



RingView 3.01TM

User Manual

RingBus SCADA System

Copyright

RingBus and *RingView* are Registered Trade Marks of Bustec GmbH. *Windows* is Registered Trade Mark of Microsoft Corp. *Linux* is Registered Trade Mark of Linus Torvalds. *Java* is Registered Trade Mark of Sun Microsystems inc. *Modbus* is Registered Trade Mark of the Modbus-IDA Company. All other trade marks that appear in this Document are property of their respective owners.

Legal Notice

This document is Copyright © 2008, BUSTEC GmbH. All rights reserved. Permission is granted to copy this document for the sole purpose of Document backup.

DOCUMENT AND MODIFIED VERSIONS OF THE DOCUMENT ARE PROVIDED WITH THE FURTHER UNDERSTANDING THAT:

1. DOCUMENT IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE DOCUMENT OR MODIFIED VERSION OF THE DOCUMENT IS FREE OF DEFECTS MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY, ACCURACY, AND PERFORMANCE OF THE DOCUMENT OR MODIFIED VERSION OF THE DOCUMENT IS WITH YOU. SHOULD ANY DOCUMENT OR MODIFIED VERSION PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL WRITER, AUTHOR OR ANY CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY DOCUMENT OR MODIFIED VERSION OF THE DOCUMENT IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER; AND
2. UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER IN TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL THE AUTHOR, INITIAL WRITER, ANY CONTRIBUTOR, OR ANY DISTRIBUTOR OF THE DOCUMENT OR

MODIFIED VERSION OF THE DOCUMENT, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER DAMAGES OR LOSSES ARISING OUT OF OR RELATING TO USE OF THE DOCUMENT AND MODIFIED VERSIONS OF THE DOCUMENT, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES.

Revision History

date	Written by	checked	authorized
2006-05-01			
Description	Initial Release.		
date	Written by	checked	authorized
2006-12-22			
Description	Version #2 – maintenance release, to update the changes made in RingView v1.2.5: <ul style="list-style-type: none">• Fig. 6.1 (Master Rings Display) replaced;• Fig. 6.2 (Individual Ring Display) replaced;• Fig. 6.11 (System Menu) replaced;• Fig. 6.12 (Ring Topology Matrix) replaced;• Fig. 6.13 (Virtual Keyboards) replaced;• File Menu for Ring Topology explanation and figure (6.14) updated;• Fig 6.15 (Control Matrix) updated;• Fig 6.17 (I/O Matrix) updated;• Fig. 7.1 (Typical Definition Table File) replaced;• Section 6.3.3. (two-engine FIO unit) added;		

1. CONTENTS

(i) Copyright, Legal Notice	2
(ii) Revision History.....	4
1. Contents	5
2. Main Features.....	7
3. Introduction to RingBus.....	9
3.1. RingBus topology	10
3.2. Unit types	10
4. System setup and configuration.....	12
4.1. Installation of RingView hardware and software	12
4.2. Connecting RingView to the RingBus installation	12
5. General SCADA Features.....	14
5.1. User Management.....	14
5.1.1. User Permissions	14
5.1.2. Login/Logout.....	14
5.1.3. Adding/Deleting a user	14
5.2. Monitoring	15
5.2.1. Monitor Screens	15
5.2.2. Alarm Lists	15
5.3. Issuing Commands.....	15
6. RingView – specific features.....	16
6.1. Rings display.....	16
6.2. Zones display	18
6.3. Unit display.....	19
6.3.1. FIO unit	19
6.3.2. Smoke/Fire unit	21
6.3.3. Two-engine Smoke/Fire unit	22
6.3.4. Motorless unit	24
6.4. System features	25
6.4.1. Ring Topology.....	25
6.4.2. Control Matrix	27
6.4.3. IO Matrix.....	27
7. Common procedures	29
7.1. Adding/Replacing a RingBus unit	29

8. Operating conditions & installation requirements30

2. MAIN FEATURES

RingView is a state-of-the-art, multiple client-server SCADA system. It is meant to be used as a visualization, monitoring and control tool for the RingBus systems, and is specifically designed to suit the needs of modern fire-safety control systems.

