



Meters

Planon Software Suite

Version: L105

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About this Document

Intended Audience

This document is intended for *Planon Software Suite* users.

Contacting us

If you have any comments or questions regarding this document, please send them to: support@planonsoftware.com.

Document Conventions

Bold

Names of menus, options, tabs, fields and buttons are displayed in bold type.

Italic text

Application names are displayed in italics.

CAPITALS

Names of keys are displayed in upper case.

Special symbols



	Text preceded by this symbol references additional information or a tip.
	Text preceded by this symbol is intended to alert users about consequences if they carry out a particular action in Planon.

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About Meters

In Planon ProCenter , the Meters TSI is used to support the reactive or predictive-based maintenance of assets. Here you can enter the various types of meters (counters, gauges and sensors) that are assigned to assets.

Meters - Concepts

This section explains concepts available in the Meters TSI and the way they are related to each other.

Asset

Assets are items of value owned by an organization, which is registered in Assets .

Assets allows you to add and maintain data on company assets and to keep track of their locations and owners.

Meters is a TSI in the Assets navigation group. In Meters you can add the meters that are physically assigned to assets, as well as their readings.

Examples

- **Asset:** pump; **Meter:** pressure gauge;
- **Asset:** company car; **Meter:** mileage counter.

Combined meters

For a meter that has to show the net meter registration of a set of submeters, Planon supports the 'combined meter' concept. All linked submeters are part of this combined meter. A 'combined meter' is a configuration of meters that can be used, for example, in situations where consumption tariffs vary based on factors such as time of day or day of the week, distinguishing between peak and off-peak periods. It involves the installation of multiple submeters alongside a main meter.

The purpose of this configuration is to measure and differentiate consumption during peak hours and off-peak hours. Typically, two or more submeters are installed to measure the same unit of consumption. One submeter records the consumption during peak hours when the tariff is usually higher, while another submeter records the consumption during off-peak hours when the tariff is generally lower.

The registered consumption values from the submeters are then accumulated to the main meter. The main meter does not independently measure consumption but serves as an aggregator, summing up the reading values obtained from the submeters. The accumulated values on the main meter are then used for billing purposes or other calculations related to consumption.

Additionally, the configuration of a combined meter can also be used in scenarios where one submeter is dedicated to consumption, while another submeter is used to measure production or the return of resources.

In summary, the combined meter setup enables the differentiation of peak and off-peak usage, as well as the distinction between resource consumption and production

or return. You can use the **Combined meter?** setting to indicate whether a meter is a combined meter. See [Counter fields](#) / [Gauge fields](#).

Consumption

The material, energy or time consumed by an asset, as measured by a counter. Consumption can refer to items such as electricity, printer paper, car fuel or operational hours.

An asset's consumption is automatically calculated in Planon ProCenter by comparing a previous and a current counter reading. The difference is displayed in the **Consumption** field of a counter reading in Assets > Meters at **Meter readings**.

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[Meter reading](#)

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Counter

A counter is a device that is linked to an asset and that continuously records ascending or descending values. Counters are used in predictive-based maintenance to calculate the relevant moment for an asset's preventive maintenance.

Counters are subtypes of meters. Counters are added and maintained in Meters > Meters.

Assets, such as copiers, printers, fuel tanks or company cars, are often equipped with one or more counters. For example: counters that measure kilometers, energy or fuel consumption or operational hours.

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Counter definition

A counter definition includes the general attributes of a counter, which are shared by all counters that are added to it.

Counter definitions are added and maintained in Meters > **Meter definitions**. A counter can only be added to a counter definition.

Example

A single counter definition that applies to all copier counters.

[Counter](#)

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Counter value modification

The counter modification value is the difference between a counter's current value and the new value (upward or downward).

Counter value modifications are added and maintained in Meters > **Meter readings**.

Example

After a fuel tank is refilled, its counter value needs to be updated upward with the quantity of fuel that is added.

If the previous reading was 5,000 and the new counter value is 6,000, then the modification value would be 1,000.

For the next reading entered (based on date-time), the consumption is displayed, based on the calculation given below:

Previous reading = 5,000

Modification value = 1,000

New reading = 4,500

Consumption = Previous reading + Modification value – New (last) reading:
 $5,000 + 1,000 - 4,500 = 1,500$

[Counter](#)

Gauge

A device assigned to an asset, to measure one of its physical quantities. If the value of this quantity exceeds a predefined threshold, an order for the asset is automatically created in Work Orders .

Gauges are subtypes of **meters**. Gauges are added and maintained in Meters > **Gauges**.

Examples

Gauges to measure physical quantities such as temperature, vibrations, oil viscosity, pollution levels.

