1. Version

	Date	Description	Author
1.0	21-Jul-16	Initial draft	hartmann
1.1	05-Oct-16	Revised	hartmann
1.2	22-Nov-16	Revised	hartmann
1.3	15-Mar-18	Revised, added TDC3-2-B-B-45	hartmann
1.4	4-Apr-18	Added info about ZA V 290-L1 upgrading to TDC-MB	hartmann
1.5	4-Apr-18	Information about replacing the mounting bracket ZA V 290-L1	hartmann
1.6	6-Jun-18	Removed F-F equivalent: ASIM had not in-front-of-gantry models	hartmann

2. Summary

Traffic Management Installations using ASIM/Xtralis TT292, 293, 295 and 298 overhead traffic detectors can easily be **fit** to use **ADEC** TDC detectors. There are a few points to consider in advance and during the replacement process however. This guide details all the information necessary for a smooth process.

There are many ASIM/Xtralis TT29x traffic detectors still in operation, some of them past their designed life span. This document is to assist customers who have these detectors installed and would like to use other overhead detectors, such as the advanced TDC family of detectors from ADEC. Making sure the overhead detection system is in good working condition has multiple benefits:

1. **Protect the investment** in IT infrastructure, such as TLS-compatible road-side equipment

2. **Reuse investment** in physical infrastructure, like mounting brackets, connectors and cabling etc.[1]

3. **Ensure the most critical** part of the traffic information chain – the detector itself – delivers accurate traffic data. TDC detectors have a proven track record in thousands of installations

3. Important Points – Conditions For Replacement

Special version of the ADEC TDC detectors is compatible with ASIM/Xtralis TT-type detectors. When planning a replacement deployment, it is important to keep the following points in mind:

1) The name of the compatible TDC detector ends with "**–X**". For example, to replace a TT292, simply order the replacement TDC3-2-F-B-45-**X**. A full cross-reference list can be found in Appendix A of this document.

   Note: Compatibility is **limited** to the communication interface that is used by an outstation / road-side traffic data collector and the geometries of the ASIM mounting bracket, like the ZA V 290-L1: Using provided accessories, ADEC detectors can be mounted on ZA V 290-L1 brackets

2) Xtralis/ASIM and ADEC detectors **cannot** be operated on the same bus. The synchronization signals that are exchanged between the detectors are not compatible. It is therefore necessary to replace **all detectors** on a bus **at once**, not only those that may be defective or those that provide unsatisfactory data quality. The removed TT29x detectors that are not defective and have satisfactory performance can be used still at different sites to replace other TT29x detectors that need be replaced

3) The commissioning process of ADEC TDC detectors must be done using ADECs DET-Soft software, a Windows-PC software that commissions a site in a few easy steps and generates a proper commissioning report. It **must not** be attempted to commission ADEC TDC detectors with the ASIM commissioning software. The non-published parts of the communication protocol are not compatible between ASIM and ADEC detectors.

---

[1] It often makes good sense to also replace aging connectors, pending their condition, to minimize the risk of water ingress

4. Spacers for Fitting ADEC TDC3 Detectors into Xtralis/ASIM brackets

TDC…-X models are always delivered with two extra spacers to fit the narrower TDC3 detectors into the larger Xtralis/ASIM ZAV290 brackets. The washers are to be placed between the mounting plates of the TDC detector and the ZAV bracket:
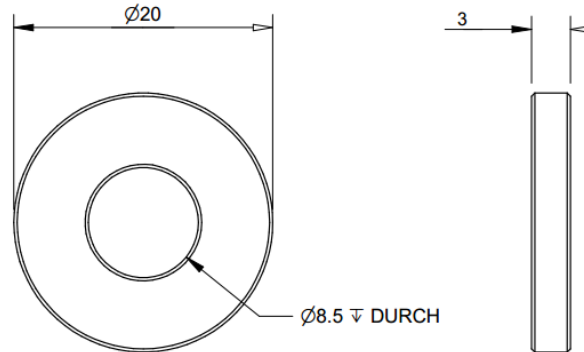
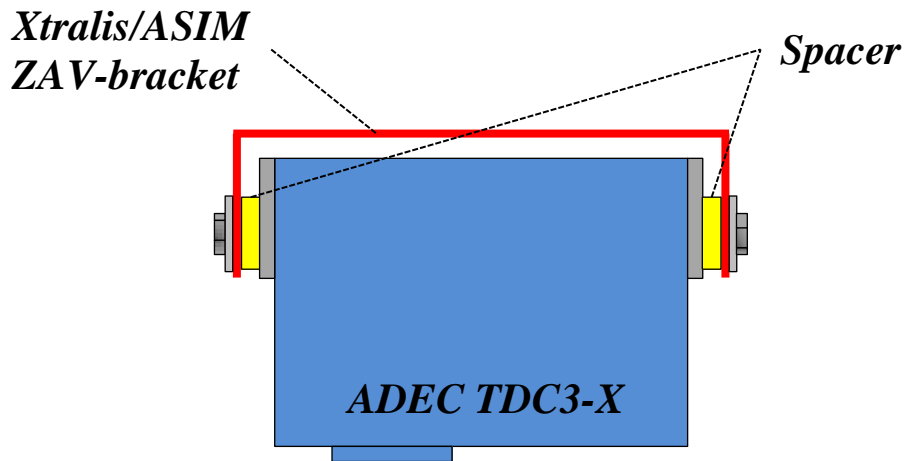*Figure 1: Dimensions of Spacer (ADEC Part. # 70109)*

Figure 2: Front-view of TDC3 in ZA V 290-L1 bracket

5. Example of Replacement Procedure

A four-lane highway has five measurement points (P1 – P5), each equipped with 4 TT295-353-L0 traffic detectors.