Its main features are:

- **Quick and user-friendly system configuration:** System can be configured for work quickly and in an intuitive manner, through the comma-delimited, plain text files, which can be made in any text or table editor program.
- **Clean and “shallow” system hierarchy:** RingView system has only 3 levels of hierarchy, from operator all the way down to the damper or fan actuator, no matter how complex the sensor/actuator network can get (Figure 1.1). One of the major benefits of such simple configuration is the quick and constant response time.

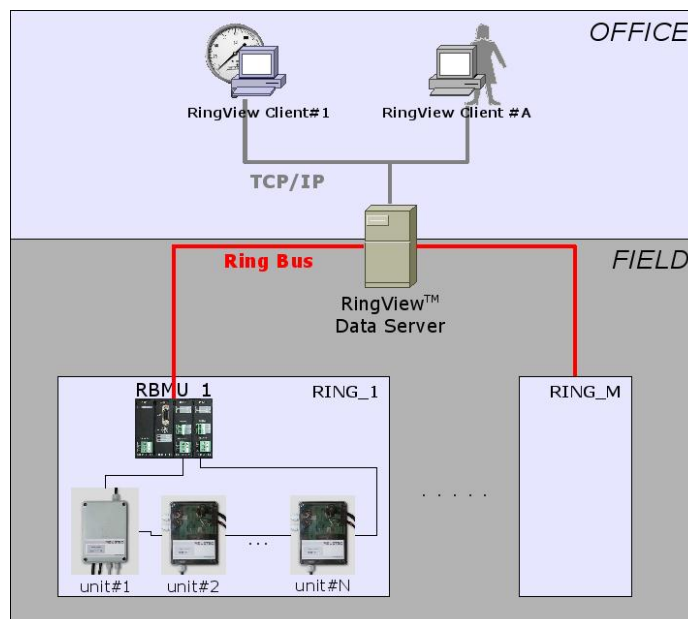


FIGURE 1.1: RINGVIEW SYSTEM HIERARCHY

- **Improved system adaptability:** System uses standard communication protocols, can be configured quickly and in a clean manner, and has a small, number of levels in its hierarchy structure. All this adds to its flexibility and ease of use.

- **Based on efficient and reliable technologies:** RingView does not require any specialized equipment, neither in hardware nor in software, therefore allowing for ordinary PCs to be used, both as Server and Client machines. This means affordable, available and economical maintenance and spare parts management. Furthermore, the RingView client is based on Java™ technology which is cross-platform, meaning it can run both on Windows™ and Linux™ platforms.

3. INTRODUCTION TO RINGBUS

RingBus and RingView are complementary technologies. They are meant to be used together to form a well-balanced, all-round system, that can be used as standalone or in conjunction with other fire safety systems.

Basic terms related to the RingBus systems are:

- **Unit** is the smallest standalone element, which controls a single module of the fire safety system, e.g. a smoke damper;
- **Device** encompasses one or more units. A smoke device would have a single smoke unit, but a FIO device can hold as many as sixteen input and output units.
- **Ring** is as set of physically interconnected units. Each unit can belong to a single ring.
- **RingBus Master (RBM)** is a Master controller in a Ring (Fig.3.1). it is a master to the Ring it is connected to, and a slave to the mid-tier network, formed with other RBMs and a RingView SCADA Server.



FIGURE 3.1: RINGBUS MASTER UNIT (RBM)

- **Zone** is short term for the “Safety Zone”, an area at the site where fire safety is to be handled in a uniform manner. Zone topology is being determined in the fire safety part of the Construction Project, for each particular construction site. Each unit can be a part of a single zone.