[Adding a gauge to a gauge definition](#)

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[Threshold-based reactive maintenance](#)

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Gauge definition

The general attributes of a gauge, which are shared by all gauges that are added to it. A gauge definition is one of two types of meter definitions.

Gauge definitions are added and maintained in Meters > **Meter definitions**. A gauge can only be added to a gauge definition.

Example

One gauge definition that applies to all pressure gauges.

[Gauge](#)

[Adding a gauge to a gauge definition](#)

[Adding a gauge definition](#)

Meter

A meter is a device linked to an asset, which measures physical quantities or service usage, such as temperature, pressure, distance etc. Planon ProCenter performs calculations using the meter data, such as meter readings, and can thus provide relevant information on an asset's consumption or condition.

In Planon ProCenter , 'meter' is the generic term for different types of measuring instruments, such as counters and gauges. Meters are added and maintained in the **Meters** TSI.



Meters (counters / gauges) can be transferred to the archive if their use is no longer required. This will prevent their records from being displayed and possibly updated in Planon products, for example in apps, while they are actually obsolete. The **Transfer to archive action** must be added to the **Meters** action panel for this purpose.

[Counter](#)

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[Meter definition](#)

Meter classification

The hierarchical grouping of meters into categories that are defined by your organization. The maximum number of levels is 5.

Meter classifications are added and maintained by the Planon administrator in Meters at Components > Meter classification.

Example

You can add individual meter classifications for instruments that measure:

- operational hours
- pressure
- temperature
- mileage
- etc.

[Meter](#)

Meter definition

The meter definition includes the general attributes of a meter (counter or gauge), which are shared by all meters (counters or gauges) that are added to it.

A meter definition is either a counter definition or a gauge definition, which can be added and maintained in Meters > **Meter definitions**.



Meter definitions can be transferred to the archive if their use is no longer required. This will prevent their records from being displayed and possibly updated in Planon products, for example in apps, while they are actually obsolete. The **Transfer to archive action** must be added to the **Meter definitions** action panel for this purpose.

[Meter](#)

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[Adding a meter classification](#)

Meter reading

A meter reading is the value of a counter or gauge at a specific point in time, which is added to Planon ProCenter Meters .

Maintenance based on meter readings requires that readings are frequently taken and added to Meters .

Example

In predictive-based maintenance, readings are essential to the initial scheduling of maintenance activities.

In threshold-based reactive maintenance, readings can be used to instantly generate maintenance orders.

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Predictive-based maintenance

Maintenance that takes place when a certain, predefined consumption is reached by an asset. For example: after a predefined number of operational hours, number of kilometers, etc.). A prerequisite for predictive-based maintenance is that counter readings are entered in Meters at regular intervals, so that the consumption of an asset can be calculated.

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Planon-estimated consumption

Planon-estimated consumption is the automatically calculated, periodic consumption of energy, fuel etc, by an asset, based on a predefined minimum number of counter readings. The Planon-estimated periodic consumption is used to schedule predictive-based maintenance activities in **Maintenance Manager** (calculate their start dates).

The field displaying the Planon-estimated periodic consumption is available for counters in Meters > **Meters**.

Examples

- The forecasted annual energy consumption for a central heating installation.
- The forecasted monthly fuel consumption for a company car.

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[User-estimated consumption](#)

[Meter reading](#)

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Rollover (counters)

Counters are continuous meters. Depending on whether they are ascending or descending, they continue to increase or decrease in value. Eventually, they will reach a rollover point. Counters are typically used to drive maintenance tasks, such as changing your oil every 7500 miles (1200 km). In Planon, when a counter has reached its limit (in ascending or descending direction), it will by default loop back to 0 and add the registered value to the total.

This behavior might not always be expedient. For example, if it is likely that incorrect meter readings are added via app users at the moment a counter rolls over. In that case, the incorrect meter reading(s) might corrupt your maintenance planning. If you want to avoid automatic rollovers, use the **Allow counter rollover?** setting.

The setting is available on both the *counter definition* and the *counter*.



Counters will automatically take over the set value (Yes/No) from their related counter definition. However, you can select a deviating setting on the counter. So, if you have selected **No** on the counter definition, you can select **Yes** on a linked counter and vice versa.

See: [Counter definition fields](#) and [Counter fields](#).

- If **Yes** is selected (default value) automatic rollovers are allowed. New counter readings can either be lower or higher than the previous ones and the consumption is calculated based on the rollover values (thresholds).
- Ascending counters: if **No** is selected, the rollover behavior is not allowed. A new counter reading must always be *higher* than the previous one. If it is lower, you will receive an error message.

- Descending counters: if **No** is selected, the rollover behavior is not allowed. A new counter reading must always be *lower* than the previous one. If it is higher, you will receive an error message.



