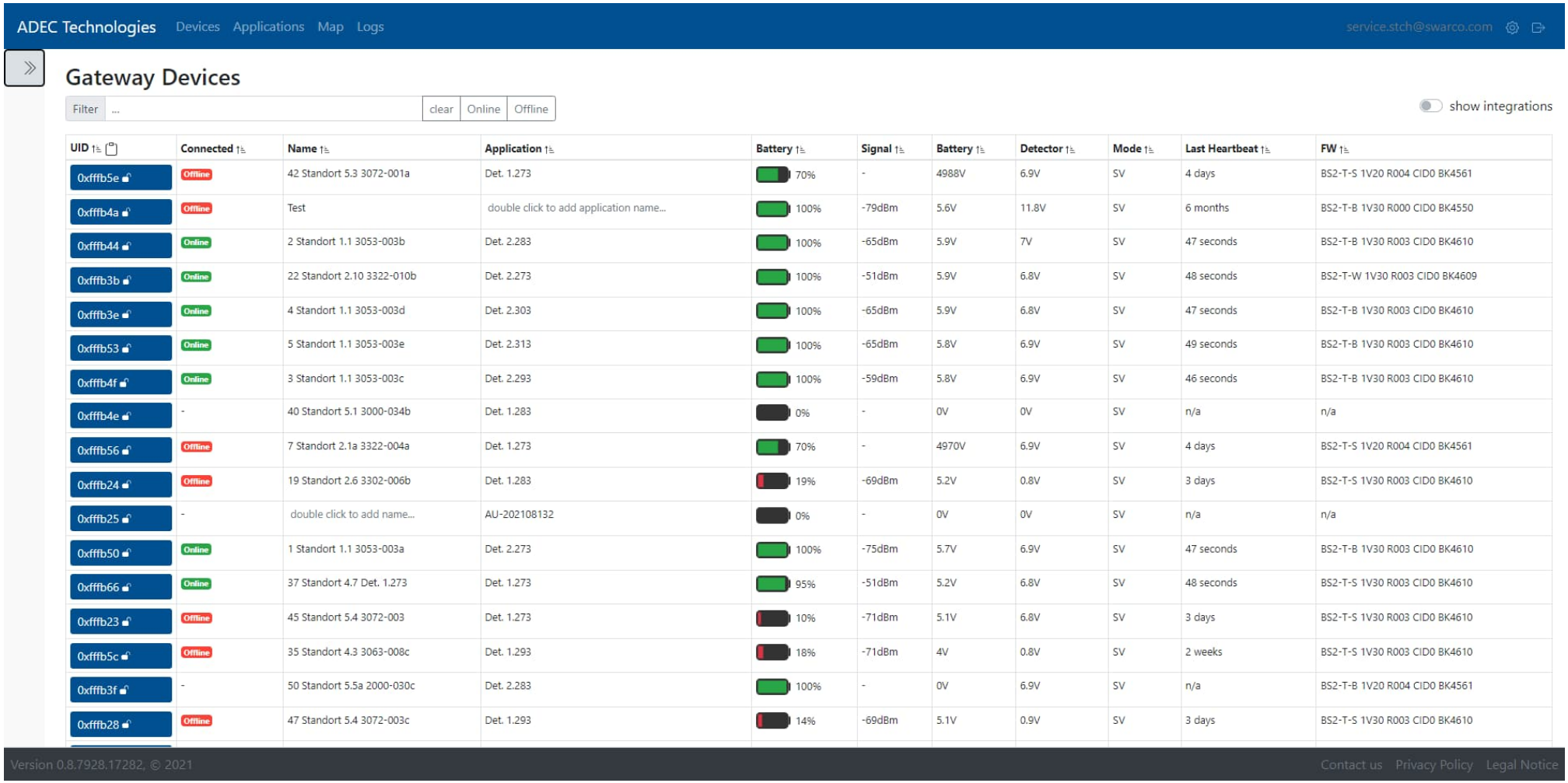
Device Overview (Map)

