

Battery Replacement Report

Upcoming Replacements

Component: Fanuc NCU (A02B-0319-B802) on Studer S33 (486) in Molds

Battery: Fanuc (A02B-0200-K102) for Fanuc NCU (A02B-0319-B802) on Studer S33 (486) in Molds

Machine: Studer S33 (486) in Molds | Building: Molds

Last replaced: 2025-04-30

Due on: 2025-05-30

See Procedure: procedure_documents/OilFilterMonitorV1.pdf

Component: Fanuc NCU (A02B-0319-B802) on Studer S33 (485) in FOF

Battery: Fanuc (A02B-0200-K102) for Fanuc NCU (A02B-0319-B802) on Studer S33 (485) in FOF

Machine: Studer S33 (485) in FOF | Building: FOF

Last replaced: 2025-05-11

Due on: 2025-06-10

See Procedure: procedure_documents/BFC_Server_Requirements_A4tHXXp.pdf

Overdue Replacements

No overdue replacements.

Replacement Procedures

Procedure: procedure_documents/OilFilterMonitorV1.pdf

File: procedure_documents/OilFilterMonitorV1.pdf

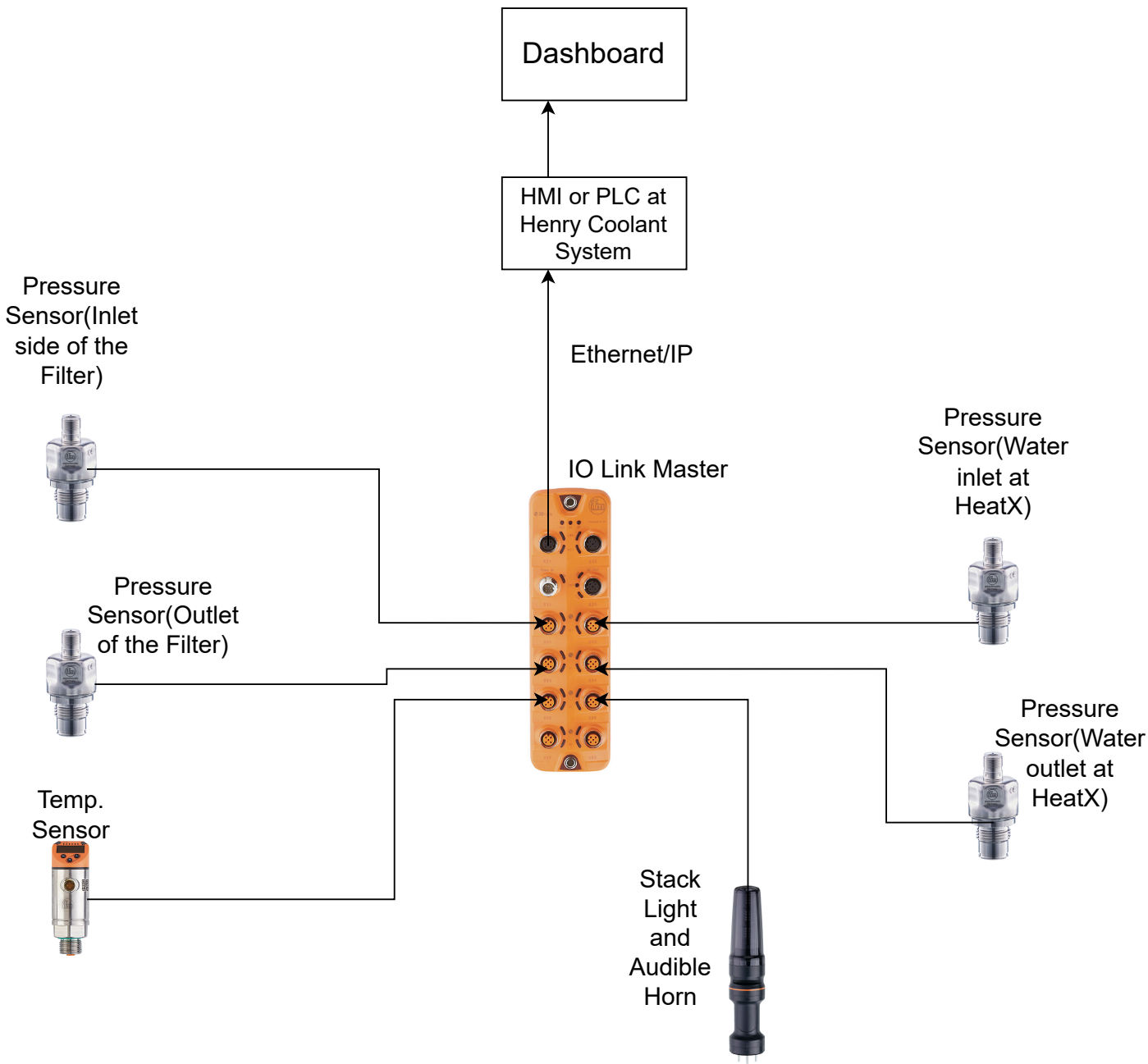
Download: http://localhost:8000/media/procedure_documents/OilFilterMonitorV1.pdf