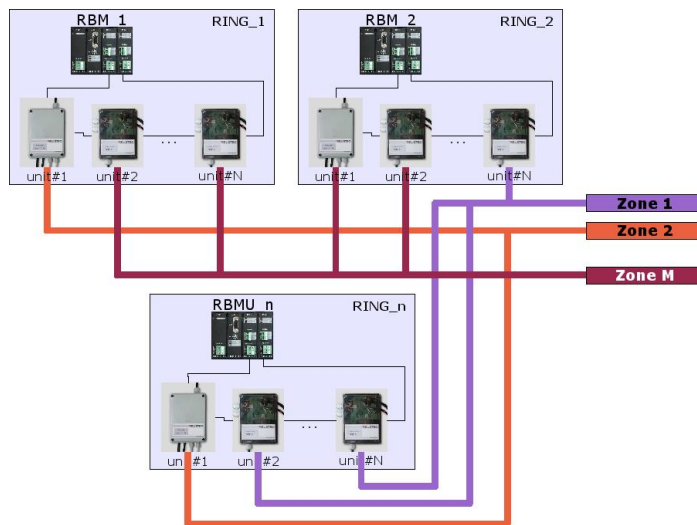


FIGURE 3.2: RINGBUS SYSTEM TOPOLOGY

3.1. RingBus topology

Each RingBus installation consists of one or several Rings (Fig.3.2). A ring is a set of units that share the common (double) communication bus. Each of the RingBus elements is physically connected to a single ring, and that is how it gets installed into a system. All the units belonging to a ring are controlled by a single master unit, the ringmaster. BUSTEC's RingBus solution allows for up to 200 units to be connected to a single ring; the optimum number depends on the in-field system topology, length of cables, amount of external electrical and electromagnetic interference, distance between the neighboring devices in the Ring and similar factors. Several rings are connected over their ringmasters to the RingView Server, thus creating a unified and well-balanced system.

3.2. Device types

RingView distinguishes several device types:

- **FIO device** is a general-purpose module, meant to monitor selected signals from fire-monitoring and HVAC equipment, as well as to send (digital) commands to them.
- **Smoke device** controls a smoke damper unit;
- **Fire device** controls a fire damper unit
- **Double fire device** is a two-motor variant of the fire device
- **DIN/DOM** are not, strictly speaking, devices but input and output modules

connected directly to the RBM, but the program treats them for all intents and purposes as devices to allow for ease of use and simplicity

- **Motorless device** controls a mechanical (without motor) damper unit

4. SYSTEM SETUP AND CONFIGURATION

4.1. Installation of RingView hardware and software

Your RingView system comes pre-configured for the particular facility, according to the valid Fire Protection Project and contract clauses. The installation is recommended to go this way:

- Install RingView Server (eScadaCore component).
- Connect the Server to RingBus network on one side, and TCP/IP network on the other. Depending on the Server configuration, RingBus will be connected either to a serial (COM) port, or to an USB/RS485 adapter.
- Install the RingView SCADA clients.
- Test and update (if necessary) Unit and Ring tables.
- Test the entire configuration.

All the software components are installed and pre-configured at BUSTEC, so installation of additional software is neither needed nor allowed.

4.2. Connecting RingView to the RingBus installation

The central connection point between the RingView and RingBus systems is the RingView's Server machine. It is being connected, through the RingBus communication adapter, to all the ringmasters, and forms a mid-tier network with them (Fig.4.1).

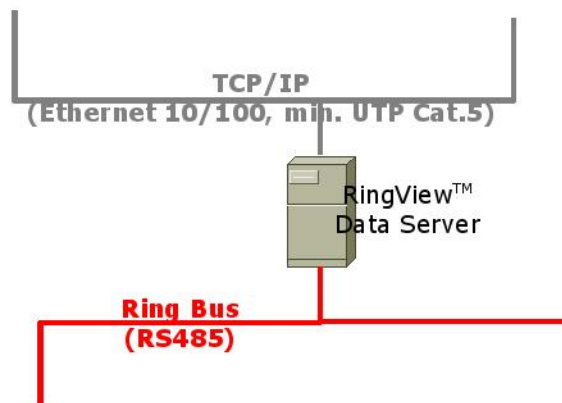


FIGURE 4.1: RINGVIEW – RINGBUS CONNECTION

This is a RS485, Master-Slave, half duplex network, which can implement two communication protocols: BUSTEC's RingBusCom, or the standard Modbus™ ASCII.