Cloud access and integration, web-browser view



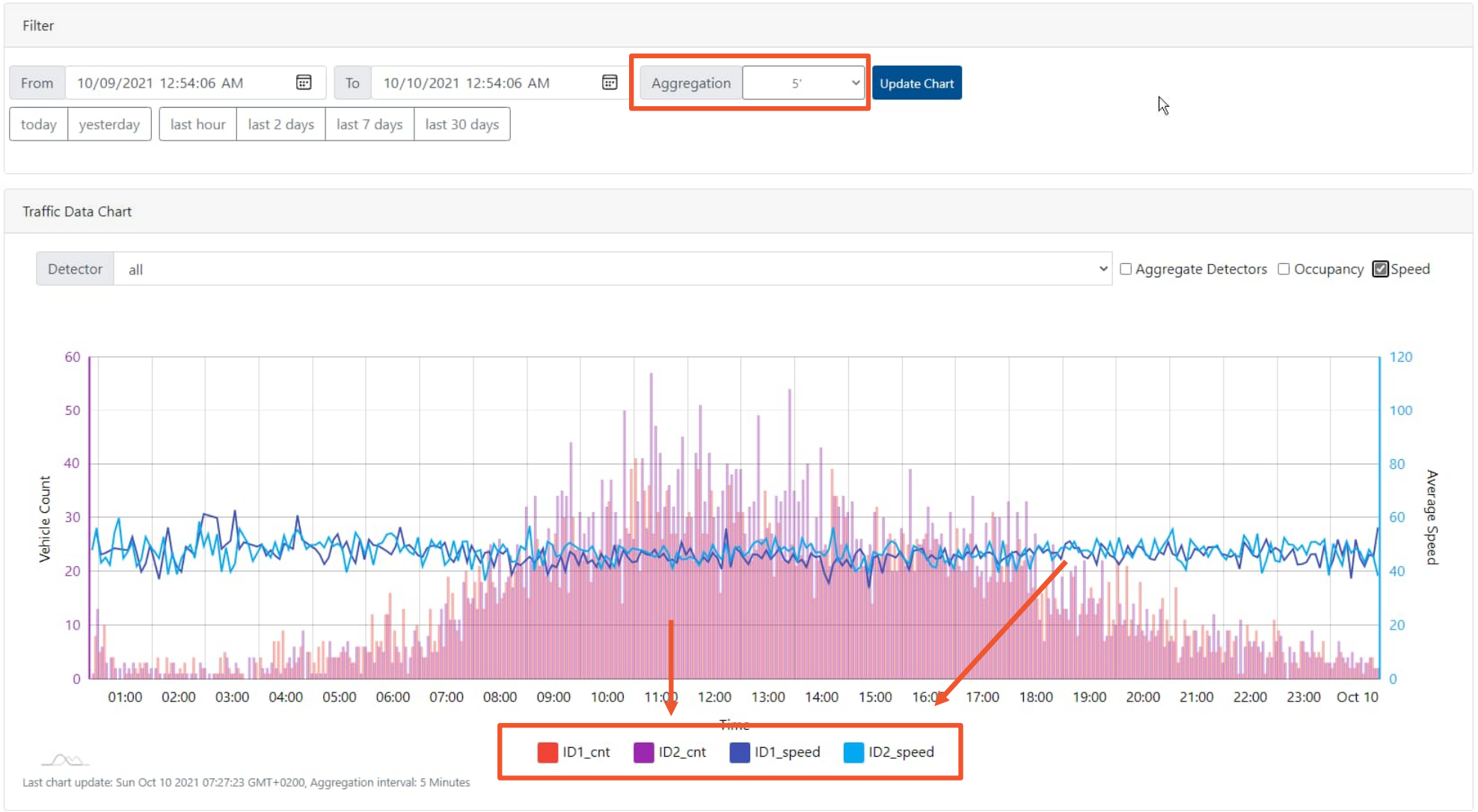
Device Overview (List)

