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SITRANS

Communication and software SITRANS store IQ

Getting Started

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

\land DANGER

indicates that death or severe personal injury will result if proper precautions are not taken.

\land warning

indicates that death or severe personal injury may result if proper precautions are not taken.

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

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About this Document

This document provides instructions to setup, configure and operate:

SITRANS store IQ

SITRANS store IQ is a Siemens MindSphere based application to monitor and manage inventories in process and discrete industries.

Benefits of SITRANS store IQ

- Manage entire inventory network from a central location.
- Reduce overhead required to monitor and plan stock levels.
- Avoid unnecessary downtime and cost associated with unexpected shortages.
- Increase transparency of measurement reliability.

Application

Inventory management is a task which can be found in basically every value chain. Whenever material is processed, produced or assembled it will involve stocks and inventories. SITRANS store IQ is therefore an open system, based on Siemens MindSphere which allows to read in values from different kinds of instrumentation – be it a level device at a process tank, scales mounted in storage shelves but also auxiliary measurements helping to better characterize the inventory e.g. temperature readings or binaries.

SITRANS store IQ is taking these readings and visualizing them in a customizable way, offering structuring with hierarchies, map views or graph views. The acquired data can be used to create alarms per email or SMS in order to get notifications proactively – exactly as required from the certain use case scenario. All that is designed for desktop and mobile usage.

Design

- Reliable and accurate data of Inventory data from anywhere.
- Flexible structure for configuring any size inventory network.
- Visualization of inventory mix with a material breakdown.
- KPI thresholds to easily assess inventory levels.
- Custom alarms for proactive notifications.
- Based on MindSphere and open to virtually every measurement technology.
- Ability to monitor any process value: humidity, temperature, any digital input.

Configuration

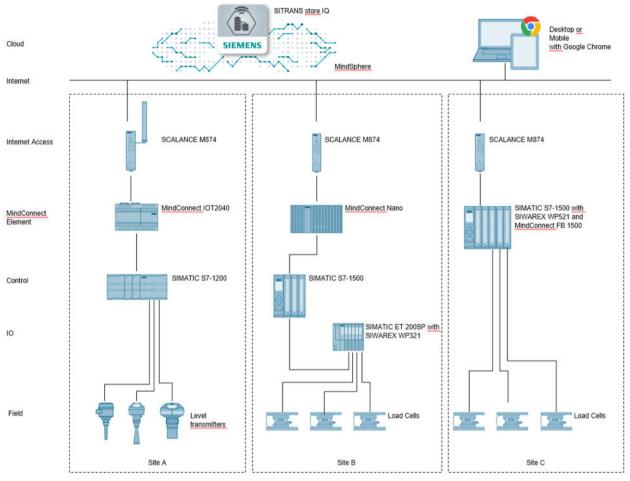


Figure 1-1 Configuration example

Onboarding in Mindsphere

2.1 Adding an asset in Mindsphere

Data groups in asset type "storeiqtank"

SITRANS store IQ works with predefined asset types. The standard asset type is "storeiqtank" and is recommended to be used for any tank, silo or bin. This asset type contains three data groups:

- "Variables" can either be configured in MindSphere, storelQ or are preconfigured. Only "calculatefor" and "hideaspectvar" need to be configured within MindSphere. See steps 7 and 8.
- "TankNormalizedProcessValues" contains all calculated values. These values require no configuration. It is not recommended to change this groups content.
- "TankRawDataAspect" contains all measurements coming from the field device. These values require no configuration. It is not recommended to change this groups content.

Before you add any assets

- Make sure you have access to MindSphere with administrator rights.
- Make sure your store IQ account is linked to MindSphere.

Procedure in MindSphere

- 1. Open the "Asset Manager".
- 2. Navigate through the hierarchy, to the location of where you want to add the asset.
- Click on "Create asset". Alternatively if you want to create a child asset: Select an asset and click on the "+" to the top right.
- 4. Select the type of asset you want to create. For a tank, silo or bin use: "storeiqtank".
- 5. Enter all relevant data under "General". Only "Name" is mandatory and will be displayed in store IQ.
- 6. Leave the asset classification on "Performance".

