ABB MEASUREMENT & ANALYTICS | INSTRUCTION | INS/FLOW/005-EN REV. A

ProcessMaster FEP630, HygienicMaster FEH630

Electromagnetic Flowmeter

EtherNet/IP
Rockwell System Integration

Measurement made easy

ProcessMaster FEP630
HygienicMaster FEH630

Introduction

ProcessMaster FEP630 and HygienicMaster FEH630 have the EtherNet/IP ProductCode “5002”.

- EDS file: FEW530_FEPFEH630_01_01.eds
- Profile 0x43, Generic Device (keyable)

Supported standards and protocols:
- Common Industrial Protocol (CIP™) Vol1, Ed 3.25
- EtherNet/IP Adaptation of CIP™, Vol2, Ed 1.23

For more information

Additional documentation on ProcessMaster FEP630, HygienicMaster FEH630 is available for download free of charge at www.abb.com/flow.
Alternatively, scan this code:

1 EDS file handling

Follow these Instructions to integrate ProcessMaster FEP630 and HygienicMaster FEH630 into the Allen-Bradley® Studio 5000® System.

Create a project

1 Start Studio 5000 from the Windows® Start menu.

2 Create a new project, select your controller type and enter the project name.

For more information regarding creating a project, refer to the Studio 5000 documentation.

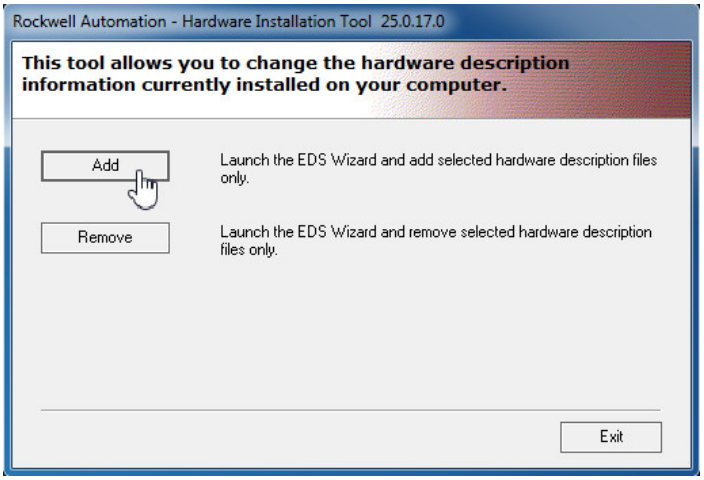
Import EDS File with Hardware Installation Tool

The EtherNet/IP device is described by an Electronic Data Sheet (EDS) file. The EDS file for ProcessMaster FEP630 and HygienicMaster FEH630 is available for download from www.abb.com/flow.

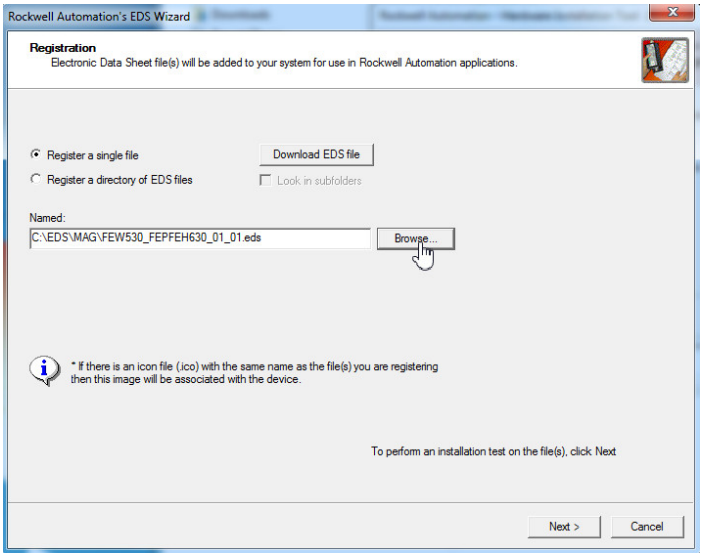
To import the EDS file into Studio 5000, do the steps that follow:

1 Select **Tools** > **EDS Hardware Installation Tool**.

2 Click **Add**.

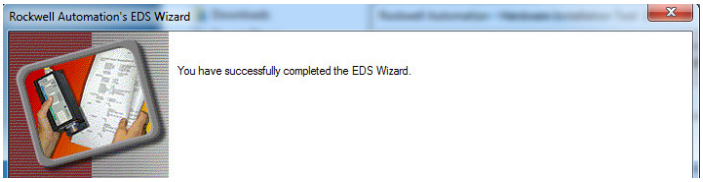


3 Browse for the EDS file and click **Next**.



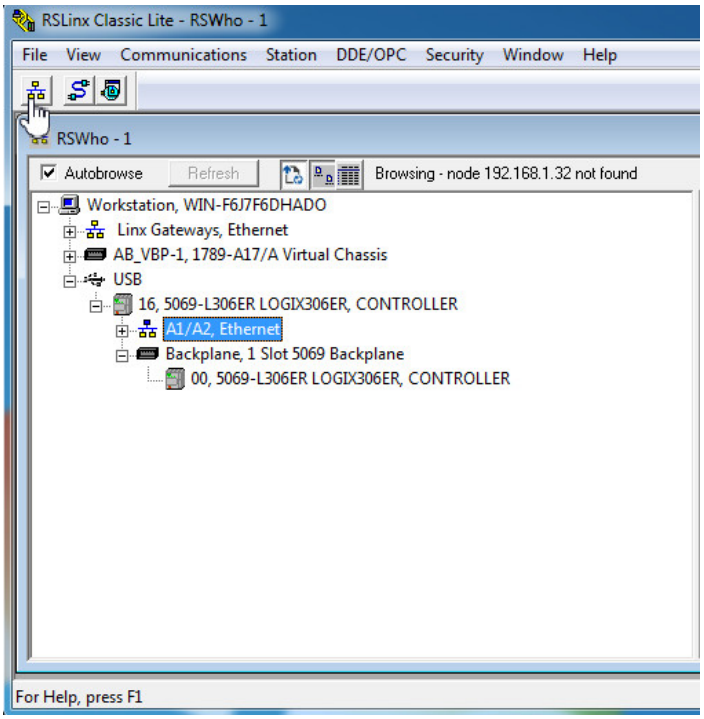
4 Click **Next**.

5 Follow the instructions until the import is complete.



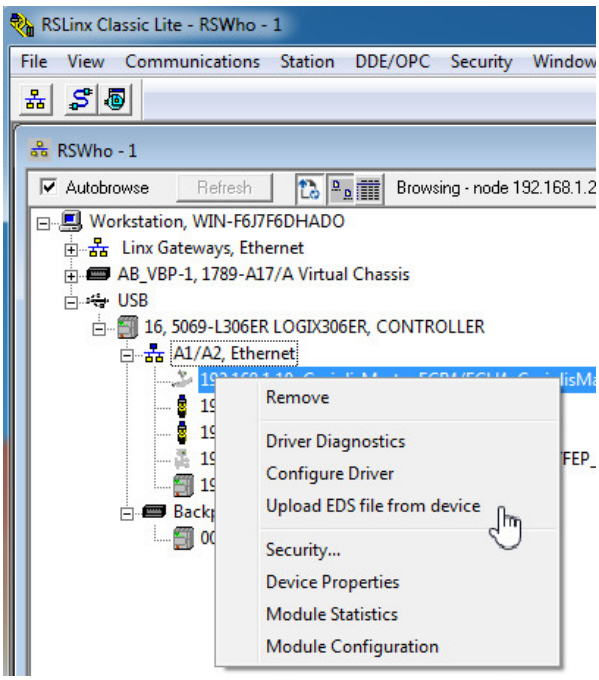
Alternative method: Upload EDS File with RXLinx Classic from the device

