



**Roundel**  
**Multi-Well Monitor**

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**User Manual**

100704

Revision 1.01

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## Revision History

1.01 - 100701 Initial Release

## Important Notice

This application is FREE; if you paid for it, you have been robbed!

Latest version is available at:

<http://www.jabeztechnology.co.uk/products.html>

## Operation

Roundel is a display application for multiple wells. It communicates with up to 10 "Surface Control Interface", SCI cards, via the RS232 Service Port.

This application is aimed at laboratory testing and localised multi-well installations.

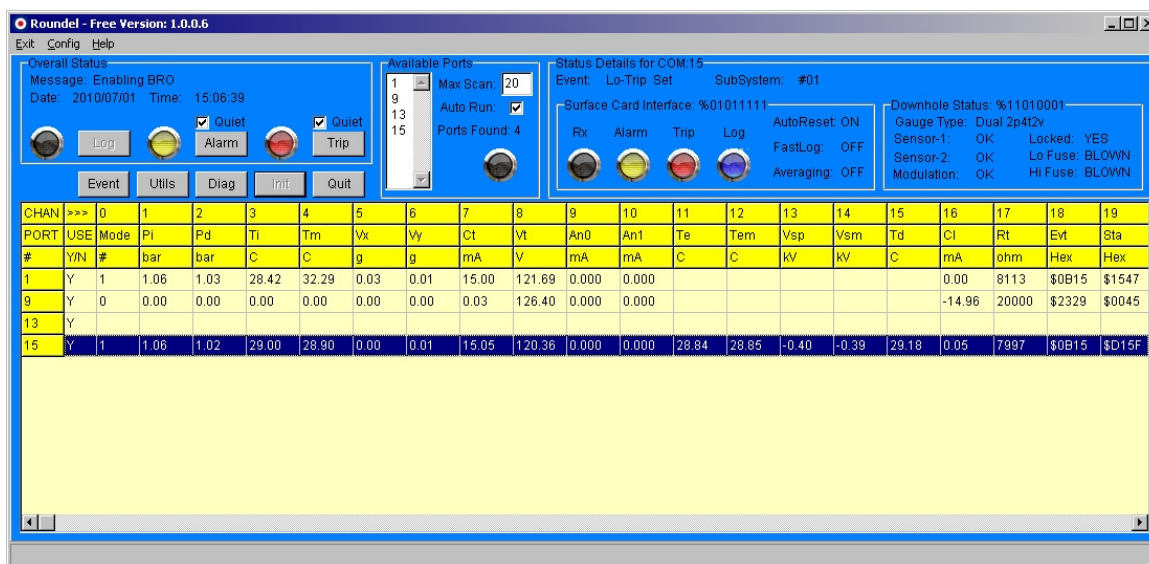


Figure 1 – Roundel Console

## Communication

Communication is via the serial protocol RS232 Service Port of the SCI.

## Display

The main console has pixel dimensions of 1105x536. The application requires a screen with greater dimensions, in order to display as intended. Even with the current width, the horizontal scroll-bar is required to view all of the available data fields.

An individual SCI may be selected via the highlighted row and its status information is displayed in the upper right-hand side panel.

NB: Channels that have their Display Masks asserted, will not be included in the output; this cuts down unnecessary traffic.

## Configuration

All settings appropriate for restoration are saved in the configuration INI file, "Roundel.INI". Use the pull-down menu to select the Save/Load configuration file.

Other configuration names may be used, but “Roundel.INI” is auto-loaded upon start-up.

## **Help**

The “Help|Read the Manual” pull-down menu will load this document into an Acrobat reader, providing that the file “RoundelManual.pdf” resides at the same location as the executable Roundel.exe itself. Most items have hint-help, evoked by hovering the mouse cursor over the relevant item.

## **Available Ports**

Upon starting the application, a scan is performed of all available COM ports from COM:1 up to the limit set by the “Max Scan” entry.

After the scan completes, the number of available ports is posted and the scrollable list-box shows the individual COM port numbers.

## **Auto-Run**

If the “Auto Run” checkbox is ticked, the system initialises the available ports and waits for data.

## **LED Indicator**

An overall comms indicator is used, which will produce a green illumination when a correctly formatted packet is received from any of the attached ports.

## **Baud Rate**

The baud rate and other related settings are fixed for the SCI’s Service Port, therefore no set-up is required.

## **Miscellaneous Controls**

Several buttons evoke additional windows, supplying diagnostics, events and a selection of utilities.

## **Overall Status**

### **Init**

Initialises selected ports at the correct speed and protocol.

### **Quit**

Quits application after closing all the open ports.

### **Messages**

Status messages are displayed when salient events occur.

### **LEDs**

Two LEDs, yellow and red, display the SCI’s Alarm and Trip status respectively. The associated buttons will clear the state, however, any attached SCI in an Alarmed or Tripped condition will set the respective LEDs.

“Quiet” tick boxes are associated with each function, when ticked the audio alert is inhibited.

## Display Grid

The main display presents a row of data values for each available port.