Please classify your asset :

The classification of an asset cannot be changed afterwards.



Use this option to represent your assets in the field with timeseries resolution of milliseconds



2.2 Adding a new Datasource

- 7. To display the location of an asset in store IQ, expand "Location" and populate "Latitude" and "Longitude". The location of the asset can also be set, using the "Location Settings" menu for the specific asset in SITRANS store IQ.
- 8. To add additional aspects to be calculated and displayed in store IQ, go to "Variables". Under "calculatefor" enter any of the below aspects. Entries need to be seperated by comma and all in lower case. The calculations will be done based on the values you enter in store IQ regarding shape, dimensions and material. Valid entries are:
 - volume
 - levelpercentage
 - itemcount
 - weight
- 9. To hide any aspects from showing up in store IQ, go to "Variables". Under "hideaspectvar" specify the data group, follwed by a dot, and enter any aspect you want to hide. For example if you want to only show the distance in either feet or meter. Depending on your settings in the field device, enter either:
 - TankNormalizedProcessValues.distance
 - TankRawDataAspect.distance

10. Click "Save".

Result

Within 4 minutes the created assets will appear in store IQ.

2.2 Adding a new Datasource

Before you add a new Datasource

- Make sure you have access to MindSphere with administrator rights.
- Make sure your store IQ account is linked to MindSphere.
- Add at least one asset as described in Adding an asset in Mindsphere (Page 7).

Procedure in MindSphere

- 1. Open the "Asset Manager".
- 2. Select an asset containing a MindConnect plugin.
- 3. Open the MindConnect plugin.
- 4. Click on "Add new Datasource".

2.3 Mapping a Variable to a Datapoint

5. Enter all relevant data.

Note

Do not enter any units

The unit is entered in store IQ and can be converted from there.

6. Click "Accept".

Result

The new Datasource appears in the list.

2.3 Mapping a Variable to a Datapoint

Before you map a Variable to a Datapoint

- Make sure you have access to MindSphere with administrator rights.
- Make sure your store IQ account is linked to MindSphere.
- Add at least one asset as described in Adding an asset in Mindsphere (Page 7).
- Add at least one datasource as described in Adding a new Datasource (Page 8)

Procedure in MindSphere

- 1. Open the "Asset Manager".
- 2. Select an asset containing a MindConnect plugin.
- 3. Open the MindConnect plugin.
- 4. Click on "View Datamappings".
- 5. Click on "Link Variable".
- 6. Select the asset you want to map.
- 7. Click "Accept".
- 8. Select a Variable to link to the Datapoint.

Note

Map to ...RawDataAspect

Do not map to "...NormalizedProcessValues" (needed for conversions). Map to "... RawDataAspect" instead.

9. Click "Accept"

2.3 Mapping a Variable to a Datapoint

Result

The path of the linked Variable for the Datapoint appears in the column "Mapping". SITRANS store IQ will now process the incoming values for the mapped asset.

Configuration

3.1 Changing the location of an asset

Before you change the location

- Make sure you have access to store IQ
- Make sure at least one asset was added in MindSphere

- 1. Select an asset.
- 2. Click on the settings icon.
- 3. Click on "Location Settings".

SIEMENS SITRANS Store IQ) Monitoring			Events	
All 5 ① Critical 4	▲ Major 0 ▲ Minor 1	 Store IQ Demo Mobile Hy Asset Details 	rdroRanger200		Location Settings Material Settings
Asset Name Store IQ Demo Factory Use Case Farming Use Case	Grouped by Site Status	Active Events Process Values distance	levelpercentage	volume	Storage Settings Device Settings
Mobile HydroRanger200 Scale		0.70 m	53.3 %	0.80 m3	
		Updated on :2/27/20, 3:38 PM	Updated on :2/27/20, 3:38 PM	Updated on :2/27/20, 3:38 PM	

Figure 3-1 Open Location Settings

3.2 Changing the material of an asset

- Location Settings Select location on map: Karte Satellit Google Lititude: 34,12098246223292 Longitude: -84,23530508530274
- 4. Change the location by entering the Latitude and Longitude values or by clicking on the map.