Note: BUSTEC supplies the buyer with complete cabling, spare materials and instructions, tailored to the system-specific level of a particular delivery, to allow the correct RingView installation.

Connection diagrams for individual RingBus Units is delivered with these units, and is not a part of this Manual.

5. GENERAL SCADA FEATURES

RingView is basically a SCADA application, so if you are already familiar with SCADA systems, you could find it easier to adapt to the system by reading this part.

Main RingView window is shown in Fig.5.1.

5.1. User Management

5.1.1. User Permissions

Each user can be given a set of designators, to control his/her ability to monitor or control certain aspects of the system (Fig.5.2). Specific rights are being determined separately for each user:

- **Command Permission** – for issuing system commands;
- **System Permission** – having access to the system resources (located on the System Menu);
- **Report Permission** – access to report creation tools

5.1.2. Login/Logout

Standard Login procedure, where user enters his username and password, and submits them to the server to be checked (Fig.5.2). After the login attempt, the login success/failure message is displayed in the appropriate window. Upon successful login, user name is displayed at the status bar, in the lower right corner of the screen. A default user can also be specified to be automatically logged in on application startup. This is useful if it is desired to have certain permissions allowed for all users without them having to log in.

5.1.3. Adding/Deleting a user

Each user that has a *system permission* privilege can add another user to the system. The same rule applies for deleting user(s) from the user list. The Add User window is shown on the Fig.5.3.

5.2. Monitoring

5.2.1. Monitor Screens

RingView has a certain number of “classic” SCADA monitor screens. Through these, the user can visualize and monitor the following resources:

- system rings,
- system zones,
- data view.

Note: Monitor screens description is given in more detail in the Section 6, “RingView specific features”.

5.2.2. Alarm Lists

RingView supports two kinds of Alarm Lists: Currently active alarms and Alarm History. Both are accessed from the Monitor menu.

5.3. Issuing Commands

Commands can be sent to the system on various levels and from various windows. Main types of commands are:

- **Unit-related commands:** their issuing affects a single unit. They can be accessed from the detail view panels. Typical commands are opening and closing damper Units.
- **Group-related commands** affect physical groups of units (whole rings). Examples of such command can be the previously mentioned opening and closing, on the Ring-level.

6. RINGVIEW – SPECIFIC FEATURES

6.1. Rings display

Rings view toolbar contains corresponding toggle buttons for each of the defined rings. Using these, individual rings can be shown in the main ring display. For each ring, the display can be set to show Units or Devices (which may contain more than one Unit). Unit display is considered standard.