## Navigation

- A single mouse-click selects any of the rows of an active port.
- The mouse wheel, or arrow keys will change the row selected.
- A double mouse-click will toggle the selected port active/inactive. This is depicted by a Y/N in the USE column. This feature is useful when Roundel has grabbed all of the available ports, because the deselected COM ports may be returned for use by other applications.
- A mouse click of the horizontal scroll-bar flicks the columns from the first to last

## Auto-Formatting

The application uses intelligent display formatting to match the available data set. The port rows are automatically added to accommodate the available ports, up to the current limit of 10 ports. SCI's whose channel's Display Mask is set, will inhibit output. Consequently, the field widths of unpopulated channels are reduced to present a more compact display. Should any of the fields subsequently become populated, then the field width is restored to the default value.

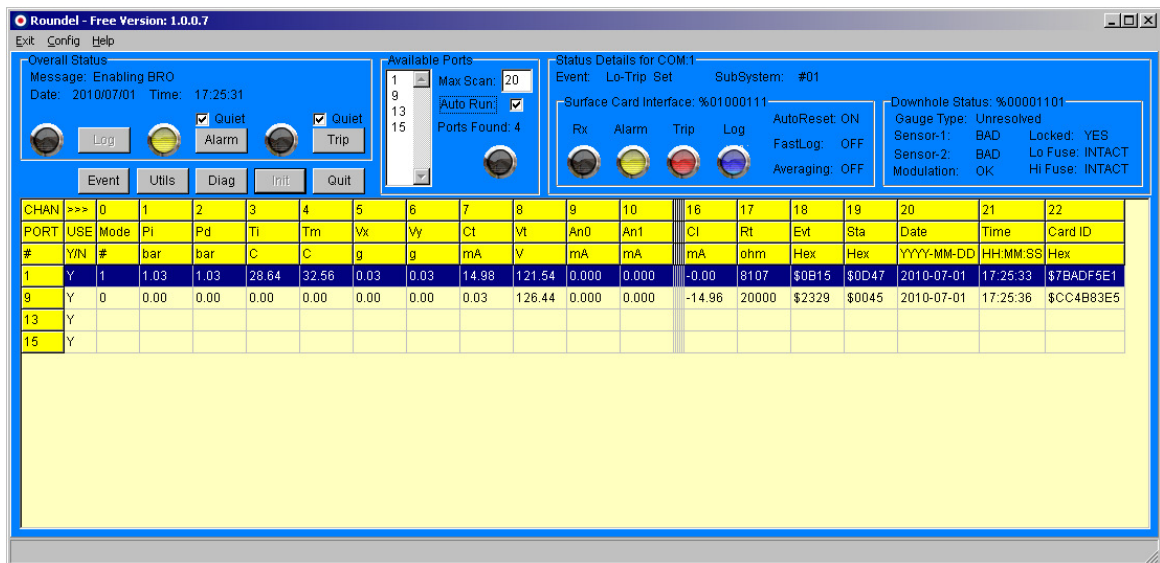


Figure 2 - View with Condensed Unpopulated Columns

## Status Details

Selecting a row enables display of its attached SCI's Events and Status information.

## Events

The latest event is specified along with the associated subsystem. In Figure 2, a "Low-Trip Set" event is posted and the subsystem is denoted as Channel-1, Pi in this case.

## Surface Card Interface

Individual LEDs depict the Logging, Alarm and Trip states and a green Rx LED lights when a validated block of data is received.

- AutoReset ON/OFF – Shows whether Alarm/Trip condition will be automatically reset.
- FastLog ON/OFF – After a Trip condition is registered, the logging rate is increased to allow better determination of the fault.
- Averaging ON/OFF – Indicates that the SCI data is subjected to a specified degree of filtering.

## Downhole Status

The following information is derived from the transferred bit-field.

- Gauge Type VARIOUS - Depicts the Gauge's capabilities
- Sensor-1 OK/BAD - Sensor-1 communication quality
- Sensor-2 OK/BAD - Sensor-2 communication quality
- Modulation OK/BAD - Gauge<>SCI communication quality
- Locked YES/NO - SCI communication link is locked
- Lo Fuse INTACT/BLOWN - Low temperature fuse integrity
- Hi Fuse INTACT/BLOWN - High temperature fuse integrity

## Utilities

A set of useful group commands is available via the Utils menu.

### Set RTC

This sends the PC's date/time to ALL of the attached SCIs.

### Reset NVRAM

This restores the factory default settings

### Enable BRO

This command forces all attached SCIs to produce the Block Read-Out, (BRO), formatted data required by this application. Roundel issues this command after it has performed the initial port scan.

### Disable BRO

This command forces all attached SCIs to disable the Block Read-Out. Roundel issues this command when the "Quit" button is pressed.