Users of Planon apps that support meter readings, such as AppSuite, are also notified if they try to add a counter reading when the rollover point is reached and automatic rollovers are not allowed. If rollovers are allowed, the date for a new meter reading must be later than the last known meter reading date. If an 'incorrect' date is entered, an error message is displayed.

Threshold-based reactive maintenance

Threshold-based reactive maintenance must take place as soon as a pre-defined minimum or maximum threshold value is exceeded by the asset's gauge. If a gauge reading added in Meters exceeds a predefined threshold, an order is automatically generated in Work Orders , after which the asset can be inspected and/or serviced.

[Gauge](#)

[Predictive-based maintenance](#)

[Adding a gauge to a gauge definition](#)

User-estimated consumption

You can add an asset's estimated consumption in Planon ProCenter . If there is insufficient data to calculate the [Planon-estimated consumption](#), this 'user-estimated periodic consumption' is used to schedule predictive-based maintenance activities in **Maintenance Manager** (calculate their start dates).

The **User-estimated consumption** field is available in Meters > **Meters**.

Examples

- The forecasted annual energy consumption for a central heating installation.
- The forecasted monthly fuel consumption for a company car.

[Planon-estimated consumption](#)

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Working with Meters

This section describes the processes and tasks that can be performed in the Meters TSI.

Adding a meter classification

You can enter hierarchical categories which together form a relevant grouping of meters, so that you can proceed to add meter definitions.

Start Assets > Meters and descend to Components > Meter classification.

Using this feature

Procedure

1. Go to Components > Meter classification.
2. On the action panel, click Add.
3. For a description of the fields, refer to Meter classification fields.
4. Click Save.

You can now add sub-meter classifications to this meter classification. The maximum number of hierarchical levels is 5.

Meter definition

Adding a counter definition

You can enter general attributes that are shared by all counters added to this counter definition.

Procedure

1. At Meter definitions, click Add counter definitions.
2. For a description of the fields, refer to Counter definition fields.
3. Click Save.

You can now add counters to this counter definition at **Meters**.

Consumption

Counter

[Counter definition](#)

Adding a gauge definition

You can enter general attributes that are shared by all gauges linked to a gauge definition.

Procedure

1. At Meter definitions, click Add gauge definitions.
2. For a description of the fields, refer to Gauge definition fields.
3. Click Save.

You can now add gauges to this gauge definition at **Meters**.

[Gauge](#)

[Gauge definition](#)

[Adding a gauge to a gauge definition](#)

Adding a counter to a counter definition

You can enter data that is specific to an asset's counter.



It is not possible to add a counter to a 'multiple' asset.

Procedure

1. Go to Assets.
2. Select the asset to which you want to add a counter.
3. At Counter definitions > Meters, click Add counter.
4. For a description of the fields, refer to Counter fields.
5. Click Save.

Counter readings can now be added to this counter.

[Planon-estimated consumption](#)

[User-estimated consumption](#)

[Meter reading](#)

Adding a gauge to a gauge definition

You can enter data that is specific to an asset's gauge.

Procedure

1. At Meters, click Add gauge.
2. For a description of the fields, see Gauge fields.
3. Click Save.

Gauge readings can now be added to this gauge.

[Gauge](#)

[Gauge definition](#)

[Adding a gauge definition](#)

[Meter reading](#)

[Threshold-based reactive maintenance](#)

Adding meter/gauge readings

You can register the values that were read from counters or gauges at specific moments in time, so that these values can be used in calculations that trigger an asset's predictive-based maintenance or reactive maintenance.

Procedure

1. At Meter readings, click Add counter reading.
2. For a description of the fields, see Counter reading fields.
3. Click Save.

As soon as a predefined minimum number of counter readings is added, they are used calculate the asset's periodic consumption and to schedule maintenance activities in **Maintenance Manager > Maintenance Planner**.

Procedure

1. At **Meter readings**, click **Add gauge reading**.
2. For a description of the fields, see [Gauge reading fields](#).

3. Click **Save**.

[Consumption](#)

[Meter reading](#)

[Adding a counter to a counter definition](#)

[Planon-estimated consumption](#)

[Predictive-based maintenance](#)

Adding a counter value modification

You can modify a counter's value, for example after repairs, refills or other operations to the asset.

Procedure

1. Go to Meter readings.
2. At Counter value modifications, click Add.
3. For a description of the fields, refer to Counter value modification fields.


Meters – Field Descriptions

Meter classification fields

Field	Description
Code	Enter a code for the meter classification.
Description	Enter a relevant description of the meter classification.
Parent level	When adding a sub-classification, select the main classification from the dialog box that is available in this field.


