Factbird Data Capture Options

IoT device and PLC integration with OPC

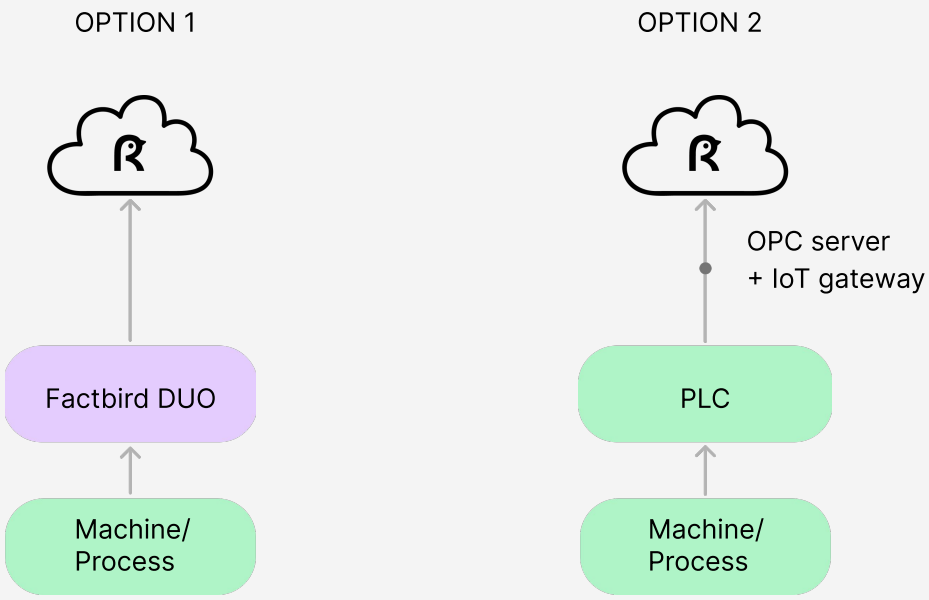
Overview

This document outlines the data capture methods for implementing Factbird across manufacturing equipment, machinery, and processes.

- Factbird provides a data capture and analytics tool designed to help manufacturers track, compile, and analyze various types of data: production performance, OEE, machine condition, process parameters, energy consumption, etc.
- Factbird uses several avenues to capture data, ranging from non-invasive, plug-and-play IoT boxes to direct machine PLC integration.
- The method chosen will reflect the needs of the site, considering infrastructure and other variables such as implementation time and cost.

How to capture data from your production

1. Factbird IoT device: Factbird DUO
2. Direct machine PLC integration (OPC server + IoT gateway)



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OPTION

1

Factbird IoT Device: Factbird DUO

Factbird's in-house developed IoT device, Factbird DUO, is a non-invasive, plug-and-play solution for tracking production data.

Factbird DUO is powered by 24V, comes with a 100-240VAC power supply, and has two ports available to connect peripherals (sensors, isolator cables, etc.) to track data from the production. Multiple sensors can be connected to a single Factbird DUO.

- **Connectivity**: Factbird DUO can communicate with the cloud using a cellular network (4G LTE, 3G, 2G) as well as Wi-Fi.
- **Input**: Various industry-standard peripherals can be connected, including:
  - Digital part counting sensors (e.g., OMRON E3AS sensor, inductive sensors)
  - Factbird PLC cable (isolator cables) to read digital pulses or run state.
  - Analog sensors (temperature, current, humidity, vibration, etc.)
- **Installation time:** Once a power source is available and the sensor placement or signals (e.g., cycle counting or run state) are identified, installation can be carried out within minutes.

Suitable case

A site would choose this method if it seeks a rapid implementation that does not require IT or automation resources. The devices are non-invasive and can quickly be installed by an electrician. If a site has machines that are not connected to the local company network and/or do not have data tag identification, this IoT device solution would be ideal.

Pros	Quick installation, non-invasive, no need for IT involvement
Cons	Hardware costs incurred, less flexibility in data handling (e.g., auto-registering stop codes is not possible)

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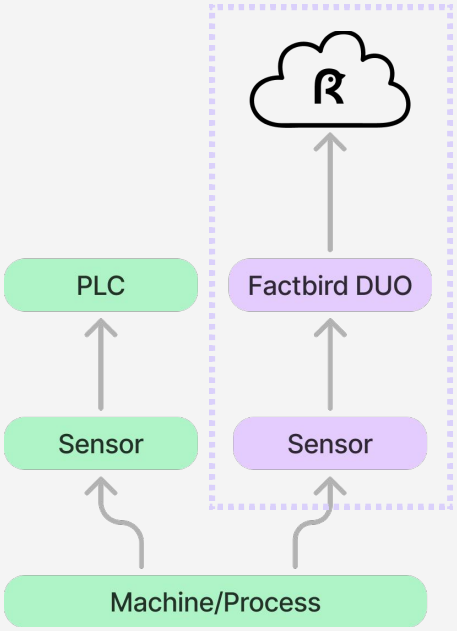
Connection examples

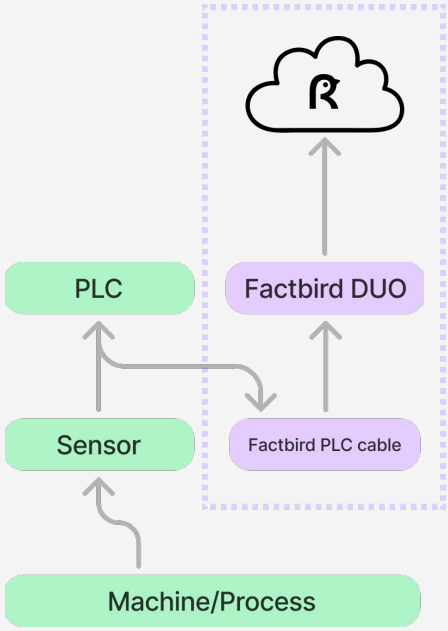
1a. Factbird DUO with a sensor

Add an additional sensor and a Factbird DUO to the existing process to capture data.