Description / Steps taken	Number of TDC3-5 detectors at hand	Number of TT 295 detectors at hand
1. Detector at P2, lane 1 has failed and no longer delivers data	0	0
2. Site P2 has **one** outstation collecting traffic data from 4 TT295 detectors. Order four TDC3-5-F-B-45-X (refer to Appendix 1 to determine the correct replacement model)	4	0
3. Visit site P2, replace all four TT 295 detectors with ADEC detectors. Commission the site using **ADEC DET-Soft**. Separate the defective detector from the four removed TT295	0	3
4. Some time passes	0	3
5. Another TT295 detector, in P5, fails	0	3
6. Visit site P5 and replace the TT295 detector with one still-working detector from the TT295 stock. Commission the site using the ASIM commissioning software	0	2

6. Replacing ZA V 290-L1 with ADEC TDC-MB

Instead of mounting the TDC3 detector in the ASIM/Xtralis ZAV 290-L1 mounting bracket, it is also possible to replace the ZA V 290 with the ADEC TDC-MB mounting bracket. This however **is only possible** if the ZAV 290-L1 in the given installation is mounted using the two holes on the top:
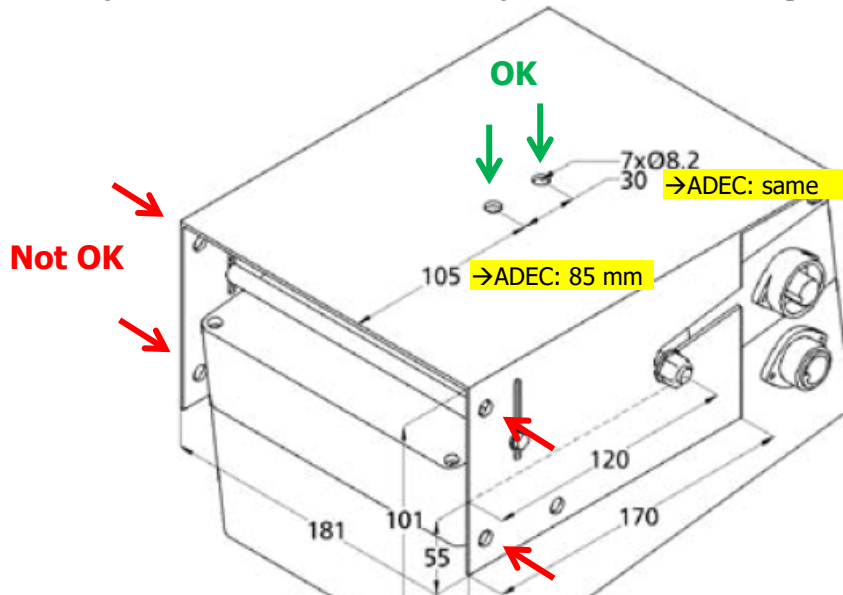

Figure 3: Xtralis/ASIM ZA V 290-L1 mounting bracket details (©Xtralis)
for original document see https://xtralis.com/file.cfm?id=496

If a ZA V 290-L2 is used, the TDC-MB **cannot be used**, instead the TDC3 must be mounted in the existing ZA V 290-L1 bracket. Note that the distance to the edge, due to the smaller size of the ADEC TDC3 detector, from the mounting holes to the edge is 85 mm instead of 105 mm.
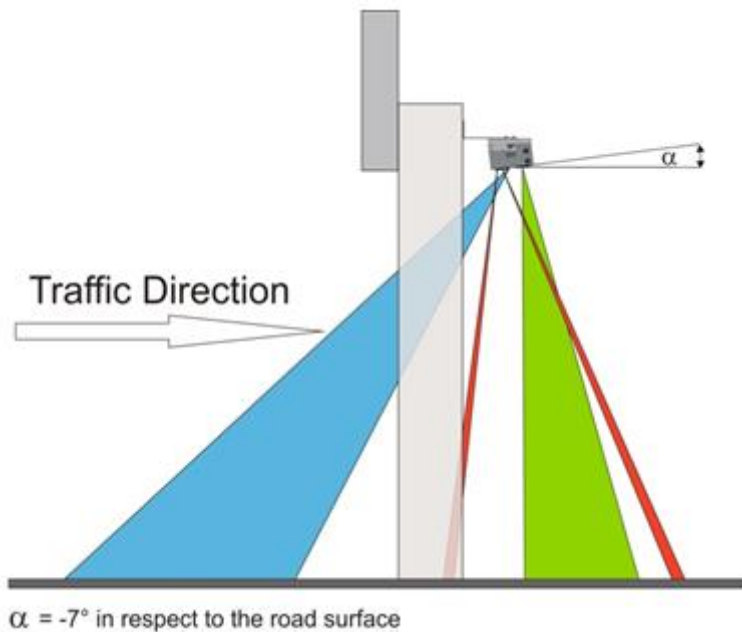
Model Cross-Reference

A) Front-fire Radar with Mounting behind Gantry

ASIM TT29**2**-353-L0 → ADEC TDC3-**2**-F-B-45-X
ASIM TT29**3**-353-L0 → ADEC TDC3-**3**-F-B-45-X
ASIM TT29**5**-353-L0 → ADEC TDC3-**5**-F-B-45-X
ASIM TT29**8**-353-L0 → ADEC TDC3-**8**-F-B-45-X

Traffic Direction

$\alpha = -7°$ in respect to the road surface

B) Backfire Radar with Mounting behind Gantry

ASIM TT292-353-R0 → ADEC TDC3-2-B-B-31-X
→ ADEC TDC3-2-B-B-45-X (for high-accuracy applications, ASFiNAG certified)

Traffic Direction

$\alpha = -7°$ in respect to the road surface