Counter definition fields

Field	Description
Allow counter rollover?	By default, this field is set to Yes to allow automatic rollovers for the counters that belong to this definition. These counters will roll over after they have reached their limit (rollover point). If this is not the preferred behavior for the selected counter, select No , to prevent the automatic rollovers.
Code	Enter a code for the counter definition.
Description	Enter a relevant description of the counter definition.
Direction	Select a relevant direction from the dialog box available in this field. A counter can count in an up or down direction.
Increment	Enter the minimum allowed difference between two read counter values. An increment must be greater than zero. The increment is used to calculate consumption by an asset by comparing the previous and current reading.
Maximum value	Enter the maximum value that counters in the counter definition can measure.

Field	Description
Meter classification	Select a relevant meter type from the dialog box available in this field.
Minimum value	Enter the minimum value that counters in the counter definition can measure.
Recyclable	Meters measure physical quantities or service usage, such as water, temperature, waste etc. Specify if the item measured by a meter is recyclable (Yes/No). If you specify this field on the gauge/counter definition, the Recyclable field on the linked gauges/counters and gauge/counter readings will automatically have the same value.
<div style="border: 1px solid black; padding: 5px; margin: 5px 0;">  You can leave this field empty if it is not relevant. </div>	
Unit of measurement	Select the unit of measurement. If you specify a unit of measurement on the gauge/counter definition, the linked gauges/counters and gauge/counter readings will automatically have the same unit of measurement.
User-defined status	Select a relevant user-defined status from the dialog box available in this field.

Gauge definition fields

Field	Description
Code	Enter a code for the gauge definition.
Description	Enter a relevant description of the gauge definition.
Maximum value	Enter the maximum value that the gauges in this gauge definition can measure. You can also leave this field unspecified. In that case, it is mandatory to enter a maximum threshold value on the Meters level on adding a gauge. Also it will no longer be possible to enter a value in this field.
Meter classification	Select a relevant meter type from the dialog box available in this field. For example a specially created meter classification group to monitor sustainability.
Minimum value	Enter the minimum value that the gauges linked to this gauge definition can measure. You can also leave this field unspecified. In that case, it is mandatory to enter a minimum


Field	Description
	threshold value on the Meters level on adding a gauge. Also it will no longer be possible to enter a value in this field.
Recyclable	Meters measure physical quantities or service usage, such as water, temperature, waste etc. Specify if the item measured by a meter is recyclable (Yes/No). If you specify this field on the gauge/counter definition, the Recyclable field on the linked gauges/counters and gauge/counter readings will automatically have the same value.
	<div style="border: 1px solid black; padding: 5px;">  You can leave this field empty if it is not relevant. </div>
Standard order for max. threshold value	From the dialog box available in this field, select a standard order that is to be the basis for order generation: as soon as a reading of a linked gauge exceeds the maximum threshold, an order (work order or request) is automatically generated in Work Orders . Note: if a standard order is also available for a linked gauge, it overrules the standard order specified for the gauge definition.
Standard order for min. threshold value	From the dialog box available in this field, select a relevant standard order that is to be the basis for order generation: as soon as a reading of a linked gauge exceeds the minimum threshold, an order (work order or request) is automatically generated in Work Orders . Note: if a standard order is also available for a linked gauge, it overrules the standard order specified for the gauge definition.
Unit of measurement	Select the unit of measurement. If you specify a unit of measurement on the gauge/counter definition, the linked gauges/counters and gauge/counter readings will automatically have the same unit of measurement.
User-defined status	Select a relevant user-defined status from the dialog box available in this field.


Counter fields


Field	Description
Allow counter rollover?	By default, this field is set to Yes to allow automatic counter rollovers after the counter has reached its limit. If this is not the preferred behavior for the selected counter, select No , to prevent the automatic rollovers.
Asset	Select the asset to which the counter belongs.
Code	Auto-generated code of counter; can be modified.

