FINGRID
Datahub

# E66 Batch Interface Guidelines

5.11.2025

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# Change log

| Date | Version | Changes |
|---|---|---|
| 30.10.2024 | 1.0 | First version. |
| 5.11.2025 | 1.1 | Updates to document: Measurement data must be collected from next generation meters at least every six hours and the measurement data must be delivered to Datahub without undue delay if the DSO has designated Datahub as the point of delivery for measurement data. Earlier version of the document stated that the measurement data needs to be available for the end customer within six hours of collection. |

# 1 Introduction

This document describes the guidelines on how to use the existing E66 Batch Interface from 1.1.2026 onwards where the focus lies on:

- Minimizing impact on Datahub to prevent unnecessary impact on a stable batch interface which might not be used as much in the future.
- Allowing DSOs to comply with the new decree which means that measurement data is delivered to and processed in Datahub more frequently.
- Minimizing impact for suppliers where possible since delivered batch of measurements are distributed in same batches to suppliers.

## 1.1 Background

The decree 767/2021 "Valtioneuvoston asetus sähköntoimitusten selvityksestä ja mittauksesta" (Government Decree on the Settlement and Measurement of Electricity Supplies) chapter 6, § 5 states

*"network operator's information system processing metering data shall collect the registered measurement data from the new remote metering equipment into the metering data reading system at least every six hours".*

According to the Finnish regulator, the purpose of the requirement is to provide measurement data to the end consumer without undue delay after the collection. As Datahub can be appointed by the DSO as the point of delivery for measurement data, the decree requirement also applies to the Datahub system.

The requirement is limited to the next generation smart meters and comes into force 1.1.2026.

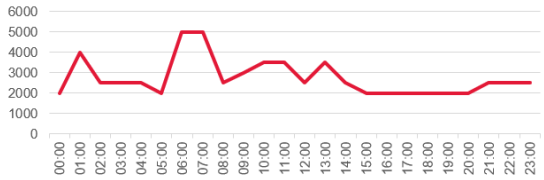

A workgroup has been formed to address the new legislation and what is required to be compliant with it. A new event driven interface will be developed to allow the DSOs to publish measurement data to Datahub as soon as it becomes available which will allow the DSOs to comply with the decree but will also enable future developments where near-real time measurement data is required.

Downside of the continuous measurement data delivery interface is the changes it requires in the processing of metering data on the DSO side. Workgroup agrees that a longer transition period to the event channel is the best approach meaning that for most DSOs, the first step is having a more frequent measurement data delivery with the existing E66 Batch Interface to comply when the new degree comes into force.

# 2 Batch interface

## 2.1 Batch interface characteristics

| | |
|---|---|
| Production metrics | • Approximately 75.000 E66 messages a day<br>• Containing 6-7 million transactions.<br>• Average batch size over the day is 80-100 transactions per message.<br>• Peak between 06:00 and 8:00; ~2 million transactions (~5000 messages per hour, batch size ~200) |




On average, around 75k E66 messages are being processed a day, in total containing around 6-7 million transactions. Assuming most of them contain 96 measurement values a day, this would mean a total of 500 million measurement values a day. Message size contains on average around 80 transactions in a message. Greyed section below describes the minimum and recommended size as currently documented in “Datahub External Interface Specification 1.1”.

Peak moments are between 06:00 and 08:00 in the morning. In this window, around 2 million transactions are processed and the average number of transactions per message is around 200.

E66 processing in Datahub is designed and sized to process 1 million accounting points, for a day worth of measurement values, within 30 minutes. In the latest results as part of the Datahub 2.0 performance testing, Datahub was processing 3 million accounting points, with a day worth of measurement values, within 37 minutes. The accounting points were grouped in 3.000 messages (1.000 accounting points per message).

Actual average batch size (transactions per message) used in production is lower which is less efficient compared to the 1.000 transactions per message used during Datahub 2.0 performance testing.

Minimum size:

For the minimum size, DSOs shall – for normal reporting purposes – collect the data for at least 100 metering points of daily (24 hourly values) time series. In theory this would result in 35.000 messages per day in total.

In case of reporting corrections to time series data, this minimum size is not applicable if meeting the deadline for sending in time series would otherwise not be met.

Recommended size:

The recommended size for reporting is defined to be between 500 and 2000 metering points of daily (24 hourly values) time series.

There will be no hard enforcing of these rules by rejecting small messages, but this will be monitored.

## 2.2 Batch interface guidelines - more frequent delivery of measurement data

### 2.2.1 Frequency and period

The decree only concerns second generation meters. Therefore, it is not required to change the timing and frequency of the delivery of the measurement data concerning first generation meters (once a day where the period is a day). Datahub will not prevent a DSO from choosing to deliver measurement data in smaller periods for first-generation meters as well.

e.g.