Procedure: procedure_documents/BFC_Server_Requirements_A4tHXXp.pdf

File: procedure_documents/BFC_Server_Requirements_A4tHXXp.pdf

Download: http://localhost:8000/media/procedure_documents/BFC_Server_Requirements_A4tHXXp.pdf

Monitoring of Oil Filtration System



2 Service elements

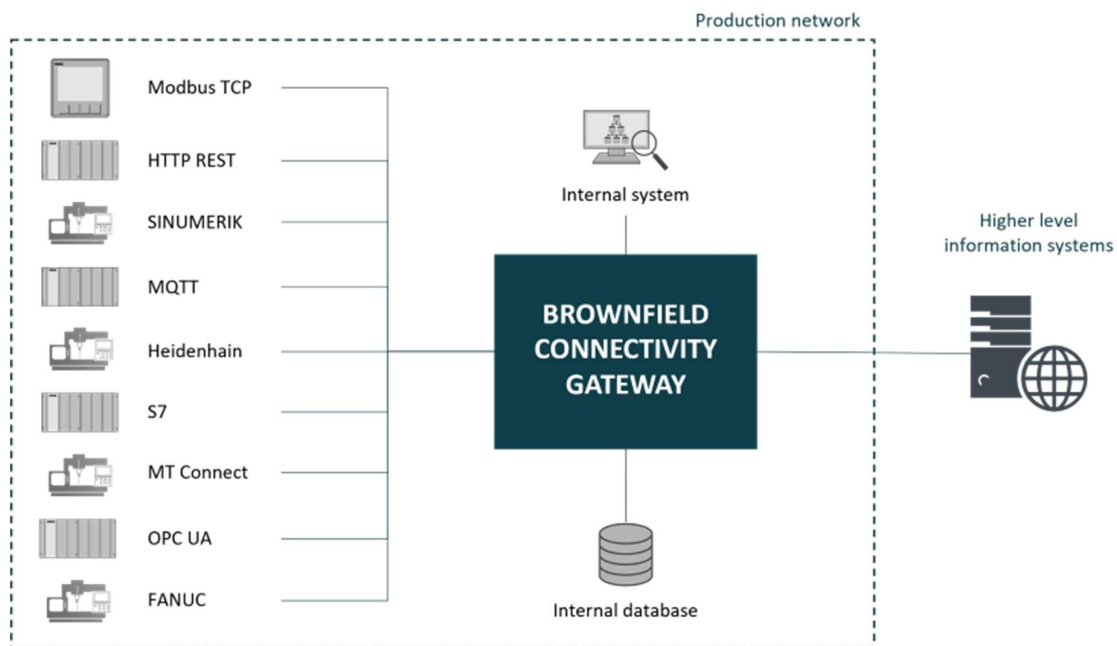
2.1 Brownfield Connectivity Gateway - Installation

This offer includes the implementation of the Brownfield Connectivity Gateway. This aims to obtain data from the production network and then forwarding this data to other information systems.