Field	Description
Comment	If relevant, enter a comment on the counter.
Consumption meter?	<p>Specify if the meter register the consumption of energy (select Yes) or the production of energy, the amount of energy sent back to the grid (select No). For example, if more electricity is generated by solar panels during a sunny day than can be consumed, part of the generated electricity is returned to the grid. By default, this option is set to Yes.</p> <p>The returned values are registered via a meter reading. For more information on meter readings, see Counter reading fields and Gauge reading fields.</p> <p>If your meter registers the production of energy, the calculation of the net consumption will take into account both the energy you consume from the grid and the energy you produce and feed back into the grid.</p>
Consumption since last modification	This calculated field displays the asset's consumption since the counter's value was last modified at Counter value modifications .
Cost profile	Select the cost profile from the pop-up which gives standing cost and unit based cost.
Date latest calibration	Enter the date of the last calibration, if relevant.
Date-time of last reading	This read-only field displays the date-time when the last counter reading was entered.
Defined as asset	If the counter itself is registered as an asset, select the relevant asset from the dialog box available in this field.
Department	Select a department where the counters are located.
Description	Enter a description of the counter.
Direction	Select the direction in which the counter counts: ascending or descending
Ignore readings prior to:	<p>If relevant, enter the date-time prior to which counter readings must be ignored in the calculation of the Planon-estimated consumption. If a date-time is specified in this field, then the following calculation applies in the Planon-estimated consumption field:</p> <p>A = the number of seconds in the specified period, as specified in the Period applicable to estimated consumption field.</p> <p>B = the total consumption, of all readings with a later date-time than specified in the Ignore readings prior to field (Note: the consumption based on the first reading after</p>

Field	Description
	<p>this Ignore readings prior to date-time is not taken into account!)</p> <p>C = (the date-time of the last reading – the date-time of the first reading after the Ignore readings prior to date-time) in seconds.</p> <p>The calculation is (B/C) * A.</p>
Image	Select or upload a relevant image of the counter in this field.
Impact area	Select an impact area that applies to the counter.
Impact area cost profile	Select a cost profile that applies to the counter, including any cost lines.
Include for reporting?	Specify if the (sub)meter should be included in reports/dashboards or not. By default, this setting is set to Yes for all meters. If there are (sub)meters that you do not want to include in your report/dashboard, you must set the setting to No for these specific meters.
Increment	Enter the minimum allowed difference between two read counter values. An increment must be bigger than zero. The increment is used to calculate an asset's consumption between 2 readings.
Latest calibration	Displays a date when the last calibration was performed on the counter.
Maximum value	Enter the maximum value that the counter can measure. This value cannot exceed the maximum value of the linked counter definition.
Meter classification	Select a meter classification that applies to the counter.
Meter definition	Select a meter definition that applies to the counter.
Minimum number of readings	In this mandatory field, enter the minimal number of counter readings that is required to calculate a valid Planon-estimated consumption . This value must be at least 2 to get a valid calculation.

 The **Increment** field is by default populated based on the linked counter definition. This value can be changed afterwards.

 The **Maximum value** field is by default populated based on the linked counter definition. This value can be changed afterwards.

Field	Description
Minimum value	<p>Enter the minimum value that the counter can measure. This value cannot be lower than the minimum value of the linked counter definition. In this mandatory field, enter the minimal number of counter readings required to calculate a valid estimated consumption. This value must be at least two for a valid calculation.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p> The Minimum value field is by default populated based on the linked counter definition. This value can be changed afterwards.</p> </div>
Combined meter?	<p>Use this setting to indicate if a meter is a combined meter. You can only configure this setting at the main meter level. The setting is then automatically applied to all linked submeters. The setting on the main meter can only be modified as long as no readings have been registered yet.</p> <p>If Combined meter? is set to Yes:</p> <ul style="list-style-type: none"> • The reading values from the submeters are accumulated and added to the main meter. • No reading values can be added, updated or removed on the main meter. • Only accumulated readings can be generated for the main meter. You cannot link readings of different types to the main meter.
Period applicable to estimated consumption	<p>Select a period that applies to the User-estimated consumption and Planon-estimated consumption. The default value is one year.</p>
Planon-estimated consumption	<p>This read-only field displays the asset's estimated total consumption during the period specified in the Period applicable to estimated consumption field, as calculated by Planon ProCenter . The calculation is based on:</p> <p>A = the number of seconds in the specified period</p> <p>B = the total consumption</p> <p>C = date-time of last reading minus date-time of first reading in seconds.</p> <p>The calculation is $(B/C) * A$.</p>
Recyclable	<p>Meters measure physical quantities or service usage, such as water, temperature, waste etc. On the counter definition, you can specify if the item measured by a meter is recyclable (Yes/No). If you specify this field on</p>

Field	Description
	the gauge/counter definition, the Recyclable field on the linked gauges/counters and gauge/counter readings will automatically have the same value.
Supplier's address	Select the address of the counter's supplier from the dialog box available in this field.
Supplier's ID code	Enter the counter's ID code that was provided by the supplier.
Unit of measurement	Select a unit of measurement that applies to the counter. If you specified a unit of measurement on the counter definition, the linked counter will automatically have the same unit of measurement.
User-defined status	If relevant, select a user-defined status from the dialog box available in this field.
User-estimated consumption	Enter your own estimation of the asset's consumption for the period specified in the Period applicable to estimated consumption field (default value: one year). The value in this field is use to schedule maintenance activities in the Maintenance Manager TSI if there are not enough readings to calculate a Planon-estimated consumption .
Value of last reading	This read-only field displays the counter's value entered during the last counter reading.