Cloud access and integration, web-browser view



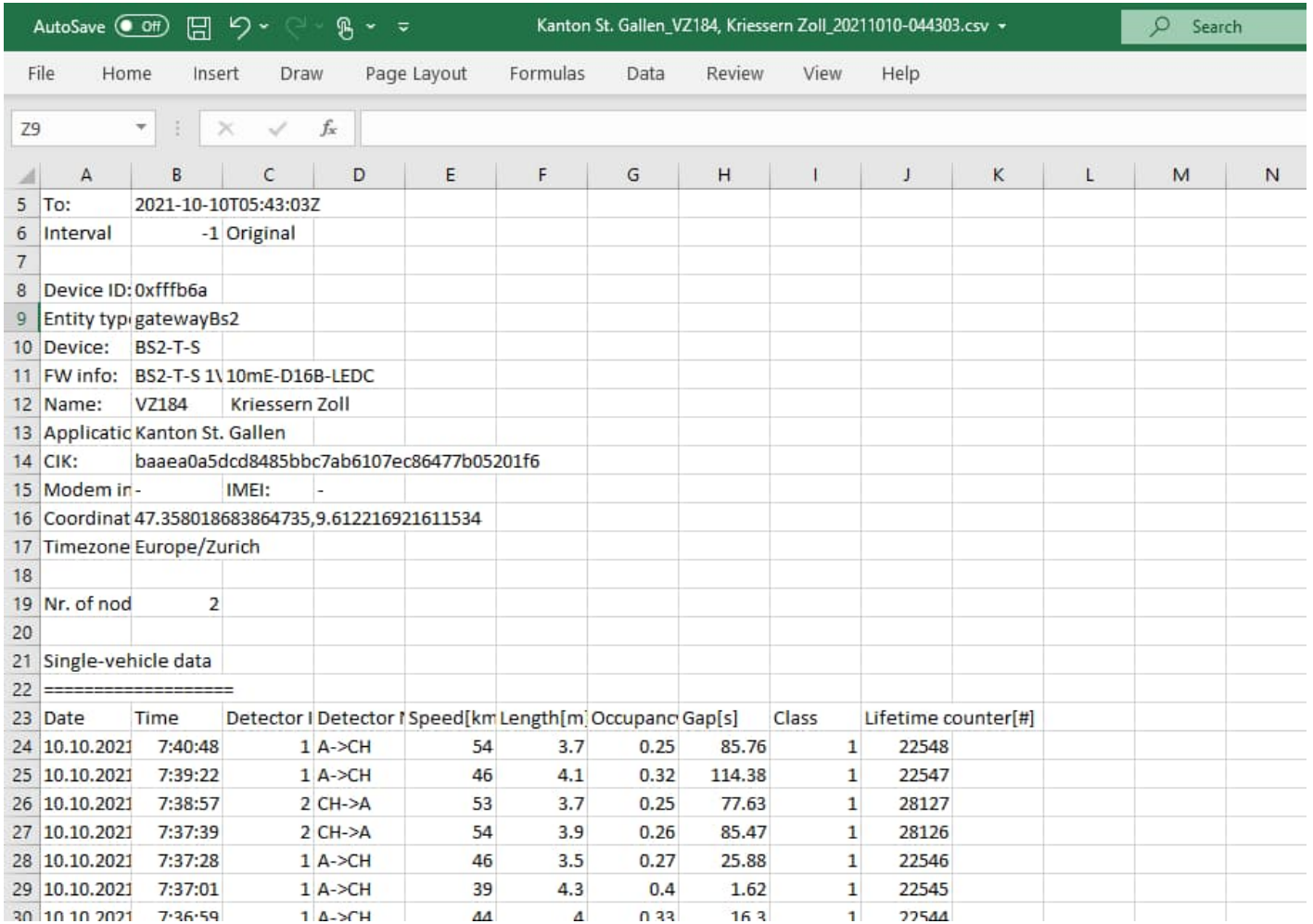
Traffic Chart

Cloud access and integration, web-browser view



Traffic Data Export

Cloud access and integration, CSV data export



AutoSave Off — Kanton St. Gallen_VZ184, Kriessern Zoll_20211010-044303.csv — Search

File Home Insert Draw Page Layout Formulas Data Review View Help

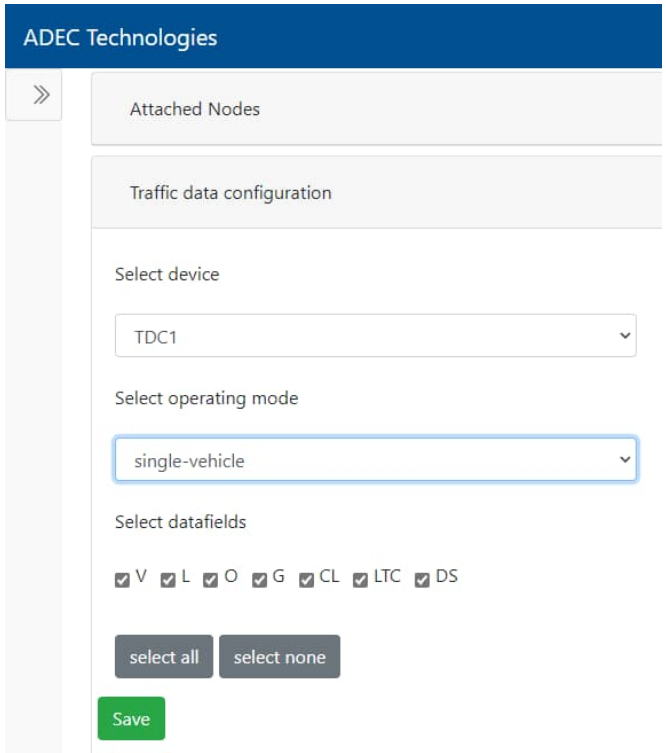
Z9

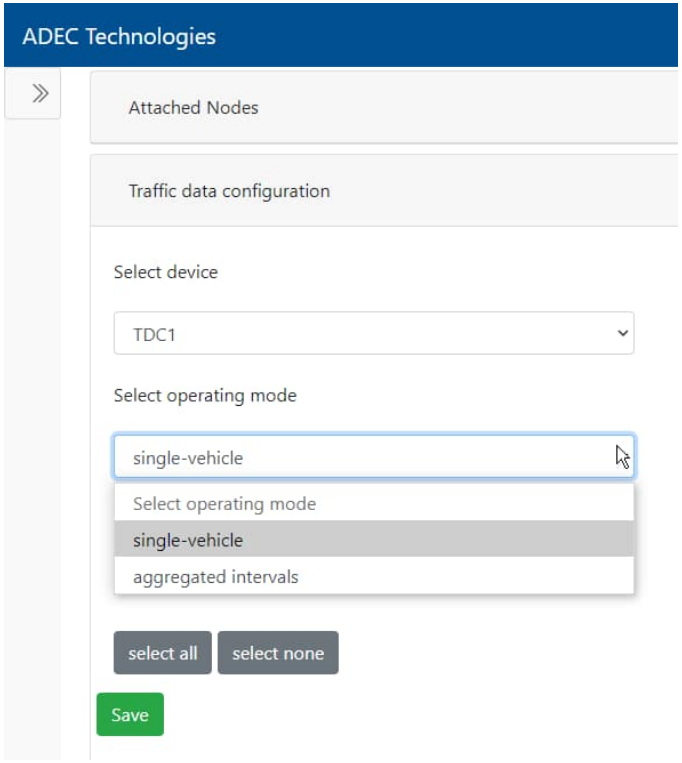
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
5	To:	2021-10-10T05:43:03Z												
6	Interval	-1	Original											
7														
8	Device ID:	0xfffb6a												
9	Entity typ	gatewayBs2												
10	Device:	BS2-T-S												
11	FW info:	BS2-T-S 1\	10mE-D16B-LEDC											
12	Name:	VZ184	Kriessern Zoll											
13	Applicatic	Kanton St. Gallen												
14	CIK:	baaea0a5dcd8485bbc7ab6107ec86477b05201f6												
15	Modem in	-	IMEI:	-										
16	Coordinat	47.358018683864735,9.612216921611534												
17	Timezone	Europe/Zurich												
18														
19	Nr. of nod	2												
20														
21	Single-vehicle data													
22	==========													
23	Date	Time	Detector I	Detector I	Speed[km	Length[m	Occupanc	Gap[s]	Class	Lifetime counter[#]				
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

