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Mitsubishi User Manual

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# Configuration



The first time the system is configured it is necessary to enable and configure all devices you require. To configure a particular device select the ***Devices*** option from the main menu followed by the appropriate device.

This will launch an application to configure the device. You will be presented with a set of tabs as shown above.

To configure a channel select a group of channels by clicking on the appropriate channel tab. From the list provided select a channel and double-click. Alternatively you can select a channel and then click on the Configure Channel button. This will launch a channel configuration dialog which enables you to configure individual channels.

# Channel Configuration (Analogs)



## Enable Channel

The Enable Channel check box must be checked to enable, and allow this channel to be configured and ultimately included with all other configured channels in the overall system.

## Tag

The Tag field is a 12 character alphanumeric field that can contain channel information or wiring schedule references.

## Description

The Description field is a 32 character alphanumeric field in which a description of the channel can be detailed.

## Units

A 4 character field available to describe the units of the output.

## Device Specific Button

This application can be use as a generic device configuration program. If the Device Specific Button is visible, then click on it to configure channel features that are specific only to the type of device you are configuring.

## Scaling

NB. Scaling is only available to Analog channels that are not Output channels.

Some transducers give a number of pulses, or a frequency output proportional to their full scale range. To enable the Scaling utility check the Scaling Check box. The Slope and Offset values can be entered directly into the text boxes. The formula applied is:

y = mx + c where: m is SLOPE

 x is the measured value.

 c is the OFFSET

### Auto Scaling

Click On the Auto Scale button if you want the scale and offset values calculated automatically. A dialog box will be displayed. Enter the values in the text boxes. The low measured value, and the high measured value, the output range of the transducer. When the fields have been completed, and assuming the System is enabled click on the Apply button. Under the heading Current Values the actual measured value will be shown, as well as the Engineering Value.

Click on OK to accept the scaling, or Cancel to abort the Auto Scaling feature.

NB. Scaling will not be applied to the channel, even if the system is enabled, until the system is next enabled or the Mitsubishi Device is reconfigured

## Significant Change

To enable the Significant Change feature check the Sig Change check box. This facility allows filtering of data on channels on which significant change is of interest. Such changes can cause an event, which can be logged.

The figure entered in the Value text box, is the rate of change that if the output level exceeds per scan, either increasing or decreasing will cause the significant change event trigger. The scan rate is determined in the Advanced Device configuration

If a logger is configured each time the significant change trigger operates information on the channels defined in the logger will be recorded . A significant change event only lasts one scan, unless the next reading also changes greater than the Significant change value

When monitoring channels, if the Significant Change is triggered, then the fact will be annotated alongside the other channel information in the Channel Monitor. The significant change events are in addition to those caused by an Event.

## Event Checking

Event checking is used, if required to trigger a logger to record information on a number of channels during an event. Check the Event Checking check box if this channel is to trigger an event.

### High Limit

A value, in engineering units, entered in this text box will define the level that, if exceeded, will cause an event trigger.

### Low Limit

A value entered in this text box will define the level that if the channel result falls below will cause an event trigger.

## Alarm Checking

Alarm checking is available on all channels throughout the system. Low Alarm and High Alarm levels can be configured independent of each other. If the channel output exceeds the High Alarm limit then an alarm will be triggered as it will if the output goes below the Low Alarm limit.

When monitoring channels, if the high or low alarm is triggered, then the fact will be annotated alongside the other channel information in the Channel Monitor. To configure the Alarm Checking section of the device complete the options as follows for either or both the High Alarm and Low Alarm checking.

### Enable Alarm Checking

Check either the Low Alarm Checking or High Alarm Checking or both check boxes to enable the facility.

### Drive Common Alarm

A common alarm is a single digital output which will switch on when any channel with the Drive Common Alarm enabled goes into an alarm state. Check this box if a link to the Common Alarm is required.

### Alarm Limit

Specifies the value which will trigger this alarm. for Low Alarm Checking it will be any value <= the Alarm Limit and for High Alarm Checking it will be any value >= the Alarm Limit.