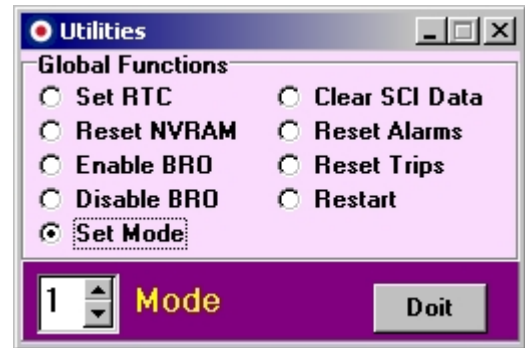


Figure 3 – Utility Panel

### Set Mode

This command will send the selected Mode number to the attached SCIs. This ensures that all the units are set to the same mode and allows a convenient way to step through the available modes.

### Clear SCI Data

This selection clears the current data values held on the SCI. It allows the user to see the data build-up and is a useful check on a unit's integrity.

### Reset Alarms

This command resets the Alarm state on all attached SCIs.

### Reset Trips

This command resets the Trip state on all attached SCIs.

### Restart

As a method of last resort, this command will forcibly reboot the attached SCIs.

## Logging

There is NO logging.

## Plotting

There is NO plotting either.

## Events

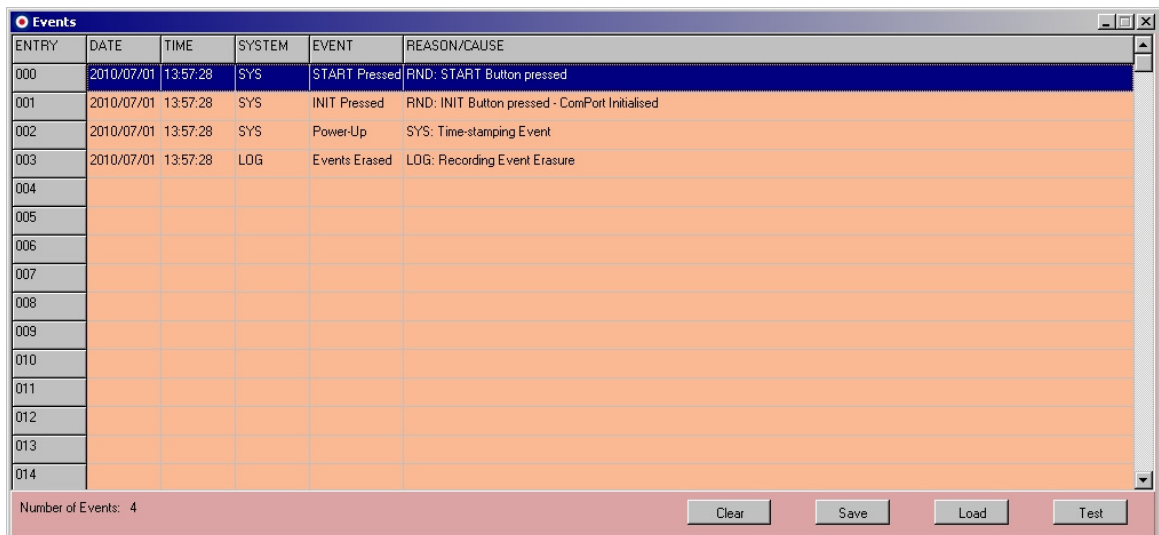
The Event Log holds a maximum of 1000 entries, which may be scrolled through, using the side scroll-bar. The most recent event is posted in position "00". A new event will cause the preceding events to be shuffled downward.

System events are tabulated and time-stamped in the Event Logger. This records events originating from the Roundel application.

Event locus and type data is stored in a Data Log file, although in a fast burst of events, some will be missed, especially with slower logging periods.

The Event Log display below shows a period when the slave was intentionally disabled, thus highlighting the Timeout and Link Failure events.

**Figure 4 - Event Log**



The screenshot shows a window titled "Events" with a table of event logs. The table has columns for ENTRY, DATE, TIME, SYSTEM, EVENT, and REASON/CAUSE. The first three entries are visible, with the first entry highlighted in blue. Below the table, there is a status bar showing "Number of Events: 4" and four buttons: Clear, Save, Load, and Test.

ENTRY	DATE	TIME	SYSTEM	EVENT	REASON/CAUSE
000	2010/07/01	13:57:28	SYS	START Pressed	RND: START Button pressed
001	2010/07/01	13:57:28	SYS	INIT Pressed	RND: INIT Button pressed - ComPort Initialised
002	2010/07/01	13:57:28	SYS	Power-Up	SYS: Time-stamping Event
003	2010/07/01	13:57:28	LOG	Events Erased	LOG: Recording Event Erasure
004					
005					
006					
007					
008					
009					
010					
011					
012					
013					
014					

Modbus exception responses are decoded and the appropriate error message is posted in the Event Log, this provides a useful diagnostic tool.

### Save/Load

Event logs may be stored and subsequently retrieved for examination, allowing inspection of logs received from the field. It is advisable to press the Console's STOP button whilst loading and viewing a stored log. Upon loading from disk, the existing entries are erased and the stored contents are placed at the bottom of the log. Unused locations are filled with "Invalid Event" messages. This is to differentiate between an active log and that loaded from a disk-file. Please note that the earliest two entries are unavailable.

### Test

A Test function allows Events to be generated, with a "SYSTEM" identification of "TST".