

Comments to case example 1

20 measurement points with data loggers including sensors are to be evaluated over a period of 12 months. The measurement interval is defined to be 1 minute, the measurement stations are positioned at an average distance of 1.5 km.

The “conventional” data loggers correspond to today’s state-of-the-art, the products are available on the market – in comparison to our MDN technology which is also market-ready.

Reduction in operating costs/year: **89.1%**
 Time of amortisation: **1 year**
 Reduction CO₂: **89.6%**

Additionally several further positive effects arises from the handling and availability.

State-of-the-art Data Logger	MDN Technology
Frequent attendances of the manholes imply risks through road traffic, gas contamination, injuries during the entrance to the manhole.	Persons enjoy a higher security level as the manholes are to be attended less frequently.
In case of a logger breakdown, evaluation gaps of up to 2 weeks arise. Inferior data quality	Measurement data are ad hoc available; actions can therefore be taken much earlier. Excellent data quality
Complicated refinishing of the data	Refinishing of the data and archiving can be totally omitted.
Fault-prone if times are entered incorrectly. Measurement data unusable or can only be restored on the basis of estimations.	Automatic synchronisation of the time with GMT (Greenwich Mean Time)
Many batteries (environmental pollution)	No battery exchange despite of short measurement intervals due to MicroPower Technology
Frequent approaches by car	Less approaches by car

Example Measurement Campaign/Evaluation

	Data logger		MDN Technology	
	h	km	h	km
1. Travel time/station in average (Urban area) 1 h x 20 stations x 2 persons	40	30	Installation of all measuring points on outline map app. 3 h 1 h x 20 stations x 2 persons	3 40 30
2. Verification of the functionality/random test after 3 days 0.5 h x 20 x 2 persons	20	30	0.5 h for all stations	0.5
3. Exchange of batteries and logger readout after 14 days at 1 h each 12 x 20 stations x 2 persons	480	360		
4. Sensor calibration after 6 months by exchange with a calibrated device 1 x 20 stations x 2 persons	40	30	Sensor calibration after 6 months by exchange with a calibrated instrument. Serial number exchange on the server 1 x 20 stations x 2 persons	1 40 30
5. Rework of the data 1 st half of the year	16			
6. Verification of the functionality/random test after 3 days 0.5 h x 20 x 2 persons	20	30	0.5 h for all stations	0.5
5. Further 12 approaches every 14 days 12 x 20 stations x 2 persons	480	360		
6. Collection of the devices 1 h x 20 stations x 2 persons	40	30	Collection of the devices 1 h x 20 stations x 2 persons	40 30
7. Rework of the data 2 nd half of the year	16			
Sum	1152	870	Sum	125 90
Total costs*: 40,650.60			Total costs*: 4,409.20	

*at wage rate: € 35.00; at kilometre allowance: € 0.38

**incl. myDataSIM-card costs € 6.50 x 20 x 12 = € 1,560

Reduction in operating costs in 12 months: € 34,681.40 **

Acquisition Data logger:	€ 20,000	Acquisition MDN instruments:	€ 50,000
Accumulators:	€ 400	Server for 20 Measuring points:	€ 4,400
Total:	€ 20,400	Total:	€ 54,400

Return on investment 12 months

A reduction a 780 km/year results in a CO₂ reduction of 127 kg/year

(Source: www.marktcheck.at)