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Intercole LDAS 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



## 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.

## Engineering Units

Specifies egnineering 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

A 4 character field available to describe the units of the measurement

## 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 Intercole LDAS Series Device is reconfigured

## 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.

## 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.

## Alarm Error Checking

Drives a common alarm when an error occurs on this channel.

### Drive Common

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.

### Priority

 Enter or edit the number in the text box to allocate the priority of this channels alarm.

### Delay

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

## 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

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.

## Device Specific Button

When the Device Specific Button is pressed, the following will apply :

### Analog input channel specific configuration



#### ADC Number

Selection for ADC to be configured

#### Channel Number

Enter channel number (0..255)

#### Transducer Type

Select transducer type

#### Scale

Select correct voltage range for input channel

#### Integration

The default value is 50Hz and in not normally changed

#### Exitation Current

It becomes available when transducer types linear, PRT 100 and strain gauge are selected

#### S/G Bridge Arms, S/G Resistance and S/G Factor

These values are available for strain gauge only

### Digital channel specific configuration



#### Board Number

Digital board number (1..20)

#### Bank Number

Available values are 0..3

#### Bit Number

Corresponding bit number (0..15)

### Analog output channel configuration



#### Board Number

Digital board number (1..20)

#### Bank Number

Available values are 0..3

### Counter input channel configuration



#### Board number

Frequency board number (1..4)

#### Channel number

Available channel numbers are 0..4

#### Mode

Scan type flag : frequency or period

#### Gate/Time

In frequency mode this parameter represents the gate code over which the measurementis made.

In period mode it represents the measurement time base code.

#### Number of cycles

In period mode it represents the number of cycles over which the measurement is made.

# 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

When the Device Specific Button is pressed, the following will apply :



### Node name

Spectra-node name

### Frequency scan interval

Scan interval for reading data from the defined frequency boards and channels. A value of zero indicates no scanning is required

### Use database integration

### Use datatype conversion

If checked, all channels data are converted to engineering units. If not, all data are returned in volts

### Use scan on demand only

Check this box, if scan at maximum rate isn’t required

### Scanivalve configuration

To configure scanivalve channel click on button

### ADC Number

Selection for ADC to be configured

### PRT scan interval

Scan interval for all on-board PRT measurements

### Open circuit limit

Value to check open circuit status of thermocouples

### RRS configuration

List of RRS boards. To configure RRS, double click on it. Next dialog will appear

****

#### RRS Number

Number of RRS board to be configure

#### RRS Type

Select type of RRS board

#### CJC Type

Select type of CJC

#### CJC Value

Enter CJC value or channel (channel must be entered with prefix)

### Scanivalve configuration



#### Enable Scanivalve Channel

Scanivalve channel is enabled if box checked

#### Digital Channel to Set Base Position

Enter digital output channel number, which corresponds to base positioning

#### Digital Channel to Step Motor

Enter digital output channel number, which corresponds to motor stepping

#### User Analog Channel to Write Current Step

Enter user analog channel number, which is used to store current motor position

#### Board Number and Bank Number

These fields allow configuring current motor position readings

#### Time Between Steps

This field allows to set time interval between motor stepping

#### Start Scanning Every

To configure periodic scanning enter required time

# Intercole LDAS Driver Errors

## Format Of Error Messages









## Network Error Codes

|  |  |
| --- | --- |
| Error Code |  |
| -1 | Host id error |
| -2 | Create socket error |
| -3 | Bind socket error |
| -4 | Connect error |
| -5 | Socket write error |
| -6 | Socket read error |
| -7 | Message type error |
| -8 | Create socket error |

## Configuration and Runtime Error Codes

|  |  |
| --- | --- |
| Error Code |  |
| 1 | Invalid ADC number |
| 2 | Invalid RRS number or RRS range |
| 3 | Invalid channel number or channel range |
| 4 | Invalid ADC scan interval |
| 5 | Invalid CJC scan interval |
| 6 | Invalid calibration scan interval |
| 7 | Invalid digital scan interval |
| 8 | Invalid CJC type |
| 9 | Invalid scanner type |
| 10 | Invalid amplifier scale |
| 11 | Invalid engineering unit |
| 12 | Invalid integration count |
| 13 | Invalid energising code |
| 14 | Invalid digital board number |
| 15 | Invalid digital bank number |
| 16 | Invalid host type |
| 17 | Invalid host supplied CJC value |
| 18 | Invalid digital type |
| 19  | Invalid scan state value |
| 20  | Invalid frequency board number |
| 21  | Invalid frequency low channel number |
| 22  | Invalid frequency high channel number |
| 23  | Invalid frequency mode |
| 24  | Invalid frequency gate code |
| 25  | Invalid frequency timebase code |
| 26  | Invalid frequency cycle code |
| 27  | Invalid group number |
| 28  | Group format error |
| 29  | Invalid scan list number |
| 30 | Insufficient bytes in message |
| 31 | Message not supported |
| 32 | Illegal request |
| 33 | Channel definition for undefined RRS |
| 34 | Digital/DAC board type incompatible with define message |
| 35 | Digital/DAC output to non-existent board |
| 36 | Digital/DAC output failure |
| 37 | Channel specified in TLM data request not same as last measured value |
| 38 | Channel not defined |
| 39 | ADC not resident |
| 40 | Invalid date/time |
| 41 | Incomplete DIP scan |
| 42 | Scan request refused |
| 43 | Scan List not defined |
| 44 | Scan List/Scan Buffer correlation error |
| 45 | Scan buffer offset error |
| 46 | Cannot append channels to group |
| 47 | Scan group not defined |
| 48 | Scan not continuous |
| 49 | No new data |
| 50 | Channel not defined as strain gauge |
| 51 | Gauge factor out of limits |
| 52 | Gauge resistance out of limits |
| 53 | Number of active arms out of limits |
| 54 | Open circuit reference out of limits |
| 55 | Too many channels in scan list |
| 99 | Too many channels in scan list |
| 99 | No free connections |

## Diagnostic Error Codes

|  |  |
| --- | --- |
| Error Code |  |
| 101 | Ram Fault if non zero |
| 102 | Internal system error |
| 103 | MS-664 current fault |
| 104 | MS-664 latched fault |
| 105 | MS-664 error |
| 106 | Calibration failure in startup state |
| 107 | ADCs current failure state |
| 108 | ADCs current timeout state |
| 109 | ADCs current calibration state |
| 110 | ADCs current CJC failure state |
| 111 | ADCs current RRS missing state |
| 112 | ADCs missing TLM state |
| 113 | ADCs latched failure state |
| 114 | ADCs latched timeout state |
| 115 | ADCs latched calibration state |
| 116 | ADCs latched CJC failure state |
| 117 | ADCs latched RRS missing state |
| 118 | ADCs latched missing TLM state |
| 119 | Current digital fault state |
| 120 | Latched digital fault state |
| 121 | Current frequency fault state |
| 122 | Latched frequency fault state |

## Open Circuit Check Error Codes

|  |  |
| --- | --- |
| Error Code |  |
| 131 | Channel data bad |
| 133 | RRS missing |
| 134 | Channel failed limit check |