

Using GS1 IDs in the electricity retail market

4.4.2025



Table of contents

Change history	3
1 Introduction	4
2 The GS1 system	5
2.1 GLN IDs for parties	6
2.2 GSRN IDs for metering points.....	6
2.2.1 Setting up a GSRN ID	7
2.3 EIC code for a metering grid area	8
3 Subscribing a GS1 company ID	9
3.1 Impact of company changes on GS1 IDs.....	9

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Change history

Date	Version	Changes
4.4.2025	1.8	Updated the names of GS1 system identifiers in chapter 2. Updated the pricing basis for GS1 identifiers in chapter 3. Removed the table from chapter 3. Updated the instructions throughout to indicate that the length of a GS1 identifier can be 7–11 characters.
28.2.2023	1.7	Updated instructions to be up to date with datahub's operational usage.
29.12.2020	1.1	Added a new chapter 3.1.1 for describing the impacts to GS1-codes in company changes Corrected links to Datahub-portal and Fingrid website in several chapters
22 April 2020	1.0	First unofficial version in English

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1 Introduction

In the electricity retail market, each accounting point, party, metering grid area, exchange point and production unit must have a unique identifier commonly used when exchanging information between market parties. The unique identifiers and jointly agreed identification systems are a prerequisite for the functioning of the market.

Of the above, the most critical factors for the electricity retail market are the accounting points' unique identifier and identification. There is a large number of accounting points, and they are essential for the functioning of the market and information exchange.

In Datahub system (Datahub), GS1 IDs are used for accounting points and unique party IDs. The reason for the adoption of GS1 IDs is the general development of information exchange in the electricity market in the Nordic countries. Denmark, Norway and Sweden have adopted the GSRN IDs of the GS1 system as unique identifiers for accounting points. Furthermore, GSRN IDs have already been used for a long time for identifying production plants that belong to the guarantee of origin certificate. The leading idea of using GS1 IDs is a technical harmonisation of the electricity retail market in the Nordic countries and rest of Europe in the long term. A harmonised ID policy guarantees unique IDs internationally, enhances common information exchange and processing and clarifies and strengthens the concepts 'accounting point' and 'party.' NordReg's pan-Nordic report on the harmonisation of the electricity retail market [1] also takes a stand on the use of GS1 IDs, recommending the adoption of either GS1 or EIC IDs.

This document introduces the GS1 system in general and describes how the GS1 IDs are used in the Datahub system. This document concentrates primarily on the IDs used in the information exchange between Datahub and the market parties. The document does not comment on the parties' own information system solutions in so far as they are not related to the exchange of information with the Datahub system.

Chapter 2 presents the GS1 organisation and the IDs it maintains. The chapter presents especially those IDs that are used on the Finnish electricity market.

Chapter 3 provides instructions on obtaining GS1 IDs and the effects of organizational changes on the use of GS1 IDs.

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2 The GS1 system

GS1 describes itself as a neutral, non-profit global organisation that develops and maintains standards that help its customers improve and manage their supply chain. In Finland, the GS1 system is managed by GS1 Finland Oy, a company owned by the Finnish Food and Drink Industries' Federation, Finnish Grocery Trade Association and Finnish Chambers of Commerce. GS1's most famous product is the EAN/UPC barcode system that has been used in the retail of groceries for a long time. In addition, GS1 codes are also used a lot in other areas, such as logistics. For more information on the GS1 system, see GS1 Finland Oy's website at <https://www.gs1.fi/en>.

The GS1 system consists of the following IDs:

- GTIN – Global Trade Item Number
- GLN – Global Location Number (*party ID in Datahub*)
- SSCC – Serial Shipping Container Code
- GRAI – Global Returnable Asset Identifier
- GIAI – Global Individual Asset Identifier
- GSIN – Global Shipment Identification Number
- GINC – Global Identification Number for Consignment
- GSRN – Global Service Relation Number (*metering point ID in Datahub*)
- GDTI – Global Document Type Identifier

All IDs in the GS1 system are based on a company-specific GS1 company ID. The GS1 company ID is ordered from the GS1 organisation (which is GS1 Finland Oy in Finland). The GS1 company ID is a company-specific number sequence that prefixes each ID. The first two digits of the number sequence are reserved for the country code, which in Finland is 64. The GS1 company ID consists of 7–11 digits (including the country code). A 7-digit company ID allows a company to have a larger number of GSRN IDs, for example, because the length of the GSRN ID is always the same regardless of the length of the company ID. On the other hand, the 7-digit ID is a bit more expensive, as it reserves more number sequences that can be allocated to companies.

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2.1 GLN IDs for parties

The identifier for parties is a GLN ID. The GLN ID can be used to specify a company, its internal operations, and its offices. A GLN ID consists of a GS1 company ID, a party ID, and a check digit. The rules for the calculation of the check digit are set out on the GS1 website ([link](#), available in English only)¹. In Finland, the IDs of the electricity retail market use a 7–11-digit company ID, in which case the party ID is 5–1 digit long. The company can determine the party ID themselves as long as the ID is unique among parties. If the company does not need to create other identifiers from the GS1 identifier, for example GSRN identifiers, then the 11-digit GS1 identifier is sufficient. The structure of the GLN with 9-digit GS1 ID is presented below.

64YYYYYYY VVV T,

64YYYYYYY = GS1 company ID (9 digits)

VVV = Party ID (3 digits)

T = check digit that is calculated from the preceding digits with the modulus 10 method.

The GLN ID is a more useful identifier for a party than a business ID, since a company identified by the same business ID can operate in several different roles on the electricity market. Each market role of a party (supplier, DSO, 3rd party) must have its own GLN. For example, a company that operates both as a distribution system operator and a supplier under the same business ID must create a separate GLN identifier from its GS1 company identifier for each market role, which will serve as a role-specific party identifier in Datahub. All parties registered in Datahub (suppliers, DSOs, 3rd parties and grid operators who have an exchange point to the distribution network) need a GLN ID.