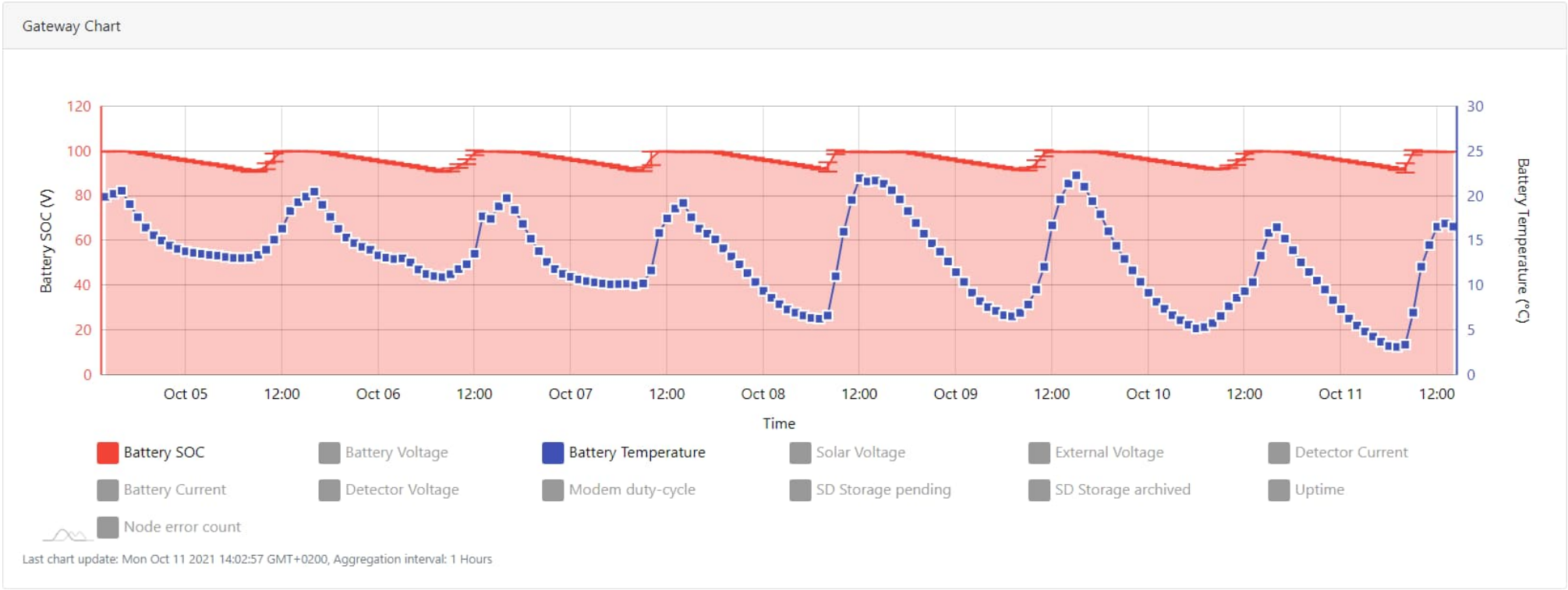
- Configure detector settings via browser