Gauge fields





Field	Description
Accumulating meter?	For gauges with compact gauge readings this field must be set to Yes in order for the gauge to register compact gauge readings. If the setting is No , the gauge can only register the regular gauge readings of the type 'not compact'. To add compact gauge readings, the field must be set to Yes . If set to Yes , the compact gauge readings will be accumulated in a day reading if they are registered on one day.

Important

When upgrading: for existing gauges this field will automatically be set to **Yes** if the gauge has previously registered compact gauge readings. In case of new gauges, you must set the field to **Yes** if you want to register compact gauge readings (and accumulate the results per day).

Field	Description
Asset	Select the asset to which the gauge belongs from the dialog box available in this field.
Code	Auto-generated code of gauge; can be modified.
Consumption meter?	<p>Specify if the meter register the consumption of energy (select Yes) or the production of energy, the amount of energy sent back to the grid (select No). For example, if more electricity is generated by solar panels during a sunny day than can be consumed, part of the generated electricity is returned to the grid. By default, this option is set to Yes.</p> <p>The returned values are registered via a meter reading. For more information on meter readings, see Counter reading fields and Gauge reading fields.</p> <p>If your meter registers the production of energy, the calculation of the net consumption will take into account both the energy you consume from the grid and the energy you produce and feed back into the grid.</p>
Comment	If relevant, enter a comment on the gauge.
Date latest calibration	Enter the date of the last calibration, if relevant.
Date-time of last reading	This read-only field displays the date-time when the last gauge reading was entered.
Defined as asset	If the gauge itself is registered as an asset, select the relevant asset from the dialog box available in this field.
Department	This field is only displayed if the gauge is linked to Department on the Properties level. It enables you to select a relevant department.
Description	Enter a relevant description of the gauge.
Impact area	Select an impact area that applies to the gauge.
Impact area cost profile	Select a cost profile that applies to the gauge, including any cost lines.
Include for reporting?	Specify if the (sub)meter should be included in reports/dashboards or not. By default, this setting is set to Yes for all meters. If there are (sub)meters that you do not want to include in your report/dashboard, you must set the setting to No for these specific meters.


Field	Description
Maximum threshold value	Enter the maximum value that the gauge is allowed to reach before an order must be generated. If the maximum threshold is exceeded an order is created to inspect or service the asset to which the gauge is linked. Note: it is impossible to modify this value once readings are added to the gauge.
Maximum value	Enter the maximum value that the gauge can measure.
Meter classification	Select a meter classification that applies to the gauge.
Meter definition	Select a meter definition that applies to the gauge.
Minimum threshold value	Enter the minimum value that the gauge is allowed to reach before an order must be generated. If the minimum threshold is exceeded an order is created to inspect or service the asset to which the gauge is linked. Note: it is impossible to modify this value once readings are added to the gauge.
Minimum value	Enter the minimum value that the gauge can measure.
Nominal value	Enter the specified nominal value for the gauge to have.
Combined meter?	<p>Use this setting to indicate if a meter is a combined meter. You can only configure this setting at the main meter level. The setting is then automatically applied to all linked submeters. The setting on the main meter can only be modified as long as no readings have been registered yet.</p> <p>If Combined meter? is set to Yes:</p> <ul style="list-style-type: none"> • The reading values from the submeters are accumulated and added to the main meter. • No reading values can be added, updated or removed on the main meter. • Only accumulated readings can be generated for the main meter. You cannot link readings of different types to the main meter.
Recyclable	Meters measure physical quantities or service usage, such as water, temperature, waste etc. On the gauge definition , you can specify if the item measured by a meter is recyclable (Yes/No). If you specify this field on the gauge/counter definition, the