In addition to the GLN ID, the Energy Identification Code (EIC) X party ID is also used in Finland for some parties. The EIC X IDs are required, for example, for certain government reporting. The EIC ID system is managed by ENTSO-E, a cooperation association for TSOs. In Finland, the EIC codes of the electricity market are issued by Fingrid. The EIC X party ID is not used in Datahub.

2.2 GSRN IDs for metering points

GSRN IDs have been selected as the accounting point IDs in Datahub. In Finland, GSRN IDs are also used for other metering points, i.e. in addition to accounting points, also for exchange points and production units in order to enable uniform processing of metering points. GSRN IDs do not contain any information about the metering point itself. Datahub has separate data fields for additional information about the metering point, for example the metering point's substation, metering grid area or station field.

In general, the 18-digit GSRN ID consists of a GS1 company ID, a service reference number and a check digit. The length of the service reference number depends on the length of the GS1 company ID. For example, the advantage of a 9-digit company identifier compared to an 11-digit

¹ SSCC calculation is used for the GSRN ID and GTIN-13 calculation is used for the GLN ID.

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identifier is that the party-specific part is 9-digit instead of 11-digit, in which case there are more GSRN IDs to be defined than with an 11-digit GS1 identifier. The 8 digits that can be defined for the accounting point in 9-digit company identifier allow over 100 million GSRN IDs. However, GS1 allows a company to own more than one company ID, so that companies can get a new company ID if they have already assigned all service reference numbers. The GSRN ID and its structure with 9-digit GS1 company ID is described below. The rules for the calculation of the check digit are set out on the GS1 website ([link](#), available in English only)².

64YYYYYYY VVVVVVV T,

64YYYYYYY = GS1 company ID (9 digits)

VVVVVVV = Service reference number (8 digits)

T = check digit that is calculated from the preceding digits with the modulus 10 method.

The GS1 organisation has not set restrictions on the use of the service reference number and the assignment of individual digits. Companies can assign a service reference number as long as all IDs are unique. Later in this document, the service reference number is also referred to as the free part of the GSRN ID.

With regard to GSRN IDs, it should be noted that the ID must be valid throughout the lifetime of the metering point. This applies even if the ownership of the metering point is transferred, for example when a grid operator sells the network in whole or in part to another company. As a result, there is no need to terminate the transferring metering point with the old ID and start a new metering point with a new ID when the metering point remains the same. This also avoids a situation in which the electricity consumption data for a given apartment is divided into two different accounting points, which would create a poor user experience in the online service.

When processing with GSRN IDs in MS Excel, it should be noted that when only digits are entered into a cell, Excel often automatically formats the cell as a "Number", which restricts the number of digits that can be processed in the cell to 15. Therefore, the last 3 digits will automatically change to zeros in Excel. As a result, full-length GSRN IDs should always be processed as text in Excel.

2.2.1 Setting up a GSRN ID

DSOs are free to specify the free part of the GSRN ID (service reference number) as they wish. However, for each metering point ID created, the DSO must ensure that:

- the GSRN ID starts with the DSOs GS1 company ID
- the system does not generate duplicate IDs

² SSCC calculation is used for the GSRN ID and GTIN-13 calculation is used for the GLN ID.

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- the check digit is calculated correctly ([link³](#) to the calculation rule).

The above requirements are validated in the Datahub market processes.

GSRN IDs must be created for all accounting points, including those who do not have existing agreements. The DSO must also ensure that no new metering point IDs are created for a same metering point in any phase. However, this does not apply to so-called temporary accounting points (for example accounting points at construction sites or events) for which the DSO may choose to create a new accounting point and terminate the old one, for example when the location of the accounting point changes.

DSOs should also take into account the general principle of using unique IDs, according to which no logic or meanings should be included in the IDs. This means, for example, that the accounting point ID should not reveal the metering method used at the accounting point. Such information is always presented in dedicated data fields. Therefore, there will never be a situation in which a new ID must be created for an accounting point when the metering method changes, for example. It is not possible to update the metering point ID in Datahub.

2.3 EIC code for a metering grid area

GS1 codes will not be used for metering grid areas in Finland. Instead, EIC Y codes, assigned by Fingrid, are used. For instructions on how to apply for an EIC Y metering grid area ID, visit [Fingrid website](#).

³ The link opens a table in which 'SSCC' corresponds to the calculation rule of the GSRN ID (the ID Key Format column)

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3 Subscribing a GS1 company ID

GS1 company IDs are ordered from [GS1 Finland](#) either directly using the order form on their website or by printing and mailing in the order form found on the same page to GS1 Finland. GS1 The same page contains more detailed instructions on how to order an ID. Pricing for the use of GS1 IDs is based on the length of the company identifier and the company's turnover. A 7–11-digit company identifier can be chosen as the company identifier.

3.1 Impact of company changes on GS1 IDs

If, through corporate acquisitions, the company's business is transferred to a new company and the company's business ID changes in connection with the change and the company has already acquired a GS1 ID, the company must contact GS1 Finland. In this case, the GS1 Company ID of the old company can be transferred to the new company via the transfer form. The procedure is free of charge. In this case, the new company will have the right to use the old company's GS1 company ID and the GLN codes derived from them. This means that the old company can no longer use them in its operations.

If only the company's name changes and the business ID remains unchanged, the name change must be notified to GS1 Finland's customer service by e-mail.

Bibliography

- [1] Nordic Ediel Group, "Business Requirement Specification for a Harmonised Nordic Retail Market," NordReg, 2014.

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