1 Navigate to the Ethernet port of the controller that the Flowmeter is connected to.



2 Expand the node and navigate to the IP Address of the flowmeter.

3 Right-click on the flowmeter and select **Upload EDS file from device**.



4 Click **Next**.

5 Follow the instructions until the import is complete.

2 Module configuration

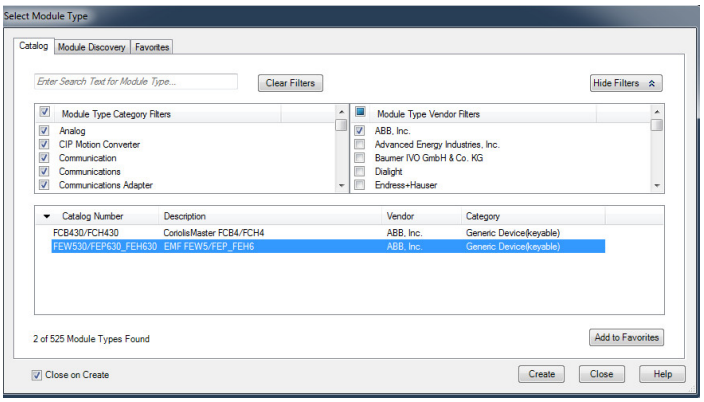
Insert the flowmeter in RSLogix as a **module** under the Ethernet connection of the controller.

Add module

1 Filter for **Module Type Vendor**.

2 select **ABB**.

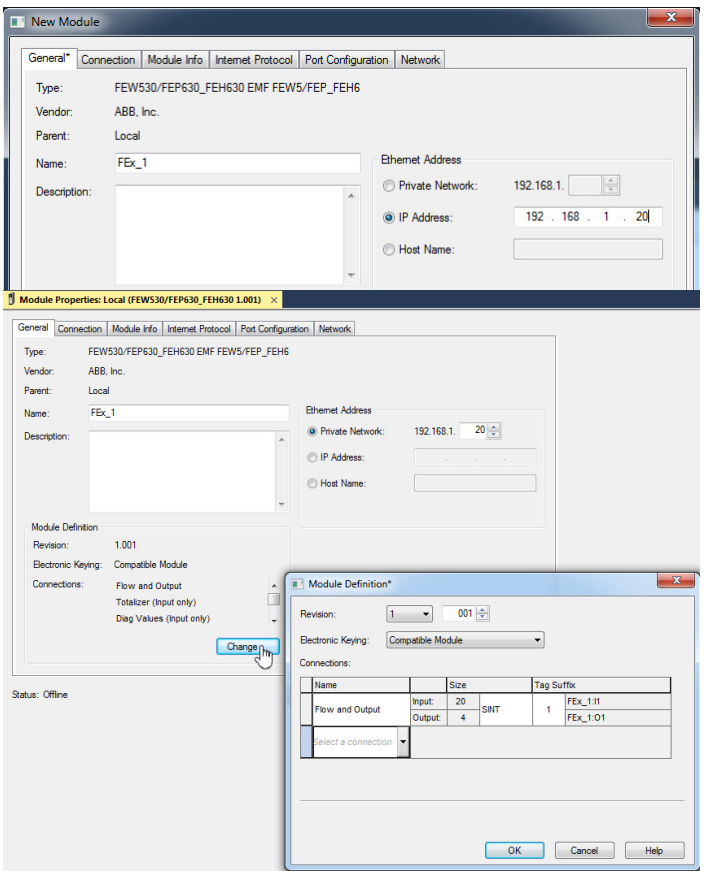
3 Click **FEW530/FEP630_FEH630**.



Configuring connections

1 Click **Create**.

2 Enter the name and IP address of the device.



Note:
Connection 1 with Assembly 100 (Flow and Output) is preset. It contains all the default process values of the device.

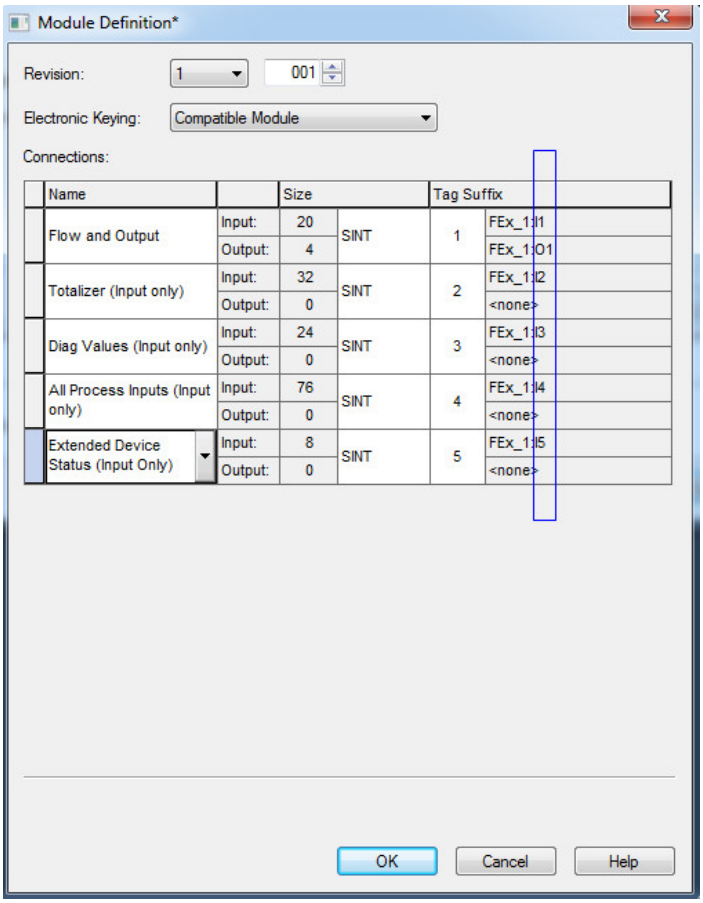
4 Choose the connection/assembly in the **Name** column, which will define the composition of the process data.