### Warning and Limit (Analogue channel only)

If required, a warning can be displayed when a channel reaches a limit close to the alarm limit. For low alarm checking, the limit must be less than the alarm limit. For high alarm checking, the warning limit must be less than the alarm limit

### Hysteresis

Hysteresis can prevent 'noisy' channels from reporting multiple alarms when the average reading is close to the alarm threshold. Check the box if this feature if needed. Enter the value of the dead band in the corresponding value field.

### Priority

Enter or edit the number in the text box to allocate the priority of this alarm. Alarm priority ranges are from 0 to 255.

### Alarm Delay

Enter the time, in seconds, between the channel value entering the alarm state and the system flagging an alarm.

### Alarm Message

An Alarm Message can be defined to be displayed on the Status line of the Main Window when a channel goes into an alarm state. Enter the message, up to 32 characters, that is to appear in the event of an alarm.

### Alarm on Error

When this is checked if a channel goes into error an alarm will be generated in the system.

## Device Specific Button

When the Device Specific Button is pressed, in the case of the Mitsubishi device the following dialog is presented.



### Station Number

Specifies the Station Number for the channel being mapped. Max 32 stations.

### PC Number

Specifies the PC Number for the channel being mapped. This defaults to 0 but in many cases it is likely that

-1 will have to be used.

### Register Type

Specifies the register type that is being accessed. The following are the possible register types.

 Registers : Input - X

 Output - Y

 Internal Relay - M

 Latch Relay - L

 Step Relay - S

 Link Relay - B

 Annunciator - F

 Special Relay - M

 Timer (Contact) - T

 Timer (Coil) - T

 Counter (Contact) - C

 Counter (Coil) - C

 Timer (Present Value) - T

 Counter (Present Value) - C

 Data Register - D

 Link Register - W

 File Register - R

 Special Register - D

### Element Number

Specifies the index into the register block that has been selected by Register Type. The index range for the selected Register Type is displayed to the right of the Element Number edit box. This range will vary depending on the Register Type. The Element Number is decimal based but the full address will be converted to hexadecimal when required by the Mitubishi addressing convention.

### Register Address

This displays the register address for the register specified by Register Type and Element Number.

# Channel Configuration (Digitals)



## Enable Channel

The Enable Channel check box must be checked to enable, and allow this channel to be configured and ultimately included with all other configured channels in the overall system.

## Tag

The Tag field is an 12 character alphanumeric field that can contain channel information or wiring schedule references.

## Description

The Description field is a 32 character alphanumeric field in which a description of the channel can be detailed.

## LowState Description

A 32 character field in which to enter a description of the low state of the channel.

## HighState Description

A 32 character field in which to enter a description of the high state of the channel.

## Event Checking

Event checking is used, if required to trigger a logger to record information on an event. If this facility is required click on the drop down list box and select OFF, HIGHSTATE, or LOWSTATE as appropriate

## Alarm Checking

### AlarmState

Alarm checking is available on all channels throughout the system. To configure alarm checking on this channel click on the drop down box and select OFF, HIGHSTATE, or LOWSTATE as appropriate. If the channel's output state changes to an AlarmState an alarm will be triggered on the channel. When monitoring channels, if the alarm is triggered, the fact will be annotated alongside the other channel information in the Channel Monitor .

### Alarm Priority

Enter the priority of the alarm triggered by this channel. Alarm priority ranges are from 0 to 255.

### Common Alarm

Channels can be configured to trigger a Common Alarm. A common alarm is a single digital output which will switch on when any channel with the Drive Common Alarm enabled goes into an alarm state.

### Alarm Delay

Enter the time, in seconds, between the channel value entering the alarm state and the system flagging an alarm.

### Alarm Message

An Alarm Message can be defined to be displayed on the Status line of the Main Window when a channel goes into an alarm state.

### Alarm on Error

When this is checked if a channel goes into error an alarm will be generated in the system.