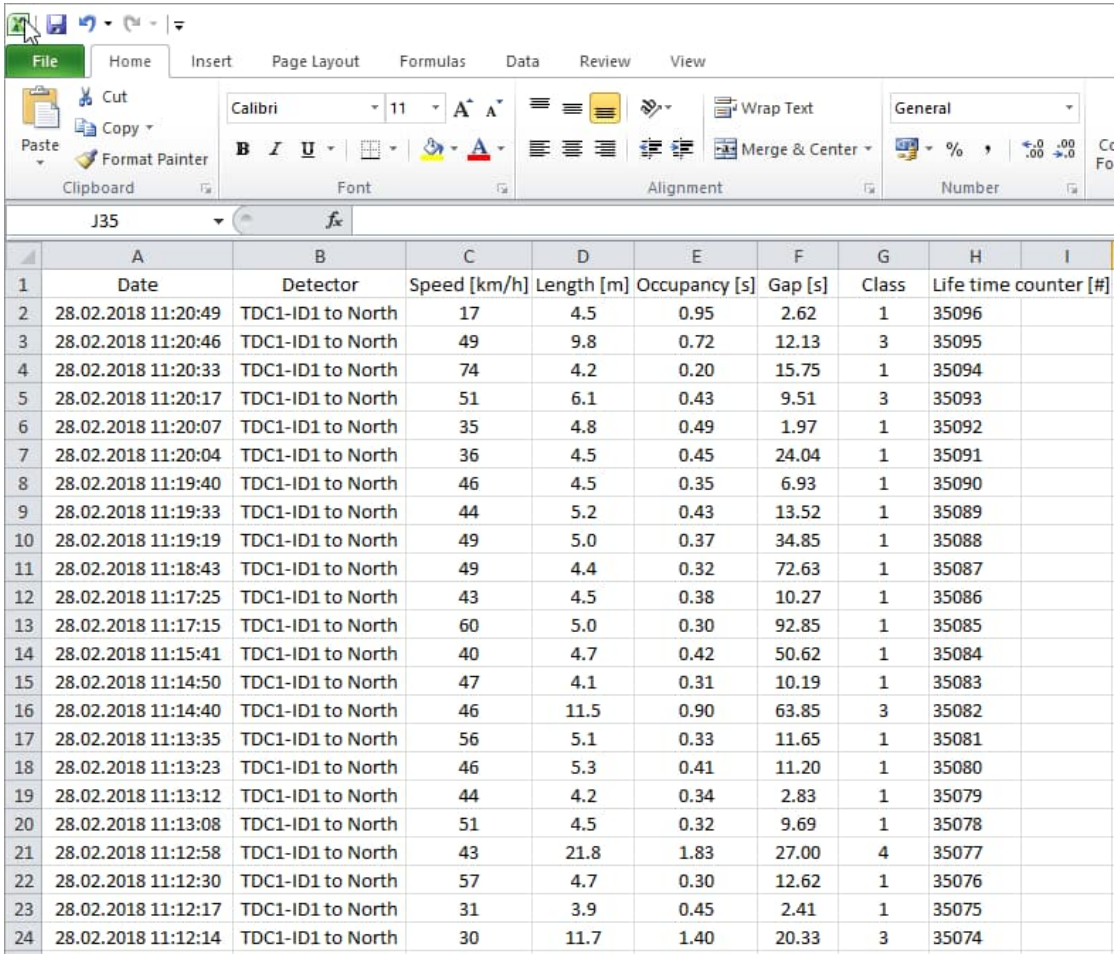
Base Station / IoT Gateway Status

Battery charge level and temperature log



Cloud Data Export

Easily exports into CSV files



	A	B	C	D	E	F	G	H	I
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	

TDC1 Detector for ITS Applications

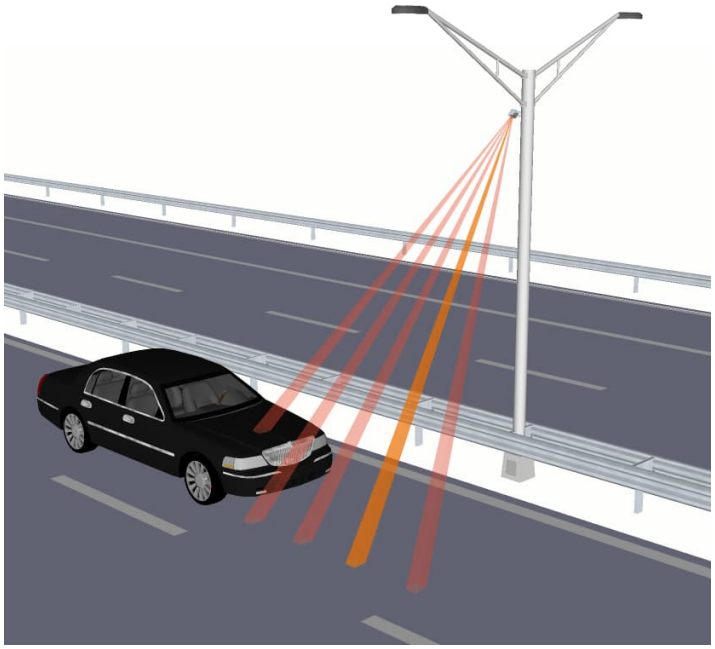
Highest performance at minimal power consumption

Preferred choice for:

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

TDC1 Detector for ITS Applications

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



TDC1 Detector for ITS Applications

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

TDC1 Detector for ITS Applications

- Vehicle classification: by length
- Num. of vehicle classes: up to 3
- Wrong-way driver detection: yes
- Traffic jam/queue detecion: yes
- Mounting: overhead, side (>45°)

TDC1 Vehicle Classes

Built-in classification bins 1, 3 and 4

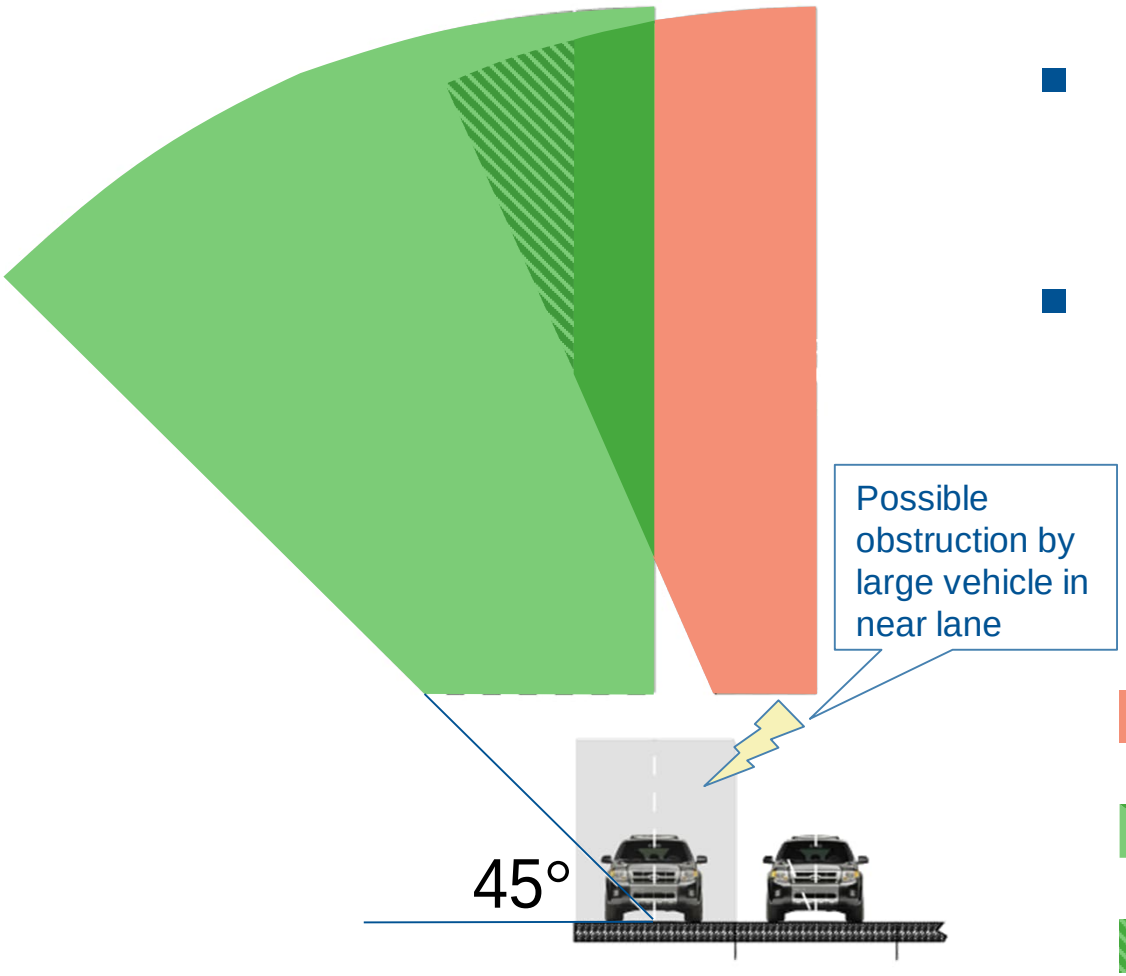
Class 1: length < 5.6 m (~18 ft.)