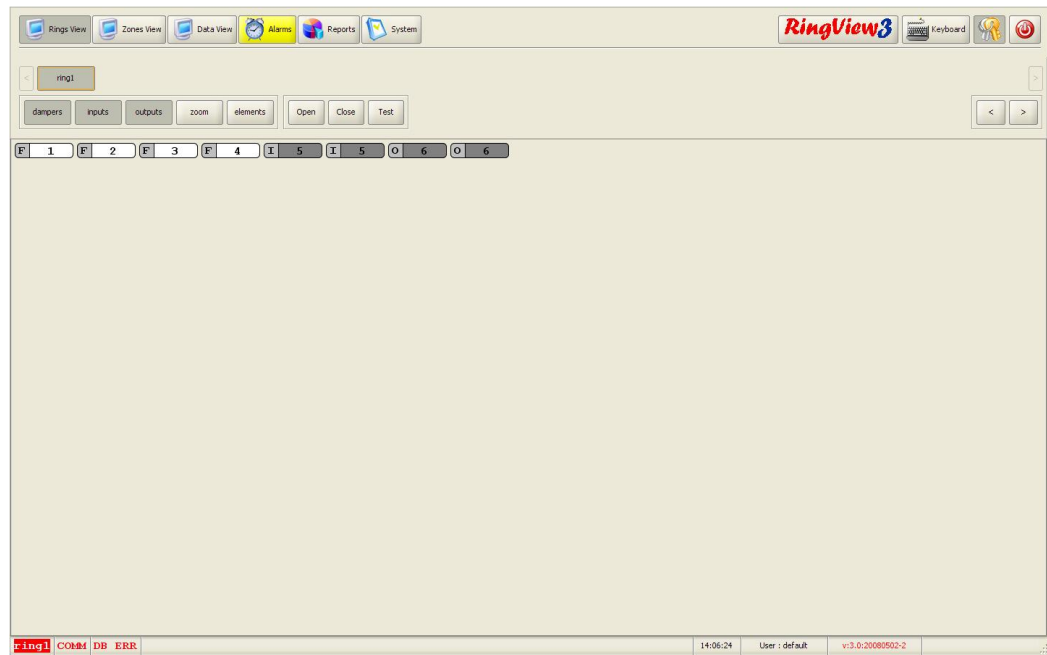


FIGURE 6.1: RINGS DISPLAY

There are two ways that individual Units can be represented in this window: zoomed in with more detail or zoomed out with less detail (fig.6.5). Less detailed view shows only the short Unit label for the Ring. Detailed view displays the name of the unit as well. Furthermore, color marking has been introduced to designate the current position of the servo that is controlled by that Unit (valid for the damper Units only). Color settings for the top half of detailed view are the same as for the less-detailed view:

- **green** – damper is fully opened;
- **red** – damper is (fully) closed;
- **gray** – damper is in the neutral position, neither fully opened nor fully closed;
- **yellow** – no bus connection, no bus power, or bus timeout error has occurred on the unit;
- **orange** – a BAE alarm has occurred on the unit;
- white – no data received at all, usually means that the entire ring is nonresponsive.

Note: For the BAE error description, please consult the documentation of the damper actuator's manufacturer.

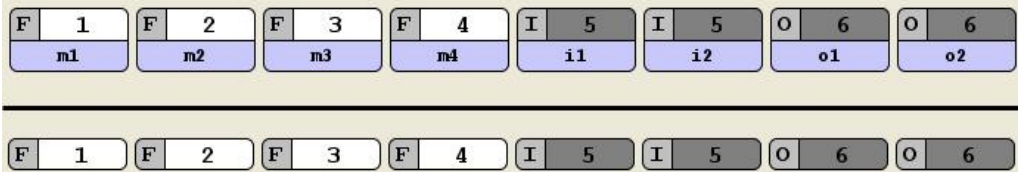


FIGURE 6.2: LEVEL DETAIL FOR INDIVIDUAL UNITS



FIGURE 6.3: ZOOM AND ELEMENT/DEVICE VIEW BUTTONS

The set of Group commands that can be performed over the selected Ring is (fig.6.4):

- **Open** – opens all the (damper) Units in the currently selected Ring;
- **Close** – closes all the (damper) Units in the active Ring;
- **Test** – performs a test sequence on all the Units in the active Ring;

Note: Same commands can be performed on a single Unit. Please refer to Sec.6.3 for more details.

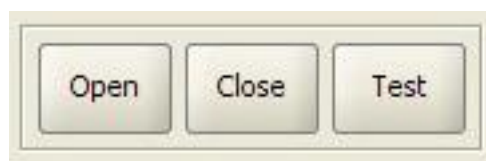


FIGURE 6.4: RING GROUP COMMAND BUTTONS

6.2. Zones display

Zones view toolbar, like the Rings view, contains toggle buttons for each of the defined zones. Zones display will show individual Units within the selected Zone.

