
Honeywell

PlantScape Controller Implementation

Lesson 4

Configuring Message Blocks

6 - 43

Notes

Introduction

The purpose of this Lesson is to give you the knowledge to be able to configure Message Blocks. Message Blocks give the Hybrid Controller the ability to send messages to Stations. The blocks are capable of sending messages on command from SCMs, as well as for process related reasons from CMs. In this module we will create a new CM to send messages. We will configure the Message Blocks to send messages when Safety Interlocks are triggered. Later we will use this same CM to send messages from SCM commands.

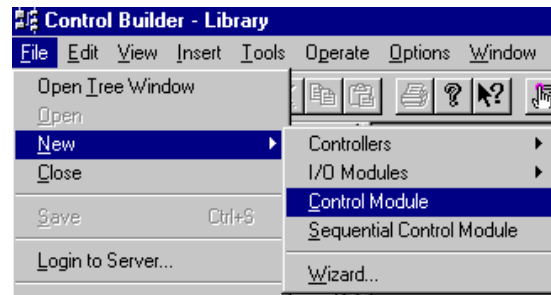
Objectives

- ❶ Create a new CM named CM#_MESSAGES.
- ❷ Add and configure the Message Blocks needed to send messages for the project.
- ❸ Configure Safety Interlock occurrences to send messages to Station.

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Creating and Configuring a New CM

- Click
 - **File**
 - **New**
 - **Control Module**
- Double Click on the newly created CM in the control drawing area of Control Builder
- Enter the following information into the Main page
 - Name **CM#_MESSAGES**
 - Description **Messages for Project**
 - Execution Period **1000MS**
- Click **OK**
- Close **CM#_MESSAGES** and save changes
- Assign **CM#_MESSAGES** to **CEE0101**



6 - 44

Notes

Creating a Message CM

Message Blocks can be added to any CM. We could have added Message Blocks to existing CMs in the project and achieved the same functionality.

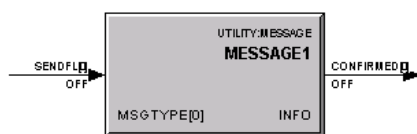
In this module, we are concentrating on Message Block configuration so we created a separate CM which will be used for all messages in the project.

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Adding and Configuring Message Blocks

- Open CM#_MESSAGES
- Click on the **Library** tab and add three of the following Function Blocks
- **Library Directory**

Block Type
– UTILITY
MESSAGE



- Name the three blocks: **XFERA**, **XFERB**, and **REACTOR**. We will add messages to each block that relate to these three parts of the project.
- First we will add Messages to **XFERA**
- Double click on block XFERA to bring up the configuration form shown on the next page.

6 - 45

Notes

Message Blocks

Message Blocks are found in the Utility family of Function Blocks. Each has the ability to store up to 16 messages of up to 60 characters each.

Each message has an index number, ranging from 0 to 15.

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Adding and Configuring Message Blocks ...continued

Message Index Numbers	Message Type	Message Text
0	INFO	
1	INFO	
2	INFO	
3	INFO	
4	INFO	
5	INFO	
6	INFO	
7	INFO	
8	INFO	
9	INFO	
10	INFO	
11	INFO	
12	INFO	
13	INFO	
14	INFO	
15	INFO	

- We will add two messages using indexes 0 and 1.

6 - 46

Notes

Configuring Messages

The Main Page of the Message Block configuration form contains all 16 messages of the block.

To add a message, simply type the message into the appropriate index Message text port.

The Message Type indicates how the message will be used in the control scheme, and how it will appear and be acknowledged in the Station Message Summary page. INFO type messages are for information only. They are removed from the Message Summary upon Acknowledgement.

CONFIRM messages are usually used in SCMs to halt the program until confirmation. We will learn about CONFIRM messages in the SCM portion of the course.

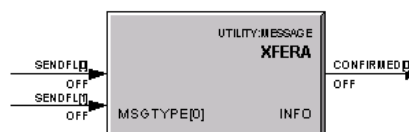
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Adding and Configuring Message Blocks ...continued

- Enter the following message in Index 0 Message Text:
CM#_FV101 SAFETY INTERLOCK --- FULL REACTOR
- Enter the following message in Index 1 Message Text
CM#_FV101RC SAFETY INTERLOCK --- FULL REACTOR
- Accept the Default Message Type: INFO

Next we will configure the method to send the messages to Stations

- Add an input pin for the Send Flag for the Index 1 message. Note that the Flag for Index 0 is the only default input pin.



6 - 47

Notes

Configuring Message Send Flags

When a client triggers a given Send Flag (SENDFLAG[n]) input, the corresponding message (MESSAGE[n]) is sent to the Server's Message Summary. Messages are then viewed by the Stations in the Message Summary and the Event Summary, filtered by any Area restrictions that might apply.

Here we are using the Send Flags for Messages 0 and 1 as input pins. We can then configure Boolean type parameter connections to the inputs to trigger the messages.

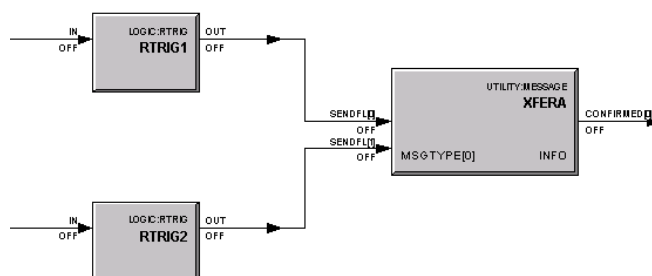
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Adding and Configuring Message Blocks ...continued

- Click on the **Library** tab and add two of the following Function Blocks

<u>Library Directory</u>	<u>Block Type</u>
– LOGIC	RTRIG

- Name the blocks **RTRIG1** and **RTRIG2**
- Wire the blocks to the two inputs of the Message Block



6 - 48

Notes

Configuring Send Flag Inputs

For information only type messages, the client trigger sets the corresponding SENDFLAG[n] to True. Since the SENDFLAG[n] is a pulse trigger, it is automatically set to False for the next execution cycle. This means the MESSAGE block is ready to send the same message again in the next cycle

Here we will be adding parameter connections which will be true as long as the monitored device is in Safety Interlock. If we wire the parameter connections directly to the Send Flag inputs, the messages will be sent each cycle, in our case once every second as long as the connection parameter is true.