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



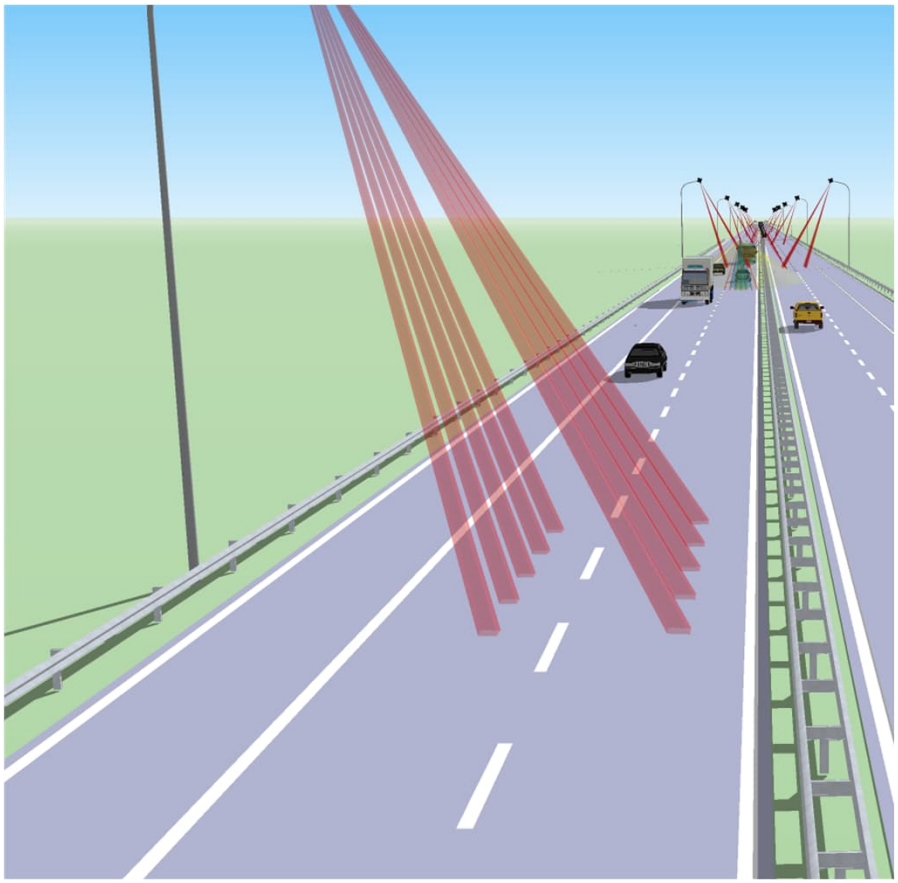
- 5.5 - 18 m (18 – 60 ft.) mounting height
- From as low as 45° angle of inclination (near lane only)

Possible mounting locations for TDC1-PIR for monitoring of far lane (lane 2)

Possible mounting locations for TDC1-PIR for monitoring of near lane (lane 1)

area that provides mounting positions for two TDC1-PIR for monitoring of two lanes from the side