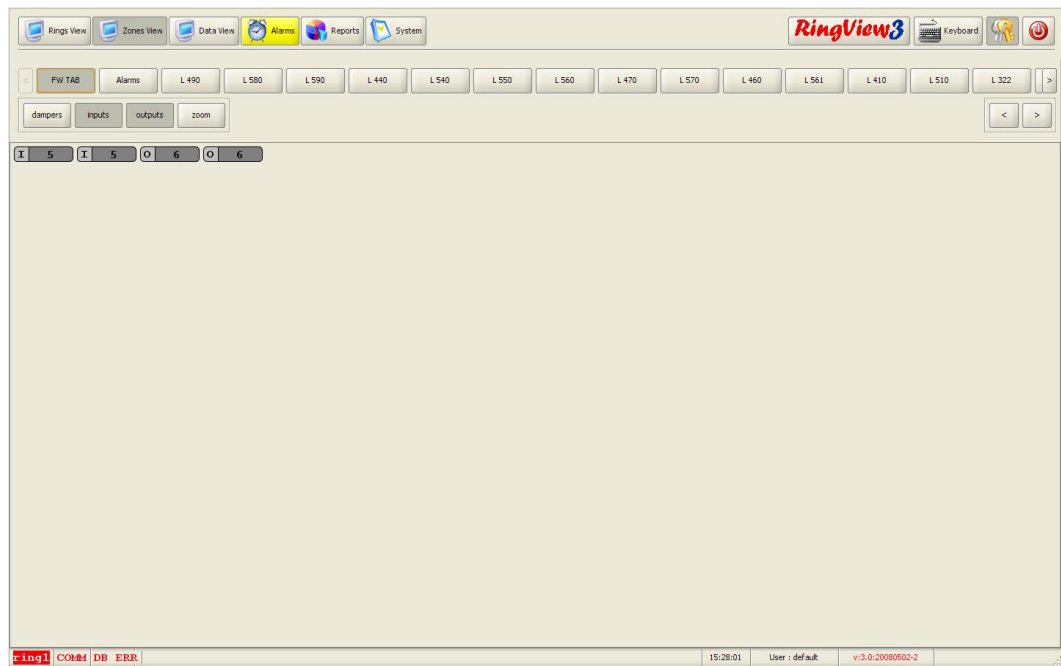


FIGURE 6.5: ZONES DISPLAY

Remaining features are identical to those in the Rings view, so the user is instructed to read the Section 6.1.

6.3. Unit display

From Unit display, an individual Unit is being monitored/controlled. Each Unit type has its own type of screen, with its distinctive characteristics visualized. It will appear in Ring, Zone or Data view on the right side of the screen, when any Unit is selected.

6.3.1. DI/DO (FIO) unit window

A typical DI/DO detail window for a FIO device is shown in Fig.6.6.

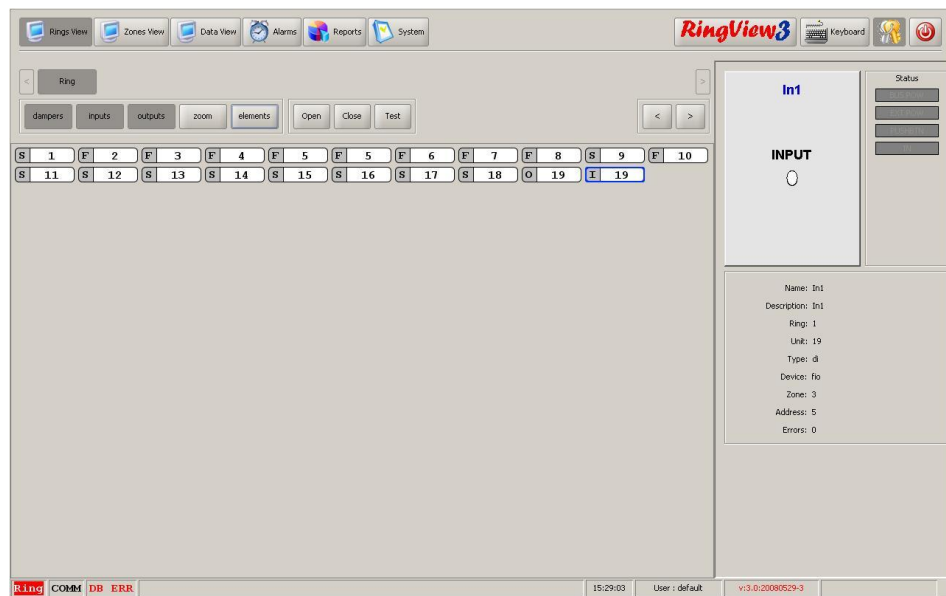


FIGURE 6.6: FIO UNIT WINDOW

The FIO DI/DO Unit window contains the following general information:

- **Ring:** Ring number for this Unit. One unit always belongs to one Ring only.
- **Unit:** Unit mark. This is unique for every Unit within a single RingView application;
- **Name:** Unit name;
- **Description:** Unit description – what does it serve for, where it has been located, etc;
- **Type:** Unit type;
- **Device:** Device type;
- **Zone:** Zone designator for this Unit. One unit always belongs to one Zone only;
- **Address:** The location of the Unit on its parent Device;
- **Errors:** Communication error counter;

In the upper left corner of the screen, a graphical representation of this Unit is shown. Active input/output is given in **green**, while inactive is painted in **gray**.

