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Lauda 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 Lakeshore device. This will launch an application to configure the device.

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.



# Advanced Device Configuration



## 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

When the Device Specific Button is pressed the following dialog appears to allow specific communication settings to be configured for the device.





### RS-485

Sets the communication option to 485 so that many units can be multidropped on a single communications line.

### RS-232

Sets the communication option to 232 so there is direct communications to a single unit.

### Ethernet

Sets the communication option to Ethernet so there is network connection to a single unit.

### RS-232/485 Port

Displays communications ports available on your computer

### Speed

Lists the baud rates that are supported by the hardware on your PC. Choose the highest speed that is supported by the hardware. If you encounter problems, you may have to adjust this to a slower speed at a later time.

### Address

The Ethernet IP address or name of the Lauda unit on an Ethernet connection.

### Ethernet Port

Port is a number that is used to establish a connection between the PC and the Lauda device. Port is a part of the network address. The port for the Ethernet interface can be used from the approved "dynamic ports" range. This lies between 49152 and 65535

### Command

The command button is used to launch the send command dialog to communicate with the device.



### Download

Used to select a file containing commands to be downloaded to the device.

# Analog Input Channel Configuration

When the user selects an analog input to be configured the following is displayed.



## Enable Channel

The Enable Channel check box must be checked to enable and allow a 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.

## Engineering Units

Specifies engineering details for this channel.

Minimum

Minimum engineering value for all Analog channels in addition to the unit field. The default is 0.

Maximum

Maximum engineering value for all Analog channels in addition to the unit field. The default is 100.

Descriptor

Describe the units of the measurement.

## Device Specific Button

When the Device Specific Button is pressed the following dialog appears to allow specific device configuration of the particular channel.



### Address

Address number of the device. Addresses are in the range 0 to 127. This field is only used if the connection type is RS-485.

### Lauda Value Type

The type of value to be read from the device. The analog input value types and the related Lauda commands are as follows:

|  |  |
| --- | --- |
| **Lauda Analog Input Value Type** | **Command** |
|  |  |
| Bath Temperature | IN\_PV\_00 |
| Controlled Temperature | IN\_PV\_01 |
| External Pt100 temperature | IN\_PV\_03 |
| External AI temperature | IN\_PV\_04 |
| Bath level | IN\_PV\_05 |
| Bath temperature in 0.0001 degc | IN\_PV\_10 |
| External Pt100 temperature in 0.0001 degc | IN\_PV\_13 |
| Temperature Setpoint | IN\_SP\_00 |
| Pump output step | IN\_SP\_01 |
| Operation Mode | IN\_SP\_02 |
| Overtemperature switch-off point | IN\_SP\_03 |
| TiH high limit | IN\_SP\_04 |
| Til low limit | IN\_SP\_05 |
| Xp | IN\_PAR\_00 |
| Tn | IN\_PAR\_01 |
| Tv | IN\_PAR\_02 |
| Td | IN\_PAR\_03 |
| KpE | IN\_PAR\_04 |
| TnE | IN\_PAR\_05 |
| TvE | IN\_PAR\_06 |
| TdE | IN\_PAR\_07 |
| Max outflow temp limit | IN\_PAR\_09 |
| XpF | IN\_PAR\_10 |
| TnF | IN\_PAR\_11 |
| TvF | IN\_PAR\_12 |
| TdF | IN\_PAR\_13 |
| Setpoint offset | IN\_PAR\_14 |
| Key Master Mode | IN\_MODE\_00 |
| Control Mode | IN\_MODE\_01 |
| Standby Mode | IN\_MODE\_02 |
| Keys Command Mode | IN\_MODE\_03 |
| Setpoint offset source Mode | IN\_MODE\_04 |
| Error diagnosis status | STAT |
| Program Segment temperature | RMP\_IN\_00 |
| Program Segment time | RMP\_IN\_00 |
| Program Segment tolerance | RMP\_IN\_00 |
| Program Segment pump level | RMP\_IN\_00 |
| Current Segment Number | RMP\_IN\_01 |
| Set Number of Program runs | RMP\_IN\_02 |
| Current Program Run | RMP\_IN\_03 |
| Program for further instructions | RMP\_IN\_04 |
| Program running now | RMP\_IN\_05 |

### Program Number

For value types relating to program segments the program number 1 to 5 is required.

### Segment Number

For value types relating to program segments the the segment number is required. Valid segment numbers are 1 to 150. If a segment number of 0 is used, no value will be read.

# Digital Input Channel Configuration



## 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.

## Low State Description

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

## High State 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, HIGH STATE, or LOW STATE as appropriate. Events are detected on inputs using data acquired at 1Khz. Events are detected on outputs using the configured scan rate.