The Tag suffix is the identifier or reference for the related assembly (device data) for RSLogix.

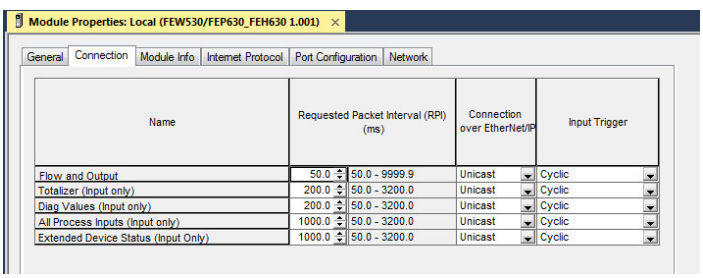
For an overview of assemblies available and details of the connections and data structures, refer to “Interface Description - ProcessMaster FEP630, HygienicMaster FEH630, Modbus Protocol” COM/FEP630/FEH630/MB-EN.

The image below shows all the available connections. The **Tag Suffix** is defined by RS Logix.

Use the Tag **FEx_1** and the suffix (for example, **:I1**) to identify the related connection throughout RSLogix.



To see the cycle-time-configuration as **Requested Packet Interval (RPI)** in milliseconds, navigate to the **Connection** tab.



3 AddOn instructions for FEx630

For a more convenient raw data conversion into structured data types, download the **AddOnInstructions** file (AOI file) from www.abb.com/flow. The AOIs that follow are available:

- FEx_Rung_For_Assembly_All_Process_Input_v0_2.L5X
- FEx_Rung_For_Assembly_DiagValues_v0_2.L5X
- FEx_Rung_For_Assembly_Extended_Device_Status_v0_2.L5X
- FEx_Rung_For_Assembly_Flow_v0_2.L5X
- FEx_Rung_For_Assembly_Output_v0_2.L5X
- FEx_Rung_For_Assembly_Totalizer_v0_2.L5X

If all the connections are configured, you can import an AOI that includes all the individual AOIs:

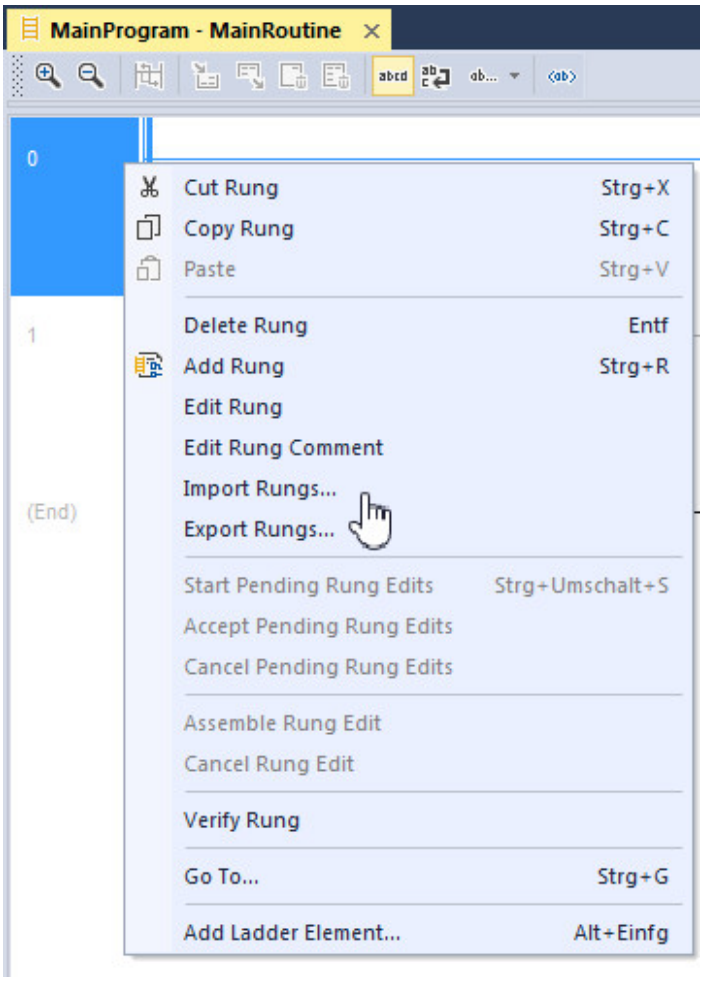
- FEx_Rung_For_ALL_Assembly_v0_2.L5X

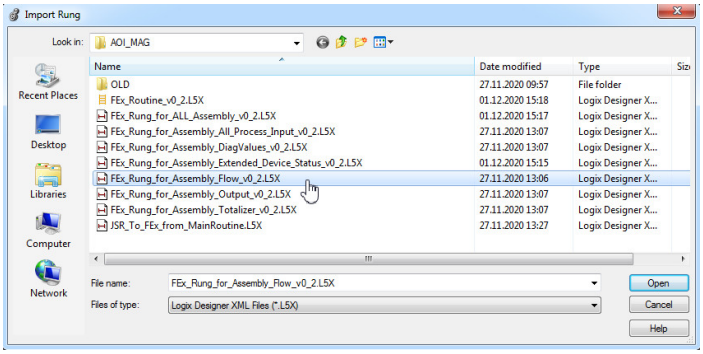
For pre-defined routines for all assemblies, download FEx_Routine_v0_2.L5X.

Import AOI

This example from MainRoutine shows how to import an AOI for the first connection **FEx_1:|1**.

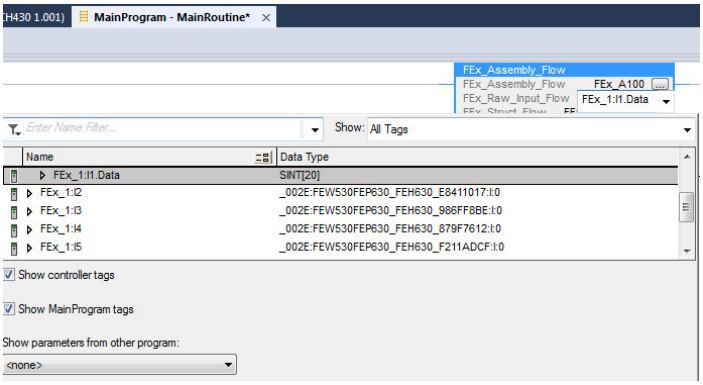
1 Right-click **Import Rungs**.





2 Select the AOI.

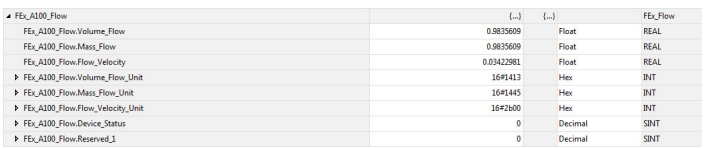
3 In the imported rung, select the correct tag suffix for the connection for **FEx_Raw_Input_Flow**.



Note:
The screenshot shows an example of the Flow connection with the suffix “I1” in “FEx_1:I1 Data” [DeviceName:Suffix Data].

The Tag page for the controller shows a tag “FEx_A100_Flow”. The raw data was copied here by the AOI. The process values are present in structured form.

The figure below shows the Connection/Assembly 100 (Flow):



Device status

After each connection, a manufacturer-specific device status is available.