TDC1 Two-Lane Setup

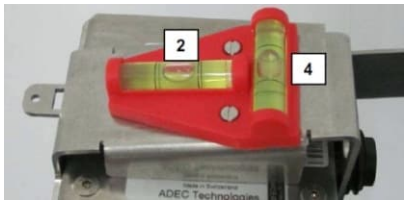


ph1

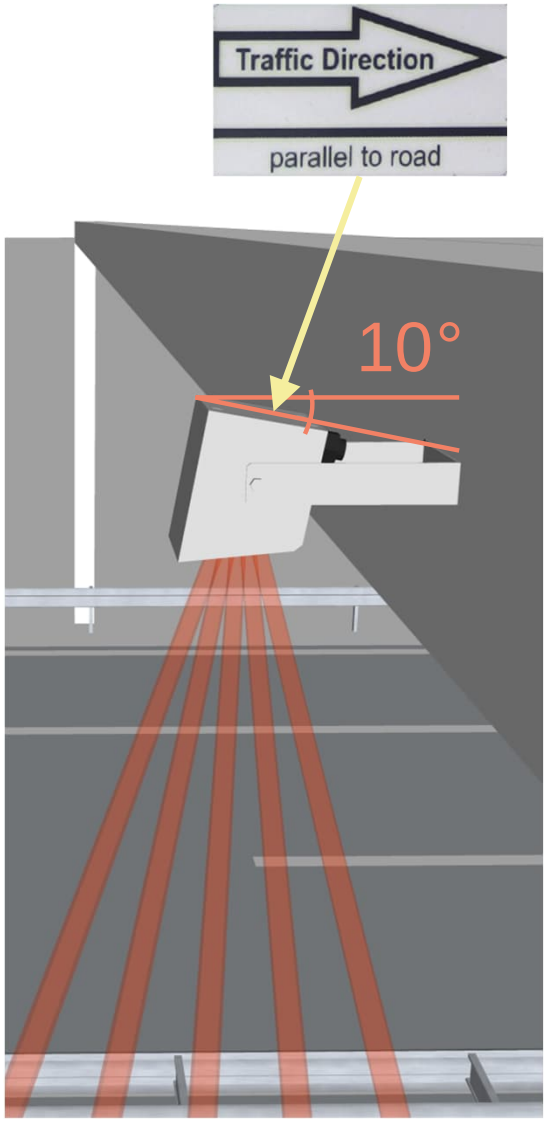
TDC1 – Overhead Mount

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



Slide 28

ph1 too much information on this slide

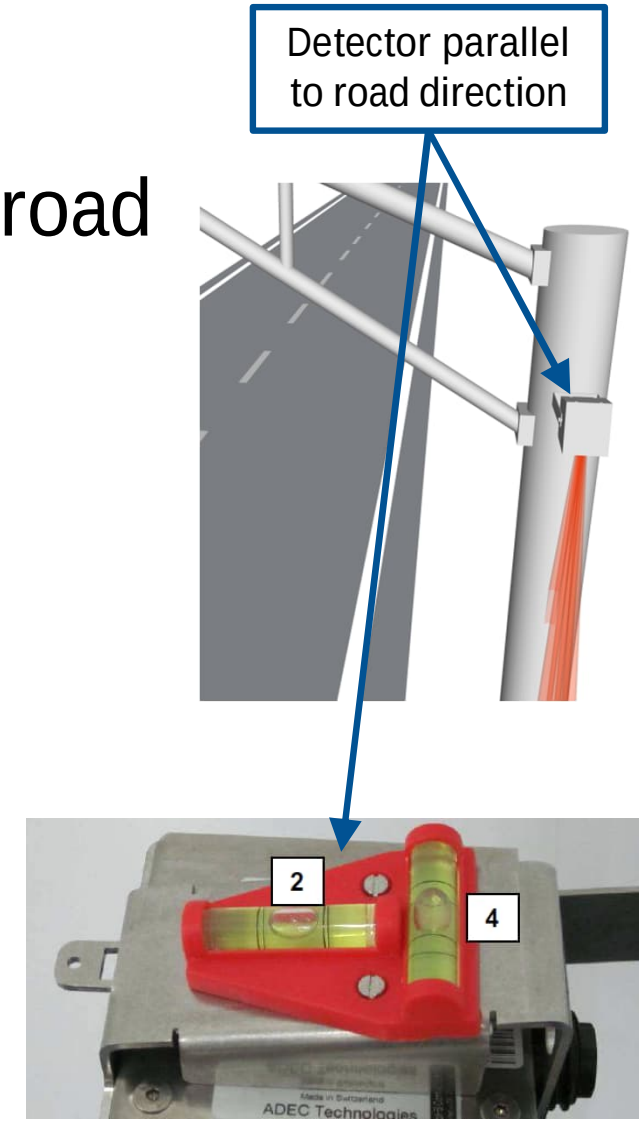
are the mounting guidelines really useful in this presentation?
phoerler, 5/2/2019

ph3

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?