1b. Factbird DUO with PLC cable

Use the Factbird PLC cable to capture an existing signal and connect it to Factbird DUO.



Reference materials are available on Factbird website:

- Factbird DUO Data Sheet
- Factbird DUO Installation Guide
- Factbird PLC cable Data Sheet

OPTION
2

Direct Machine PLC integration (OPC server + IoT gateway)

If a machine has a PLC with various data tags, an OPC server in conjunction with an IoT gateway can be used to facilitate the data transfer of these tags from the machine PLC to the Factbird cloud.

Infrastructure required:

1. Machines must have a PLC with the various data tags available.
2. Machines must be connected to the local company network.
3. All tag names should be known and accessible.
4. The site must have a VM server to run the OPC server and IoT gateway.*
5. The connection between the MQTT client (IoT gateway) and the broker (Factbird cloud) must be established.
6. Tags must be input into the server.

*If a PLC has a built-in MQTT client with TSL ver. 1.2 or higher, it can connect directly to the Factbird cloud.

Suitable case
A site would choose this method if they have machines that are connected to the local company network and have a list of identified tags.

This method provides a high degree of flexibility and allows for detailed monitoring of various data, including machine performance, downtime, process parameters, and auto-registering stop codes.

Pros	High degree of flexibility to pull several tags into the Factbird cloud, low cost for pulling PLC tags, and the ability to auto-register machine stop codes.
Cons	Physical infrastructure required to implement this solution and IT services needed.

OPC server + IoT gateway options - examples
Please note that available options may vary by region or country.

2a. Ignition OPC + DatahHub IoT Gateway

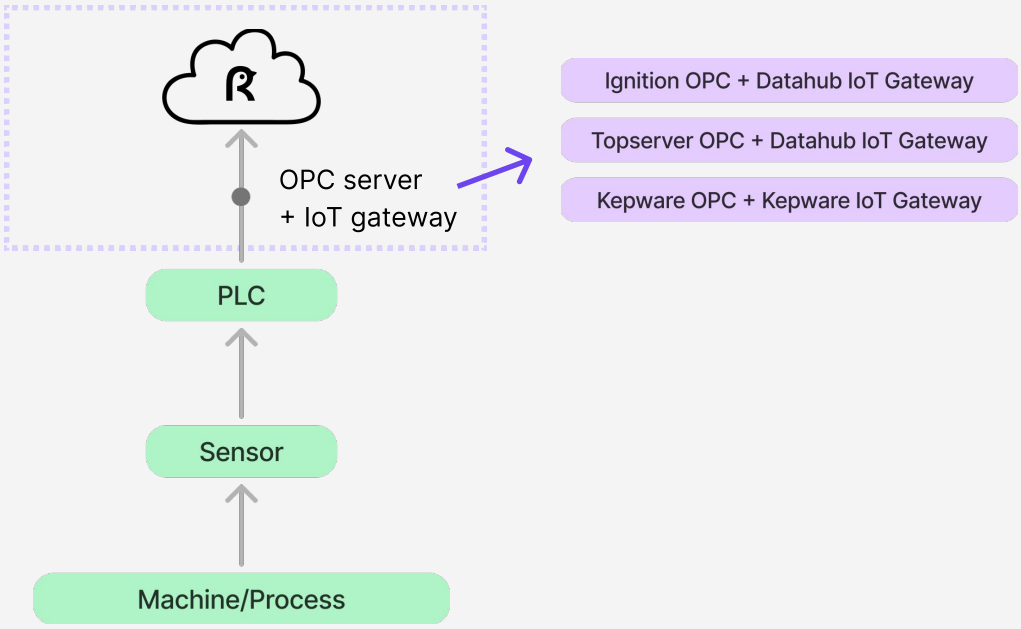
It is suitable if the site is already using Ignition OPC. They can add the Datahub IoT Gateway to facilitate data transfer from machine PLCs to the Factbird cloud.
DataHub IoT Gateway Download

2b. Topserver Solution – Topserver OPC + DataHub IoT Gateway

It is suitable if there is no existing system in place.
Topserver OPC Download

2c. Kepware Solution - Kepware OPC + Kepware IoT Gateway

It is suitable if Kepware is already in use. The Kepware IoT Gateway can be installed to facilitate data transfer from machine PLCs to the Factbird cloud.
Kepware connecting Factbird
User Guide - Kepware connection to Factbird



Reference materials:
Factbird Integrated Data Collection
User Guide - Collecting PLC data using OPC servers

Summary

	Factbird IoT Device Solution	Direct Machine PLC Integration Solution
Suitable case	Machines not connected to the company network and/or lack data tag identification.	Machines connected to the local company network and data tags identified.
Implementation	Fast, plug and play, non-invasive	Infrastructure required. IT service required.
Hardware cost	Factbird IoT devices and sensors, cables	No hardware cost
Scallability	Adding hardware every time	Adding tags can be easily done in the software
Supporting vendors	Only Factbird	2-3 vendors involved. e.g. Factbird and Software toolbox
Auto-registering stop codes	Not available	Available