## Alarm Checking

### Alarm State

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, HIGH STATE, or LOW STATE as appropriate. If the channel's output state changes to an Alarm State 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 . Alarms and warnings are detected at the configured scan rate.

### 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.

## Device Specific Button

When the Device Specific Button is pressed the following dialog appears to allow specific device configuration of the particular channel.



### Address

Address number of the device. Addresses are in the range 0 to 127. This field is only used if the connection type is RS-485.

### Lauda Value Type

The type of value to be read from the device. The digital input value types and the related Lauda commands are as follows:

|  |  |
| --- | --- |
| **Lauda Digital Input Value Type** | **Command** |
|  |  |
| Status of contact input 1 | IN\_DI\_01 |
| Status of contact input 2 | IN\_DI\_02 |
| Status of contact input 3 | IN\_DI\_03 |
| Status of contact output 1 | IN\_DO\_01 |
| Status of contact output 2 | IN\_DO\_02 |
| Status of contact output 3 | IN\_DO\_03 |
| Status of equipment OK or ERROR | STATUS  |
|  |  |

# Analog Output Channel Configuration

Current Analog Outputs values are read from the device when the scanning starts. If the output changes via system channels e.g. from the calculator or a monitor the output is written to the device.

See Analog Input for an explanation of the standard channel configuration.

## Analog Outputs

When the Device Specific Button is pressed the following dialog appears to allow specific device configuration of analog outputs.



### Address

Address number of the device. Addresses are in the range 0 to 127. This field is only used if the connection type is RS-485.

### Lauda Value Type

The type of value to be read from and written to the device. The analog output value types and the related Lauda commands are as follows:

|  |  |  |
| --- | --- | --- |
| **Lauda Analog Output Value Type** | **Read Command at startup** | **Write Command** |
|  |  |  |
| External Temp | IN\_PV\_01 | OUT\_PV\_05 |
| Temp Setpoint | IN\_SP\_00 | OUT\_SP\_00 |
| Pump output step | IN\_SP\_01 | OUT\_SP\_01 |
| Operation Mode 0, 1 or 2 | IN\_SP\_02 | OUT\_SP\_02 |
| TiH high limit | IN\_SP\_04 | OUT\_SP\_04 |
| Til low limit | IN\_SP\_05 | OUT\_SP\_05 |
| Xp | IN\_PAR\_00 | OUT\_PAR\_00 |
| Tn | IN\_PAR\_01 | OUT\_PAR\_01 |
| Tv | IN\_PAR\_02 | OUT\_PAR\_02 |
| Td | IN\_PAR\_03 | OUT\_PAR\_03 |
| KpE | IN\_PAR\_04 | OUT\_PAR\_04 |
| TnE | IN\_PAR\_05 | OUT\_PAR\_05 |
| TvE | IN\_PAR\_06 | OUT\_PAR\_06 |
| TdE | IN\_PAR\_07 | OUT\_PAR\_07 |
| Max outflow temp limit | IN\_PAR\_09 | OUT\_PAR\_09 |
| XpF | IN\_PAR\_10 | OUT\_PAR\_10 |
| TnF | IN\_PAR\_11 | OUT\_PAR\_11 |
| TvF | IN\_PAR\_12 | OUT\_PAR\_12 |
| TdF | IN\_PAR\_13 | OUT\_PAR\_13 |
| Setpoint offset | IN\_PAR\_14 | OUT\_PAR\_14 |
| Key Master Mode | IN\_MODE\_00 | OUT\_MODE\_00 |
| Control Mode | IN\_MODE\_01 | OUT\_MODE\_01 |
| Keys Command Mode | IN\_MODE\_03 | OUT\_MODE\_03 |
| Setpoint offset source Mode | IN\_MODE\_04 | OUT\_MODE\_04 |

# Digital Output Channel Configuration

Current Digital Outputs values are read from the device when the scanning starts. If the output changes via system channels e.g. from the calculator or a monitor the output is written to the device.

See Digital Input for an explanation of the standard channel configuration.

## Device Specific Button

When the Device Specific Button is pressed the following dialog appears to allow specific device configuration of the particular channel.



### Address

Address number of the device. Addresses are in the range 0 to 127. This field is only used if the connection type is RS-485.

### Lauda Value Type

The type of value to be read from and written to the device. The digital output value types and the related Lauda commands are as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **Lauda Analog Output Value Type** | **Read Command at startup** | **Low State Write Command** | **High State Wirite Command** |
|  |  |  |  |
| Stop Start Mode | IN\_MODE\_02 | STOP | START |
| Pause Continue Programmer | Value from system used | RMP\_PAUSE | RMP\_CONT |
| Terminate Start Programmer | RMP\_IN\_05 | RMP\_STOP | RMP\_START |

### Program Number

For value types relating to programs the program number 1 to 5 is required.