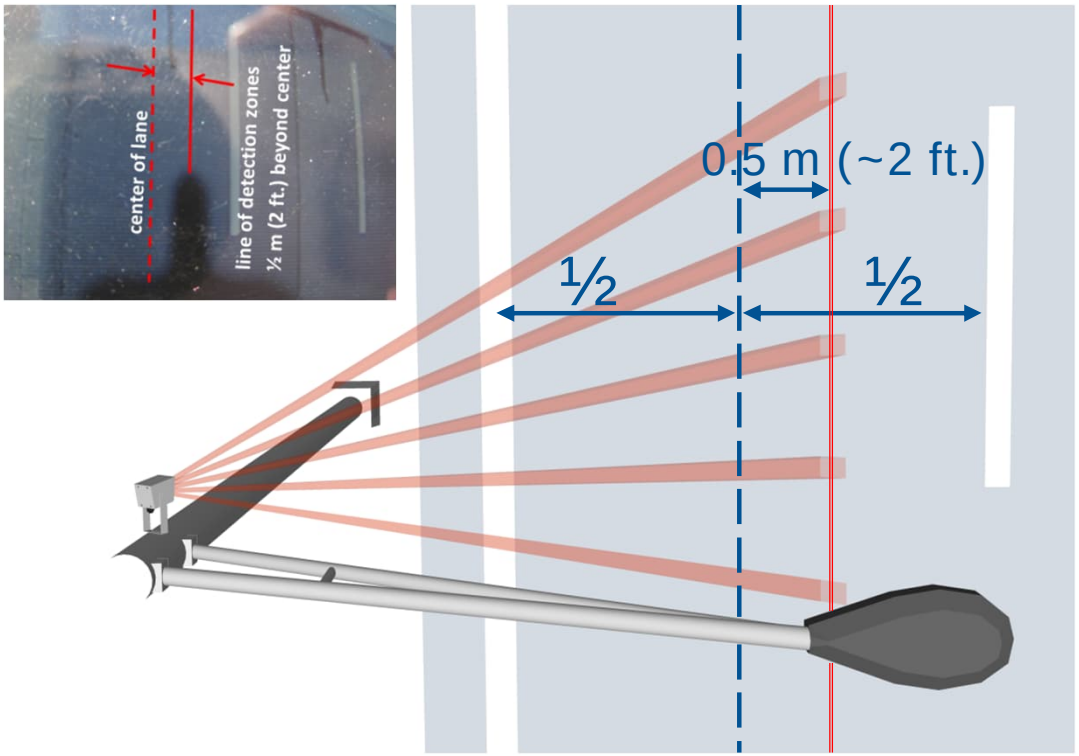
Don't use 3D-like elements

phoerler, 5/2/2019

ph4

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

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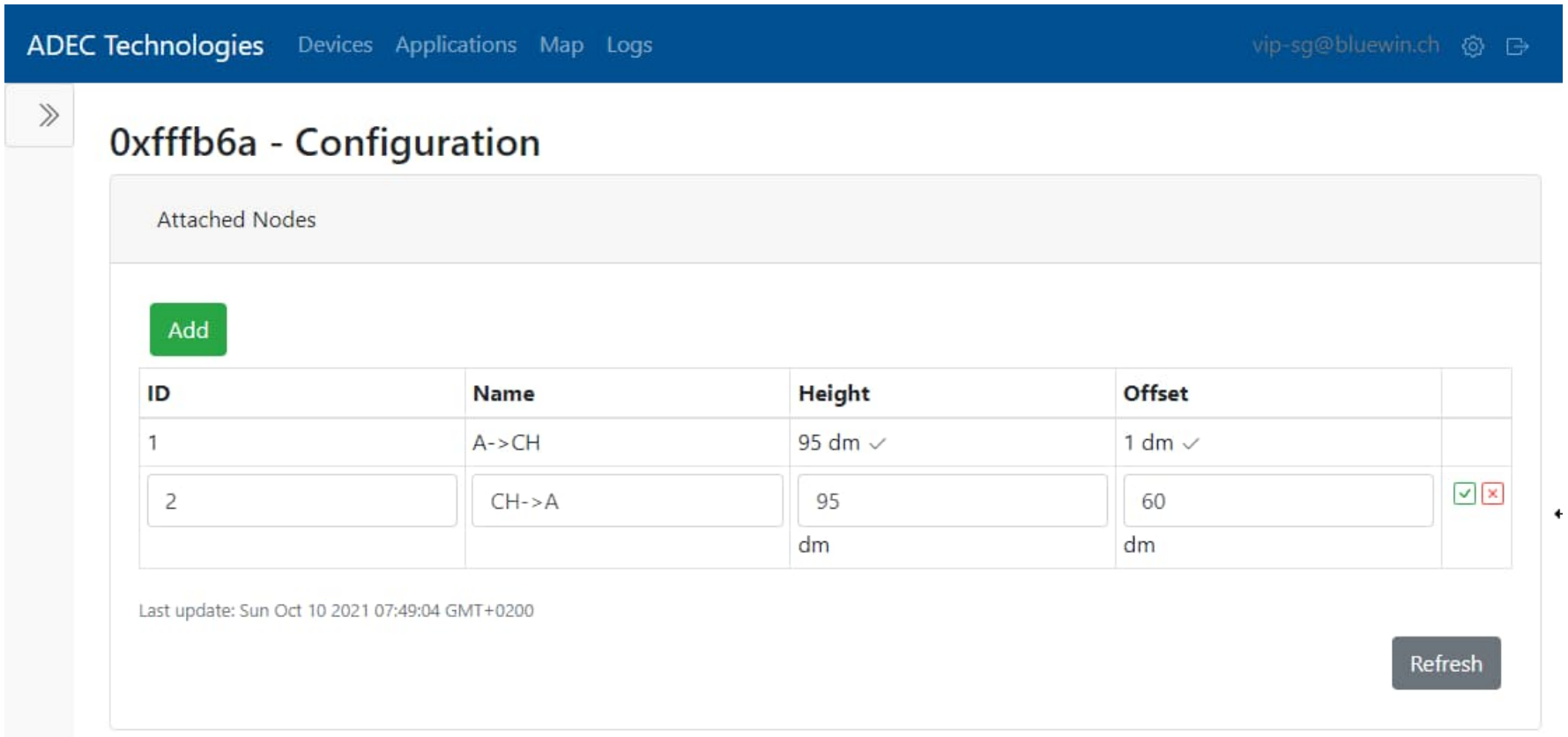
TDC1 Commissioning

- Commissioning via Internet browser



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