Field	Description
Standard order for max. threshold value	<p>Recyclable field on the linked gauges/counters and gauge/counter readings will automatically have the same value.</p> <p>From the dialog box available in this field, select a standard order. This standard order is the basis for the order (work order or request) that is automatically generated in Work Orders as soon as a gauge reading exceeds the maximum threshold.</p> <div data-bbox="462 489 1310 709" style="border: 1px solid #00a0e3; padding: 5px;"> <p> As soon as an order is generated and a new gauge reading is added that exceeds the threshold, a new order can only be generated if the preceding order is in one of the following statuses: Technically completed, Administratively completed or Cancelled. If the previously generated order has any other status, a new exceeding gauge reading is linked to this order.</p> </div> <div data-bbox="462 716 1310 831" style="border: 1px solid #e31a1c; padding: 5px;"> <p> When an order is generated, the property, asset and space specified in the standard order are overwritten by the property, asset ID and space of the asset that is linked to the gauge.</p> </div>
Standard order for min. threshold value	<p>From the dialog box available in this field, select a standard order. This standard order is the basis for the order (work order or request) that is automatically generated in Work Orders as soon as a gauge reading exceeds the minimum threshold.</p> <div data-bbox="462 999 1310 1220" style="border: 1px solid #00a0e3; padding: 5px;"> <p> As soon as an order is generated and a new gauge reading is added that exceeds the threshold, a new order can only be generated if the preceding order is in one of the following statuses: Technically completed, Administratively completed or Cancelled. If the previously generated order has any other status, a new exceeding gauge reading is linked to this order.</p> </div> <div data-bbox="462 1226 1310 1341" style="border: 1px solid #e31a1c; padding: 5px;"> <p> When an order is generated, the property, asset and space specified in the standard order are overwritten by the property, asset ID and space of the asset that is linked to the gauge.</p> </div>
Supplier address	Select the address of the gauge's supplier from the dialog box available in this field.
Unit of measurement	Select a unit of measurement that applies to the gauge. If you specified a unit of measurement on the gauge definition, the linked gauge will automatically have the same unit of measurement.
User-defined status	If relevant, select a user-defined status from the dialog box available in this field.
Value of last reading	This read-only field displays the gauge's value entered during the last gauge reading.

Counter reading fields

Field	Description
Code	Enter a code for the counter reading.
Comment	If relevant, enter a comment on the counter reading.
Consumption	This read-only field displays the asset's consumption since the last reading. The calculation is based on the Reading value field and the Reading date-time field of the current reading and the previous reading.
Description	Enter a relevant description of the counter reading.
Emission	Displays the amount of CO ₂ emitted. This value is based on the impact area that was defined while adding a counter. This value is only calculated if you have set the option Calculate CO2 to Yes in Field definer > Business object settings > Meter readings .
Gigajoule	Displays the calculated energy usage in gigajoule. This value is only calculated if: <ul style="list-style-type: none">• You have set the option Calculate gigajoules to Yes in Field definer > Business object settings > Meter readings. Note that this option is set to No by default.• The meter is linked to an impact area.• Output conversion data is registered.• The conversion to energy is specified (KJ per unit field on the output conversion table).
Image	To validate the meter reading and confirm their physical presence at the location, engineers can attach an image of the actual meter with the reading.
kWh	Displays the calculated energy usage in kWh (kilowatt-hour). This value is only calculated if: <ul style="list-style-type: none">• You have set the option Calculate kWh to Yes in Field definer[Field] > Business object settings > Meter

Field	Description
	<p>readings. Note that this option is set to No by default.</p> <ul style="list-style-type: none"> The meter is linked to an impact area. Output conversion data is registered. The conversion to energy is specified (KJ per unit field on the output conversion table).
Meter	Select a relevant counter from the dialog box available in this field, to link the reading to.
Order	Displays the order linked to the counter reading. This field is useful for readings made in Planon Mobile Field Services (PMFS). When a PMFS order with an associated meter reading is sent to the back-office, the reading is entered and the order reference automatically populated.
Reading date-time (property)	<p>Select the date-time of the counter reading, from the timezone perspective of the <i>property</i> where the reading was taken.</p> <p>If you populate this property date-time field, the corresponding Reading date-time (user) field is calculated accordingly.</p>
Reading date-time (user)	<p>Select the date-time when the gauge reading was entered, from the timezone perspective of the <i>user</i> by whom the reading was taken.</p> <p>If you populate this user date-time field, the corresponding Reading date-time (property) field is calculated accordingly.</p>
Reading value	Enter the counter reading.
Standing costs	Displays the fixed amount to be paid. This value is based on the cost profile that was selected while adding a counter and the time period with respect to previous reading.
Unit based costs	Displays the variable cost to be paid. This value is based on the cost profile and the consumption. This value is only calculated if you have set

 It is possible to modify this date-time on a later occasion. Other reading date-times, previous and subsequent, can be affected by this modification and are updated accordingly. If relevant, the **Consumption** field is also updated.


Field	Description
	the option Calculate unit cost to Yes in Field definer > Business object settings > Meter readings .
User-defined status	If relevant, select a user-defined status from the dialog box available in this field.

