



Question:

XCP / CCP: What are the Pros and Cons of the Polling Raster?



Answer:

The integration of the polling rasters in INCA had the original goal to support ECU projects without DAQ Measurement rasters in INCA.

Nowadays these rasters are used in many cases to measure further measurement values in addition to the measure rasters which use DAQ lists. The effect of this measurement process on the bus and ECU load is often overlooked.

Below the differences are illustrated:

1. Data Integrity

DAQs

DAQ measurement rasters are synchronous to the calculation of the measurement values in the ECU (i.e., after completion of the ECU task, all the measurement values of a time raster are uniquely collected and transferred).

For the transmission the time between start of task and end of task is used.

Polling

For polling rasters the sampling is asynchronous – i.e., values are either measured partially or multiple times.

The compliance to a certain raster is dependent on the number of signals.

2. Bus Load / Transmission Time per Signal

- DAQ raster is configured only once and deliver “free running” data, i.e., each CAN message can have up to 7 bytes.
- With polling, up to 4 CAN messages are required.
If you compare the measurement of byte values, polling uses 2700% more bandwidth per measure signal.

Example**The dependence between transmission type and bus load**

(measured with a real ECU on the 500KBaud transmission-CAN)

Sampling rate	100ms	100ms
Number of signals	25	50

DAQ-time raster

Created CAN-Bus load	3,3%	4,3%
Transmission time per signal	100ms	100ms

Polling raster

Created CAN-Bus load	27% *	27% *
Transmission time per signal	100ms	215ms

* In this example the ECU with 27% bus load is already on the border of the possible CAN transmission.

All additional signals cause an increase in the transmission time per signal.

In most vehicles the workload of the vehicle CAN is 65-70%. With the additional load of the polling rasters it can occur that there are errors on the CAN bus in the ECU communication.

3. Processor Load

The exact impact is specific to the used ECU. Approximately the additional usage of resources is similar to that of the bus load.



Additional information:

Polling Mode is supported by INCA V7.1.9 and higher.



In case of further questions:

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