## Device Specific Button

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 Annunciator - F

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 Timer (Coil) - T

 Counter (Contact) - C

 Counter (Coil) - C

 Timer (Present Value) - T

 Counter (Present Value) - C

 Data Register - D

 Link Register - W

 File Register - R

 Special Register - D

### Element Number

Specifies the index into the register block that has been selected by Register Type. The index range for the selected Register Type is displayed to the right of the Element Number edit box. This range will vary depending on the Register Type. The Element Number is decimal based but the full address will be converted to hexadecimal when required by the Mitubishi addressing convention.

### Register Address

This displays the register address for the register specified by Register Type and Element Number.

# Advanced Device Configuration



When the system is enabled and the device is enabled this window will display the Achieved Scan Rate . If the device is not scanning then any error associated with the device will be displayed instead.

## AutoEnable Device

To ensure that the device is enabled on the system check the Enable Device box.

## Scan Rate

To set the rate at which the device will scan, edit the text boxes associated with the Scan Rate field.

## Save Outputs

To enable this utility check the Save Outputs flag. All values in output channels are saved to disk when the system is disabled. The next time the system is restarted the values which were previously in output channels will be restored to the appropriate channel number.

**By Tag**

Channel values can be saved and restored to channels using the channel tag instead of the channel number. In this way, channels can be rearranged within the modules and as long as the channel tags remain the same, the correct channel values will be restored to the appropriate channel number.

## Device Specific Button

If the Device Specific Button is visible, then click on it to configure features that are specific only to this device. In the case of the Mitubishi the following dialog will appear.



### CommunicationPort

Select the required communication port from the list provided. The list will display all the communication ports available on the sytsem.

### Baud Rate

Select the baudrate for communications with the Mitsubishi Device.

### Data Bits

Select the number of data bits being used with the Mitsubishi Device: 7 or 8

### Stop Bits

Select the number of stop bits being used with the Mitsubishi Device : 1 or 2

### Parity

Select the type of parity being used with the Mitsubishi Device : None

 Odd

 Even

### Check Sum

Check this box if you are using a checksum with the Mitsubishi Device Protocol.

## Read Outputs on Initial Scan

 If this box is checked then any outputs channels that have been configured will be read form the device at the start of the scanning procedure.

## Read Outputs when not Writing

 If selected

 If outputs have not changed then

 The values don’t need to be written to file.

 The values will be read back from the device.

 If not selected

 If outputs have not changed then

 The values don’t need to be written to file.

 No update occurs.

## Timeout

 This specifies in milliseconds the period that the scanner will wait before timing out on a read/write.

# Mitsubishi Driver Errors

## Types Of Errors

There are a number of different categories of error message. They are as follows :

|  |  |
| --- | --- |
| ***Type Of Error*** | ***Related To*** |
| Data Link Layer Errors | Errors detected in Serial Communications |
| Application Layer Errors | Errors detected in Serial Communications |
| Win32 Errors | Standard Windows Errors |

## Format Of Error Messages



### Type 1 : Data Link Layer Errors

***Syntax :*** S <Number> PC<Number> : DATA LINK <Error Code>

|  |  |
| --- | --- |
| ***Error Code*** | ***Meaning*** |
| 01 | Timed Out |
| 02 | Nak |
| 03 | Bad Checksum |

***Example :*** S0 PC -1 : DATA LINK 02

***Meaning :*** Station Number 0 , PC FF - Nak

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### Type 2 : Application Layer Errors

***Syntax :*** S <Number> PC<Number> : APP <Error Code>

|  |  |
| --- | --- |
| ***Error Code*** | ***Meaning*** |
| 01 | Wrong Station |
| 02 | Wrong PC |

***Example :*** S0 PC -1 : APP 01

***Meaning :*** Station Number 0 , PC FF - Wrong Station

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### Type 3 : Win32 Errors

***Syntax :*** S <Number> PC <Number> : WIN32 <Error Code>

***Error Codes***

The error codes for Win32 related errors can be found in the Win32 documentation.

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