Figure 3-2 Location Settings

5. Click the "Save" button.

3.2 Changing the material of an asset

Before you change the material

- Make sure you have access to store IQ
- Make sure at least one asset was added in MindSphere
- Make sure your required materials were created by Siemens store IQ team

- 1. Select an asset.
- 2. Click on the settings icon.

3. Click on "Material Settings".

SIEMENS STITRANS Store IQ	Monitoring		_	Events	2
All 15 ① Critical 14		🔋 Store IQ Demo Mobile Hy	rdroRanger200		Location Settings
	Grouped by Site 👻	 Asset Details Active Events 		•	Material Settings
Asset Name Store IQ Demo	Status	Process Values		3	Storage Settings Device Settings
Factory Use Case	0	distance :	levelpercentage :	volume	
Farming Use Case Mobile	 ① ⊘ 	0.70 m	53.3 %	0.80 m3	
HydroRanger200 Scale	© ©	Updated on :2/27/20, 3:38 PM	Updated on :2/27/20, 3:38 PM	Updated on :2/27/20, 3:38 PM	

Figure 3-3 Open Material Settings

4. Select a material from the drop down menu. Enter the material density and weight per packaged item.

Additional material types can be added during onboarding process or on request.

Enter Material Settings	×
Material Details	
Material Name	
Water	•
Material Density 1000 kg/m ³	Weight (per item)
	Cancel Save

Figure 3-4 Material Settings

5. Click the "Save" button.

3.3 Changing the shape and dimensions of an asset

3.3 Changing the shape and dimensions of an asset

Before you change the shape or dimensions

- Make sure you have access to store IQ
- Make sure at least one asset was added in MindSphere

- 1. Select an asset.
- 2. Click on the settings icon.
- 3. Click on "Storage Settings".

SIEMENS SITRANS Store IQ					
=	Monitoring			Events	2
All 5 ① Critical 4 Major 0 Minor	1	후 Store IQ Demo Mobile Hy	rdroRanger200		Location Settings
Q Name	Grouped by Site 🗸	Asset Details			Material Settings
Asset Name	Status	 Active Events 			Storage Settings
 Store IQ Demo 	0	 Process Values 			3 Device Settings
Factory Use Case	\oslash	distance	levelpercentage	volume	
Farming Use Case	0		•		
▲ Mobile	\oslash	0.70 m	53.3 %	0.80 m3	
HydroRanger200	\oslash		55.5 %		
Scale	Ø	Updated on 2027/20, 3-38 PM	Updated on :2127720, 3:38 PM	Updated on :2/27/20.3;	38 PM

Figure 3-5 Open Storage Settings

3.3 Changing the shape and dimensions of an asset

Enter Storage Settings	×
Storage Details	
Туре	Tag
Tank 👻	HR200
• Shape	
Shape Flat Level Bottom	
Lower Calibration Point (A)	Upper Calibration Point (B)
1,5 m	0 m
Maximum Volume	
1500	
	Cancel Save

4. Select the type of the asset and enter a Tag name. Select the shape of the tank, silo or bin.

Figure 3-6 Storage Settings

5. Enter all requested dimensions. All other data will be calculated automatically.

Note

Level instead of distance

If your measurement device is configured to measure level instead of distance, the values for lower and upper calibration points need to be switched.

6. Click the "Save" button.

3.4 Changing the units of an asset

3.4 Changing the units of an asset

Before you change the unit

- Make sure you have access to store IQ
- Make sure at least one asset was added in MindSphere

- 1. Select an asset.
- 2. Click on the settings icon.
- 3. Click on "Device Settings".