◢ FEx_A100_Flow	{...}	{...}		FEx_Flow
FEx_A100_Flow.Volume_Flow	0.9835609		Float	REAL
FEx_A100_Flow.Mass_Flow	0.9835609		Float	REAL
FEx_A100_Flow.Flow_Velocity	0.03422981		Float	REAL
▷ FEx_A100_Flow.Volume_Flow_Unit	16#1413		Hex	INT
▷ FEx_A100_Flow.Mass_Flow_Unit	16#1445		Hex	INT
▷ FEx_A100_Flow.Flow_Velocity_Unit	16#2b00		Hex	INT
▷ FEx_A100_Flow.Device_Status	0		Decimal	SINT
▷ FEx_A100_Flow.Reserved_1	0		Decimal	SINT

This byte includes the information that follows:

- 0x00: NO Alarm
- 0x01: Check Function Alarm
- 0x02: Off Specification Alarm
- 0x03: Maintenance Alarm
- 0x04: Failure Alarm

Extended Device Status (alarms)

In case of an Alarm (Device_Status != 0), an extended device status is available in Connection 9 (Assembly 104). These assemblies indicate specific active alarms with a **1**.

◢ FEx_A104_Extended_Device_Status	{...}	{...}		FEx_Extended_Device_Status
▷ FEx_A104_Extended_Device_Status.Device_Status	16#00		Hex	SINT
FEx_A104_Extended_Device_Status.Mass_flowrate_exceeds_limits_0_0	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.Volume_flowrate_exceeds_limits_0_1	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.Simulation_is_on_0_2	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.Flowrate_to_zero_0_3	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.Maintenance_interval_is_reached_0_4	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.All_totalizer_stop_0_5	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.Totalizer_reset_0_6	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.Display_value_is1600h_at_Qmax_0_7	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.Device_not_calibrated_1_0	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.Sensor_memory_defective_1_1	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.NV_data_defect_Data_storage_1_2	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.No_Frontend_Board_detected_1_3	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.FEB_communication_error_1_4	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.Incompatible_Frontend_Board_1_5	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.NV_chips_defect_on_Motherboard_1_6	0		Decimal	BOOL
FEx_A104_Extended_Device_Status.Pulse_output_is_cutted_off_1_7	0		Decimal	BOOL

Units

All units used in a connection are shown with process data.

▷ FEx_A100_Flow.Volume_Flow_Unit	16#1413		Hex	INT
▷ FEx_A100_Flow.Mass_Flow_Unit	16#1445		Hex	INT
▷ FEx_A100_Flow.Flow_Velocity_Unit	16#2b00		Hex	INT

Cyclic output data

The data that follows can be written cyclically to the flowmeter:

- DO_Flow_To_Zero
- DO_System_Zero_Adjust
- DO_Counter_Reset
- DO_Counter_Stop
- DO_Dual_Range_Mass
- DO_Dual_Range_Volume
- DO_Batch_Start_Stop

FEx_A110_Output	{...}	{...}		FEx_Output
FEx_A110_Output.DO_Function_Activation	0		Decimal	BOOL
FEx_A110_Output.Empty1	0		Decimal	BOOL
FEx_A110_Output.Empty2	0		Decimal	BOOL
FEx_A110_Output.Empty3	0		Decimal	BOOL
FEx_A110_Output.Empty4	0		Decimal	BOOL
FEx_A110_Output.Empty5	0		Decimal	BOOL
FEx_A110_Output.Empty6	0		Decimal	BOOL
FEx_A110_Output.Empty7	0		Decimal	BOOL
FEx_A110_Output.Empty8	0		Decimal	SINT
FEx_A110_Output.DO_Flow_To_Zero	0		Decimal	BOOL
FEx_A110_Output.DO_System_Zero_Adjust	0		Decimal	BOOL
FEx_A110_Output.DO_Counter_Reset	0		Decimal	BOOL
FEx_A110_Output.DO_Counter_Stop	0		Decimal	BOOL
FEx_A110_Output.DO_Dual_Range_Mass	0		Decimal	BOOL
FEx_A110_Output.DO_Dual_Range_Volume	0		Decimal	BOOL
FEx_A110_Output.DO_Batch_Start_Stop	0		Decimal	BOOL
FEx_A110_Output.Reserved1	0		Decimal	BOOL
FEx_A110_Output.Empty9	0		Decimal	SINT

For the “DO_*” data to be processed, the control system must set **DO_Function_Activation** to **1**.

ABB Measurement & Analytics

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www.abb.com/contacts

For more product information, visit:
www.abb.com/measurement

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