Brownfield Connectivity (BFC) refers to software designed to establish a seamless connection between a diverse production network and higher-level information systems. Operating within the existing software and architectural framework of a brownfield situation, BFC seamlessly integrates itself.

Through a centralized BFC Gateway, users can establish connections between automation systems, third-party controls, SINUMERIK control systems, and higher-level systems. The system offers a wide array of functionalities, including variable reading and writing, preprocessing of acquired data, file transfers from IT to OT, and trigger-based data reading from a central connectivity management system.

The "BFC Gateway" software serves as the cornerstone of this solution, installed on a virtual or physical system situated between networked machines and the office network. This software facilitates the connection between the various machines within the factory and a higher-level IT system. The BFC driver, an integral component of the BFC gateway, enables connectivity to devices within the machinery of a factory. In cases where devices do not support encrypted communication, an encrypted configuration can be customized on a project-by-project basis between the device and the BFC Gateway.



License model

Here you can find an overview of the different licenses.

		BFC Premium Plus
		<ul style="list-style-type: none"> BFC Client for SINUMERIK
		<ul style="list-style-type: none"> FANUC Client (FOCAS 1 & FOCAS 2) Beckhoff Client Heidenhain Client MTConnect Client SLMP Client SFTP Client
BFC Essential	BFC Premium	
<ul style="list-style-type: none"> Modbus Client S7 Client OPC UA Client HTTP Client HTTP REST Client MQTT Client Omron Client Ethernet IP Client HTTP Script Client Custom Client Internal Client 	<ul style="list-style-type: none"> FANUC Client (FOCAS 1 & FOCAS 2) Beckhoff Client Heidenhain Client MTConnect Client SLMP SFTP 	
	<ul style="list-style-type: none"> Modbus Client S7 Client OPC UA Client HTTP Client HTTP REST Client MQTT Client Omron Client Ethernet IP Client HTTP Script Client Custom Client Internal Client 	<ul style="list-style-type: none"> Modbus Client S7 Client OPC UA Client HTTP Client HTTP REST Client MQTT Client Omron Client Ethernet IP Client HTTP Script Client Custom Client Internal Client

Server requirements

The BFC server software is installed on a server owned by the customer. This can be directly on the server or on a virtual machine. Some specification of the server:

- If it is a virtual server, the only VM that is allowed is VMware.
- The server setup is the responsibility of the customer.
- Remote access needs to be provided to Siemens during the project.
- Internet connection is required during installation of the server to install Docker and the docker files from the Siemens repository. Afterwards the internet connection can be removed before connection to the clients.

Specifications of the hardware/virtual server:

- Processor type i7
- 16gb ram for 0-10 machines - 32gb ram for 10-60 machines
- 480gb installation space
- 6 CPU kernels & 6 CPU threads
- Free network interfaces
- X gb storage for data (10gb / machine /year is general rule for data collection of CNC machines)

The following CPU architectures are supported:

- AMDx64

The following non-commercial Linux distributions are supported:

- Debian 12.1 / 11.7 / 10
- CentOS 7

The following commercial Linux distributions are supported:

- Industrial OS 3.2.4
- RHEL 9.1

The following software needs to be setup by the customer:

- The operating system
- Docker
- VM workstation Player (optional if the host OS is not Debian)

Installation

This encompasses both the preparation and configuration of the BFC. Remote preparation of the BFC occurs at the Siemens office before on-site work commences. During this phase, all necessary software is installed and configured, and templates with standard monitoring parameters are loaded into the BFC beforehand. A remote connection, facilitated by the customer, is a prerequisite for this process.

Upon on-site engagement, a Siemens engineer collaborates with the customer to set up each client. Before and after software installation on each Sinumerik machine, a backup is performed. Approximately 3 hours of production downtime is necessary for the installation of each Sinumerik machine.