SIEMENS SITRANS Store IQ					
	Monitoring			Events	2
all 5 🕕 Critical 4 🛕	🖌 Major 0 🛛 🛆 Minor 1	후 Store IQ Demo Mobile Hy	droRanger200		₩ 2
Q Name	Grouped by Site 🗸	 Asset Details 			Location Settings Material Settings
Asset Name	Status	Active Events			Storage Settings
 Store IQ Demo 	0	 Process Values 			Device Settings
Factory Use Case	\otimes	distance	levelpercentage	volume 3	
Farming Use Case	0		•	(
▲ Mobile	\oslash	0.70 m	53.3 %	0.80 m3	
HydroRanger200	0		53.3 %		
Scale					
(Updated on :2/27/20, 3:38 PM	Updated on :2/27/20, 3:38 PM	Updoted on :2/27/20, 3:38 PM	

Figure 3-7 Open Device Settings

4. Select the same units as configured in your measurement device. Only the available units are valid. If your field device uses a different unit, you need to change the settings in the field device.

Enter Device S	Settings		×
Unit Details			
Weight	Volume	Distance	
lb 👻	m3 •	ft 👻	
		Cancel Sa	ve

Figure 3-8 Device Settings

5. Click the "Save" button.

3.5 Creating an alarm for a measurement value

Before you create an alarm

- Make sure you have access to store IQ
- Make sure at least one asset was added in MindSphere
- Make sure the required users were set up by Siemens store IQ team

- 1. Select an asset.
- 2. Click on the 3 dots at the top right of a measured value.

3. Click on "Create Alarm".

SIEMENS SITRANS Store IQ					
=	Monitoring			Events	
📕 All 5 🕕 Critical 4 🔥 Major 0	\Lambda Minor 1	র্ন Store IQ Demo Mobile Hy	vdroRanger200		¢
Q Name	Grouped by Site 🗸	 Asset Details Active Events 			
Asset Name	Status	 Process Values 			
 Store IQ Demo 	0			volume	
Factory Use Case	\otimes	distance	levelpercentage	volume	
 Farming Use Case 	()		Create Alarm		
▲ Mobile	\odot	0.27 m	3	1.23 m3	
HydroRanger200	\otimes		7 🏊 🌾 👘		
Scale	Ø	Updated on :3/9/20, 3/28 PM	Updated en :3/3/20, 3/28 FM	Updated on :3/3/20, 3:38 PA	

Figure 3-9 Open Create Alarm dialog

4. Enter a name. Select an asset, priority, process value and operator. Enter the required values for the selected operator.

Add Alarm Configuration				×
0				O
Step 1: Alarm Details			Step 2: Notif	ication Details
Name*				
Please enter				
Asset*				
Store IQ Demo HydroRanger	200			•
Priority*				
Critical	•			
Process Value*				
TankNormalizedProcessValues	distance			-
Operator*	Value 1*		Value 2*	
Greater Than 🔹		m		m
Description				
Please enter				
				1
			Reset	Next

Figure 3-10 Alarm details

- 5. Click the "Next" button.
- 6. Click on the "Responsibles" drop down.

7. On new alarms each Configured User can be notified per SMS or Email. To enable notifications check the corresponding checkbox.

Add Alarm Configuration		×
⊘		
Step 1: Alarm Details		Step 2: Notification Details
Responsibles		
Please select		•
Configured Users	SMS	Email
StorelQ Demo		
storeiq testautomation		
smrt customer		



- Figure 3-11 Notification details
- 8. Click the "Add" button.

Result

- All active alarms will be displayed in the event view.
- Configured users will receive notifications for new active alarms.

Monitoring				Events		
Z All 15 (i) Critical 14 A Major 10 A Minor 1						
Date	Name	Asset	Process Value	Severity		
27.2.2020 17:09:24	Marketing Demo - Value greater than 75%	Store IQ Demo Farming Use Case Georgia,	levelpercentage	critical	02/07	
20.2.2020 20:55:02	Offline	Store IQ Demo Farming Use Case Georgia,	AssetOffline	critical	Asset identified to be offline	
20.2.2020 15:47:16	Offline	Store IQ Demo Farming Use Case Georgia,	AssetOffline	critical	Asset identified to be offline	
8.2.2020 05:45:30	Offline	Store IQ Demo Farming Use Case Georgia,	AssetOffline	critical	Asset identified to be offline	
15.1.2020 19:44:04	Water Tank Filling	Store IQ Demo Farming Use Case Georgia,	Flow		Water tank is currently being filled	