> At 02-01-2024 01:00 measurement data for an accounting point is delivered to Datahub over the period 01-01-2024 00:00 – 02-01-2024 00:00 with the relevant resolution (15 minutes or 1 hour). Data expected to be available for suppliers/third parties/end customers at 02-01-2024 01:15.

To meet the requirements as depicted by the decree, the measurement data for the second-generation meters needs to be delivered to Datahub more frequently. In order to ensure efficient processing of the measurement data, the measurement data must be delivered in periods of at least 2 hours and the messages must contain a sufficient number of metering points (see section 2.2.2 for guidance).

e.g. assuming 4 hour periods

> At 03-01-2024 17:00 measurement data for an accounting point is delivered to Datahub over the period 03-01-2024 12:00 – 03-01-2024 16:00 with the relevant resolution (15 minutes or 1 hour). Data expected to be available for suppliers/third parties/end customers at 03-01-2024 17:15.

### 2.2.2 Messages

To reduce the impact on Datahub:MDM (Meter Data Management), it is recommended to keep the average message size at least the same as is currently the norm on production. This means deliveries to Datahub where the message contains at least 7.000 measurement values on average.

e.g.

> Message will contain **~550 accounting points** when assuming resolution of 15 minutes; period of 4 hours; having 8.800 individual measurement values.

Note: The recommended maximum for Datahub:MDM is 10.000 accounting points or 250.000 individual measurement values (whichever comes first).

The table below can be used as a guidance to determine the number of accounting points in a message.

| Resolution | Period | # Measurement values | # Accounting points |
|---|---|---|---|
| 15m | 2 hours | 8.000 | **1.000** |
| 15m | 3 hours | 8.400 | **700** |
| 15m | 4 hours | 8.800 | **550** |
| 15m | 5 hours | 8.000 | **400** |
| 15m | 6 hours | 8.400 | **350** |
| 1h | 2 hours | 8.000 | **4.000** |
| 1h | 3 hours | 9.000 | **3.000** |
| 1h | 4 hours | 8.000 | **2.000** |
| 1h | 5 hours | 9.000 | **1.800** |
| 1h | 6 hours | 9.000 | **1.500** |

### 2.2.3 Special considerations

- A change will be introduced to reduce the complexity for the DSOs regarding the measurement data delivery of accounting points participating in an energy community. Datahub:MDM currently starts the calculations when data comes in, which led to the advice to deliver the measurement data for a specific period for a specific energy community in a single E66 message. Datahub:MDM will be altered to do the calculations when the measurement data is determined complete for a specific energy community for a specific time interval in a 15 minute resolution. With this feature implemented, there is no large advantage in delivering the measurement data for a community simultaneously.

- Under the decree, it is assumed the initial delivery of measurement data is meant. Corrections do not follow this directive.

### 2.2.4 Consequences

The guidelines are aimed towards impact reduction for both market participants and Datahub, but it cannot be prevented completely.

**Datahub**

- When the guidelines are followed, the impact on messagehub (the Datahub module responsible for receiving, authorizing and validating the messages) is determined as minimal

because average message size and number of messages is comparable with current behaviour.

- Processing capacity of MDM might be impacted because validations on accounting points will become heavier when processing a message due to increased number of accounting points per message.
- Datahub is not aware whether an accounting point has a generation 1 or a generation 2 meter, so it's not able to report compliance on more frequent delivery. Optionally, a report could be introduced to provide the DSO with additional metrics regarding the processing of measurement data.
- Customer Access Portal might be impacted because current visuals rely on 24 hours being received at once which will change from 1.1.2026 onwards when data will be received over smaller periods for accounting points having a generation 2 meter.
- Validations on measurement data might require some changes to facilitate intraday measurement data reporting.
- Calculations in MDM are currently triggered when data comes in. To reduce the complexity on the DSO side regarding the energy communities, this must be changed to when data for a community is complete.

**DSO**

- DSOs are required to validate the received readings from the meter more frequently in smaller periods to comply with the more frequent delivery.
- After validation, the measurements must be batched similarly to first generation readings, but a batch should contain more accounting points when period is shorter.
- Datahub:MDM starts the calculations when measurement data comes in which led to the advice to the DSOs to deliver the measurement data for a specific period for a specific energy community in a single E66 message. With the change in when a calculation is triggered, it is no longer relevant if measurement data for a specific community is delivered simultaneously.

**Supplier**

- When the guidelines are applied, the impact for suppliers is kept to a minimum. However, the messages distributed to a supplier will follow the same format in which they have been delivered to Datahub by the DSOs meaning that some messages will contain a day's worth of measurement values, while other messages will contain shorter periods' worth of measurement values.
- In relation to the previous bullet, an accounting point with a generation 2 meter will be delivered via multiple messages because each message will contain fewer hours of measurement data.

### End customer

- Datahub is not able to identify whether an accounting point has a generation 1 or a generation 2 meter. This might confuse customers when using the Customer Access Portal. Some accounting points show new data every few hours whereas others will only show new data once a day.

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