Gauge reading fields

Field	Description
Code	Enter a code for the gauge reading.
Comment	If relevant, enter a comment on the gauge reading.
Consumption	This read-only field displays the asset's consumption since the last reading. The calculation is based on the Reading value field and the Reading date-time field of the current reading and the previous reading.
Description	Enter a relevant description of the gauge reading.
Emission	The CO ₂ -emission that applies to this reading is calculated and populated by Planon (in Kg CO ₂ e). This value is only calculated if you have set the option Calculate CO₂ to Yes in Field definer > Business object settings > Meter readings .
Gauge	Displays the code of linked gauge.
Gigajoule	Displays the calculated energy usage in gigajoule. This value is only calculated if: <ul style="list-style-type: none"> You have set the option Calculate gigajoules to Yes in Field definer > Business object settings > Meter readings. Note that this option is set to No by default. The meter is linked to an impact area. Output conversion data is registered. The conversion to energy is specified (KJ per unit field on the output conversion table).
Image	To validate the meter reading and confirm their physical presence at the location, engineers can attach an image of the actual meter with the reading.


Field	Description
kWh	<p>Displays the calculated energy usage in kWh (kilowatt-hour). This value is only calculated if:</p> <ul style="list-style-type: none"> You have set the option Calculate kWh to Yes in Field definer[Field] > Business object settings > Meter readings. Note that this option is set to No by default. The meter is linked to an impact area. Output conversion data is registered. The conversion to energy is specified (KJ per unit field on the output conversion table).
Meter	Select a relevant gauge from the dialog box available in this field, to link the gauge reading to.
Order	Displays the order linked to the gauge reading. This field is useful for readings made in Planon Mobile Field Services (PMFS). When a PMFS order with an associated meter reading is sent to the back-office, the reading is entered and the order reference automatically populated.
Order for max. threshold value	This read-only field displays the name of the order that is created in Work Orders after the gauge's maximum threshold is exceeded. This auto-generated order name consists of the order description and the gauge's code, description, minimum threshold value and reading value.
Order for min. threshold value	This read-only field displays the name of the order that is created in Work Orders after the gauge's minimum threshold is exceeded. This auto-generated order name consists of the order description and the gauge's code, description, minimum threshold value and reading value.
Per day	Enter the date on which the reading result was observed.
Reading date-time (property)	<p>Select the date-time when the gauge reading was entered, from the timezone perspective of the <i>property</i> where the reading was taken.</p> <p>If you populate this property date-time field, the corresponding Reading date-time (user) field is calculated accordingly.</p>
Reading date-time (user)	<p>Select the date-time when the gauge reading was entered, from the timezone perspective of the <i>user</i> by whom the reading was taken.</p> <p>If you populate this user date-time field, the corresponding Reading date-time (property) field is calculated accordingly.</p>

Field	Description
Reading details	Select relevant reading details that apply to the gauge reading. Note: you can add reading details - in the shape of a log message - to a gauge reading value at the Reading details selection level.
Reading value	Enter the gauge reading. If this value exceeds the maximum or minimum threshold, an order is automatically created in Work Orders .
Recyclable	Meters measure physical quantities or service usage, such as water, temperature, waste etc. On the gauge definition, you can specify if the item measured by a meter is recyclable (Yes/No). If you specify this field on the gauge/counter definition, the Recyclable field on the linked gauges/counters and gauge/counter readings will automatically have the same value.
Standing costs	The standing costs that apply to this reading are calculated and entered by the system.
Unit based costs	The unit-based costs per reading are calculated and entered by the system. This value is only calculated if you have set the option Calculate unit cost to Yes in Field definer > Business object settings > Meter readings . This calculation is based on the difference between the previous and the current reading. Note: a negative figure here means you have generated income from the impact area concerned. Example: if you receive remuneration for waste recycling.
Unit of measurement	Displays the unit of measurement that applies to the gauge reading. If you specified a unit of measurement on the gauge, the linked gauge readings will automatically have the same unit of measurement.
Within range (Y/N)	This read-only field displays No if the gauge reading exceeds one of the set threshold values, or Yes if it is within the threshold range.

 Typically, the calculation of the fields **Unit based costs**, **Standing costs**, **Emission** and **Gigajoule** is triggered when a reading is added or updated. Sometimes it is useful to trigger the calculations on request. In this case, you can use the **Recalculate meter readings** action on **Meters** to trigger the (re)calculation of these fields from a given date.

Counter value modification fields

Field	Description
Code	Enter a code for the counter value modification.
Modification date-time	Select the date-time of the modification from the date-picker in this field. Note: a modification date-time cannot be earlier than the first reading of a counter.
Counter	Select the counter for which the modification is made from the dialog box available in this field.
Modification value	Enter a value by which you want to adjust the counter. The value should be the difference between old and new numbers. The value can be positive or negative.
Description	Enter a description of the counter value modification.
User-defined status	If relevant, select a user-defined status from the dialog box available in this field.

 The asset's consumption is recalculated based on this new value, taking into account the counter's maximum and minimum values.

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