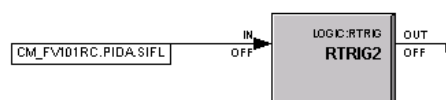
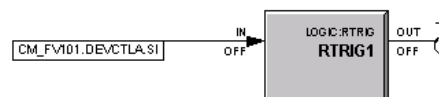
We are therefore using a Rising-Trigger logic block to insure only one message is sent. The RTRIG block provides rising edge change detection, thereby turning the output ON if an OFF-to-ON transition is detected. The output stays ON until the next execution cycle, at which time it returns to OFF.

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Adding and Configuring Message Blocks ...continued

- Add a parameter connection to each RTRIG Block input to monitor occurrences of Transfer A Safety Interlocks:

- **CM#_FV101.DEVCTLA.SI**
- **CM#_FV101RC.PIDA.SIFL**



Repeat this procedure for the other two Message Blocks

- For **XFERB**: Three messages, Index 0 and 1: INFO type messages; Index 2 CONFIRM
 - Index 0: **CM#_FV102 SAFETY INTERLOCK --- FULL REACTOR**
 - Index 1: **TRANSFER B COMPLETE** (*Used in a later lab*)
 - Index 2: **PLEASE CHARGE ING. B, CONFIRM WHEN COMPLETE**
(*Used in a later lab -- CONFIRM type message*)

6 - 49

Notes

Configuring Send Flag Inputs

The SI and SIFL parameters can be used to monitor Safety Interlock status. They go true when a Safety Interlock is triggered.

The RTRIG Block will detect when the SI and SIFL parameters go true and send true outputs to the appropriate Send Flags for one cycle only. The corresponding messages will be sent once to the Server's Message Summary.



Adding and Configuring Message Blocks ...continued

- **XFER_B** continued
 - **RTRIG3** input: **CM#_FV102.DEVCTLA.SI** (Trigger for Message 0)
- For **REACTOR**: One INFO type message
 - Index 0: **CM#_AGIT101 SAFETY INTERLOCK --- EMPTY REACTOR**
 - **RTRIG4** input: **CM#_AGIT101.DEVCTLA.SI**
- Compare your CM to the solution on the next page. If you are satisfied, close and save your CM.
- Assign your CM to **CEE0101**, Load and Activate
- Test the Message functionality by causing your Reactor to reach the PV High-High level, and then draining to the PV Low-Low level
- Acknowledge the resulting messages to clear them from the Station Message Summary

6 - 50

Notes

Information Messages in Station

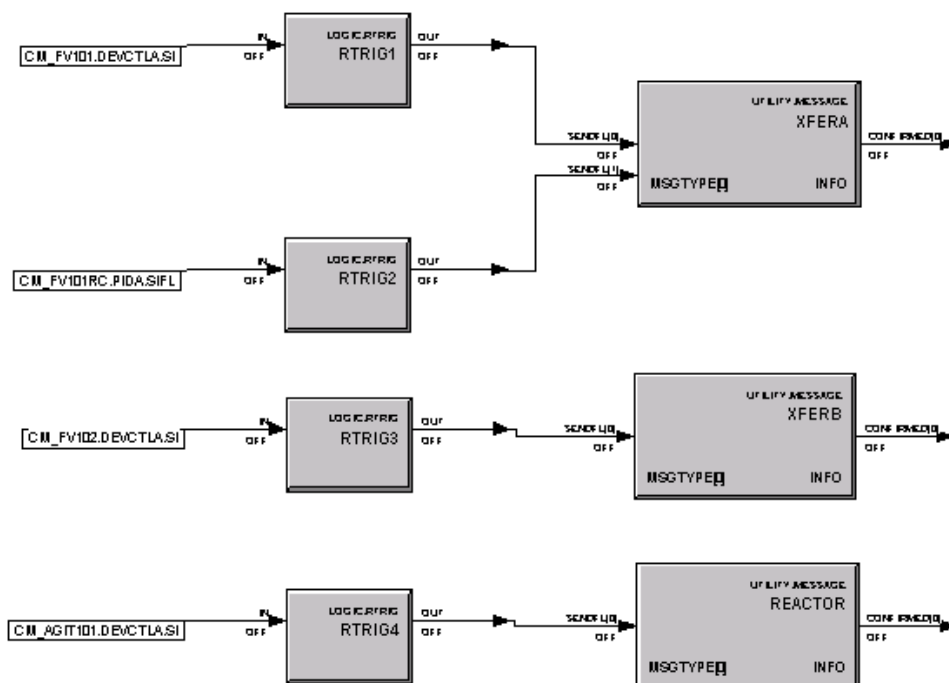
Here we are sending Information type messages when the process encounters Safety Interlocks.

INFO type messages are for information only. They are removed from the Message Summary upon Acknowledgement

The CONFIRM message will be sent in a later lab.

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Adding and Configuring Message Blocks ...continued



6 - 51

Notes

CM#_MESSAGES

Your final CM should be functionally equivalent to the above CM. Each Message Block is used to send messages to the Server Message Summary from different parts of the process.

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This completes....

PlantScape Controller Implementation

Lesson 4

Configuring Message Blocks

6 - 52

Notes