The physical connection of all machines and the BFC to the customer's network is not covered in the offer. Additionally, network cables are not provided, but Siemens can offer this service if required. It is the customer's responsibility to ensure that the machines are correctly networked and connected with the appropriate ports before Siemens initiates the process. Siemens bears *no responsibility for networking the machines*.

For older systems or non-standard CNC machines, there is an optional hardware preparation fee required to establish connections. This fee is applicable, for instance, to the 840C controller, classified as an 'older' system.

Research of the data

The customer is required to provide a pre-existing description specifying the data and its corresponding addresses for all machines. In the absence of such information, Siemens will charge a "project support" day rate for variable research to gather the necessary details.

Project specific configuration of the northbound connection

Data can be transmitted to a higher-level IT system as specified by the customer. The variables to be collected must be accessible on the machine. Siemens holds no responsibility for the maintenance of the database, unless explicitly included in a separate contract.

IT Requirements

To facilitate communication between the client and the BFC, it is necessary to open the specified port.

Incoming communication:

Port	Type	Protocol	Use	Coded	Description
22	TCP	SSH	Commissioning/updates	Yes	SSH access for commissioning and system updates
1883	TCP	MQTT	Commissioning	No	Standard MQTT port for the commissioning of BFC clients
4840	TCP	OPC UA	Data forwarding	Yes	Standard OPC UA server port Is used to present collected data
8883	TCP	MQTT	Data acquisition	Yes	Standard MQTTS port for data acquisition from BFC clients
9877	TCP	HTTPS	Configuration & HTTP REST Client & WebDAV	Yes	HTTPS WebUI to configure the BFC Gateway and file functions via WebDAV

For Sinumerik:

- 1883 non encrypted: required only for commissioning (can be closed afterwards).
- 8883 encrypted: port used for normal and safe communication between the Sinumerik and the BFC.

Outgoing communication:

Port	Type	Protocol	Use	Coded	Description
80	TCP	HTTP	Data acquisition	No	Standard HTTP port for connection to MTConnect agents or HTTP-REST client
102	TCP	S7 comm	Data acquisition	No	Standard port ISO over TCP to SIMATIC control systems
443	TCP	HTTPS	Data acquisition	Yes	Standard HTTPS port for connection to MTConnect agents
500	TCP	TwinCAT	Data acquisition	No	Standard Beckhoff port for NC data
502	TCP	Modbus	Data acquisition	No	Standard Modbus port for connection to Modbus TCP devices
801	TCP	TwinCAT	Data acquisition	No	Standard Beckhoff port for PLC runtime system 1
811	TCP	TwinCAT	Data acquisition	No	Standard Beckhoff port for PLC runtime system 2
821	TCP	TwinCAT	Data acquisition	No	Standard Beckhoff port for PLC runtime system 3
831	TCP	TwinCAT	Data acquisition	No	Standard Beckhoff port for PLC runtime system 4
4840	TCP	OPC UA	Data acquisition	Yes/No	Standard OPC UA port for connection to OPC UA devices
8192	TCP	FOCAS	Data acquisition	No	Standard FOCAS port for connection to FANUC controllers
19000	TCP	LSV2	Data acquisition	No	Standard LSV2 communication port for connection to Heidenhain controls
44818	TCP	Ethernet Industrial Protocol	Data acquisition	No	Standard EIP communication port
Any	TCPIUDP	SLMP/IMC	Data acquisition	No	The SLMP/IMC protocol for Mitsubishi Electric PLC has no defined standard port

Prior to commencing the configuration process, it is imperative to ensure the machine's accessibility by conducting a successful ping test.

The configuration of the BFC is accomplished through a web interface. Access to this web interface is facilitated through the specified port:

- 9876 for HTTP.
- 9877 for HTTPS.

A VPN access needs to be provided by the customer so Siemens can access the BFC during the project.