



THE OPERATOR OF THE COPENHAGEN METRO, METROSELSKABET, RELIES ON THE ACCURACY OF AUTOMATIC PASSENGER COUNTING TO SHARE REVENUES WITH THE DANISH CAPITAL'S REGIONAL BUS AND TRAIN OPERATORS.



METROSELSKABET I/S

Metroselskabet is the operator in charge of running and developing the Copenhagen Metro (Denmark), which opened for service in 2002.

In 2017, the network had two driverless Metro lines. Two more are due to open in 2019: the CityRing and the North extension.

In 2016, Metroselskabet carried 60.9 million passengers. The operator is on target to exceed the 100 million journeys per year mark in 2020.

* Source: load survey.



The Copenhagen Metro secures its revenue streams thanks to passenger counting

Copenhagen, the capital of Denmark, provides a multi-modal, interoperable public transport offer. With the same travel card, users can take the Metro operated by Metroselskabet, the urban buses run by Movia or the regional trains operated by DSB.

Distributing revenue

The three operators have therefore agreed on revenue sharing policies, based on the number of passengers transported. Each must produce a detailed traffic report every quarter. This assumes each operator has a reliable, accurate means of counting which is approved by the other two operators.

As soon as the Metro came into service in 2002, Metroselskabet deployed an Acorel automatic passenger counting solution based on IRTech infrared sensors located above the platform screen doors. *“Right from the start, we were able to provide traffic data with an accuracy of 95 to 96%”* explains Filip Dichmann, counting project manager, Metroselskabet.

Over 99% accuracy

In 2014, Metroselskabet modernised its counting system, installing Acorel LidarTech laser sensors. Four to six sensors at the entrance to each station are sufficient. *“With this technology, we achieve an accuracy of 99.2%”*, Filip Dichmann is pleased to announce. After operating in parallel for one year, the infrared sensors were deactivated.

“Metroselskabet collects the revenue generated by the development of the Metro”

In 2016, the Copenhagen Metro transported 60.9 million passengers, 4.7 million more than in 2015 (+6%). The average price of a ticket is €2.50. Thanks to the counting system, Metroselskabet can collect the revenue linked to its development. The operator is well equipped to exceed the threshold of 100 million passengers per year, forecast for 2020.

Accuracy and reliability

Metroselskabet regularly checks the accuracy of its counting system. The operator thus maintains a relationship of trust with its partners and makes sure the automatic counting system remains reliable as Metro traffic increases.

Independent inspection

These inspections are entrusted to an independent company and involve comparing the results of manual counting campaigns with those of the Acorel system.

The accuracy of automatic counting based on the LidarTech sensors was thus assessed at 99.2% in 2016 and 98.7% in 2015. *“A very high level of reliability. We can trust our counting data”*, estimates Filip Dichmann.

The robustness of the system is also due to the reduced number of LidarTech sensors and their remote monitoring. *“An alarm warns of the slightest unavailability. We can diagnose the problem remotely. This facilitates maintenance and significantly reduces the number and duration of operations at stations”*, states Filip Dichmann.



“We trust our counting data”

FILIP DICHMANN
Counting project manager,
Metroselskabet

Planning network maintenance

Metroselskabet generates a large number of reports using the counting data fed back from the Metro stations. In addition to the quarterly traffic report, the operator can analyse passenger flows line by line, station by station, each hour, each day, each week, etc.

Minimise the impact on service

Metroselskabet uses these reports to schedule its maintenance operations. *“When we have to carry out work on trains – which can reduce the frequency*

of service – or close a station for work, counting helps us select periods which will have the least impact on traffic”, says Filip Dichmann. In case of partial line closure, the counting data facilitates the sizing of any substitute transport to be provided.

“Counting helps to target maintenance and limit the burden to passengers”

FILIP DICHMANN
Counting project manager, Metroselskabet

The Acorel automatic counting solution relies on laser sensors (LidarTech). Installed at station entrances and linked to a concentrator, they count the number of passengers taking the Metro in real time. The data collected is transmitted every minute to the Focus Web software which consolidates it and produces standardised or customised monitoring reports.

CHALLENGE

Collect the revenue corresponding to the number of passengers transported in a multi-operator travel area.

SOLUTION

A high-precision automatic passenger counting system to know the exact traffic passing through the Metro.

BENEFITS

Remuneration in line with the service rendered. Fair distribution of the revenues between operators, encouraging the development of a multi-modal public transport offer.



THE METROSELSKABET ACOREL COUNTING SYSTEM

4 to 6 static laser sensors (LidarTech) per Metro station.

22 stations equipped in 2017 (the entire network). 17 new stations equipped by 2019.

Counting accuracy of **99,2%**.

60,9 million passengers counted in 2016.

CONTACT

info@acorel.com
Phone: +33 (0) 475 40 59 79