Finally, the upper right side of the window shows all of the system flags. The color indication in this window is as follows:

- Inputs and outputs are **green** or **gray** depending on whether they are active

or not;

- Also, if some of the power supplies is operational (either Bus- or External), their indicators are shown in **green** (*BUS POW, EXT POW*);

There is an appropriate set of commands for working with DO Units on FIO devices:

- **Open** sends a command to activate the selected output;
- **Close** deactivates the selected output;

6.3.2. FIO Device window

A typical detail window for a FIO Device is shown in Fig.6.7.

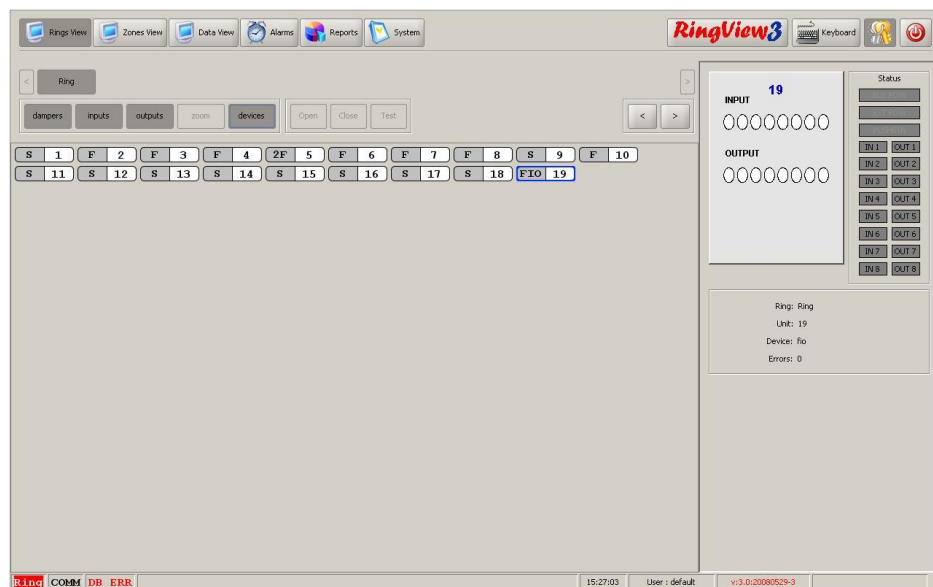


FIGURE 6.7: FIO DEVICE WINDOW

Unlike the DI/DO window, FIO window displays all 16 channels (8 inputs and 8 outputs). In the lower part of the window, the following information can be located:

- **Ring:** Ring number for this Unit. One unit always belongs to one Ring only.
- **Unit:** Unit mark. This is unique for every Unit within a single RingView application;
- **Device:** Device type;
- **Errors:** Communication error counter;

In the upper left corner of the screen, a graphical representation of this Device is shown. Active inputs are given in **green**, active outputs are in **red**, while inactive

ones are painted **gray**.

Finally, the upper right side of the window shows all of the system flags. The color indication in this window is as follows:

- When the bus power supply is OK, *BUS POW* or *EXT POW* flags are **green**;
- *PUSHBTN* colored **green** indicator shows that a button has been pressed on the Unit;
- The remaining flags are colored like in the graphical representation, **green** and **red** for active inputs and outputs.

The window also contains 8 toggle buttons used for activating and deactivating corresponding outputs.

6.3.3. Smoke/Fire unit window

Smoke and fire damper control Units have similar windows, which are shown here (Fig.6.8).

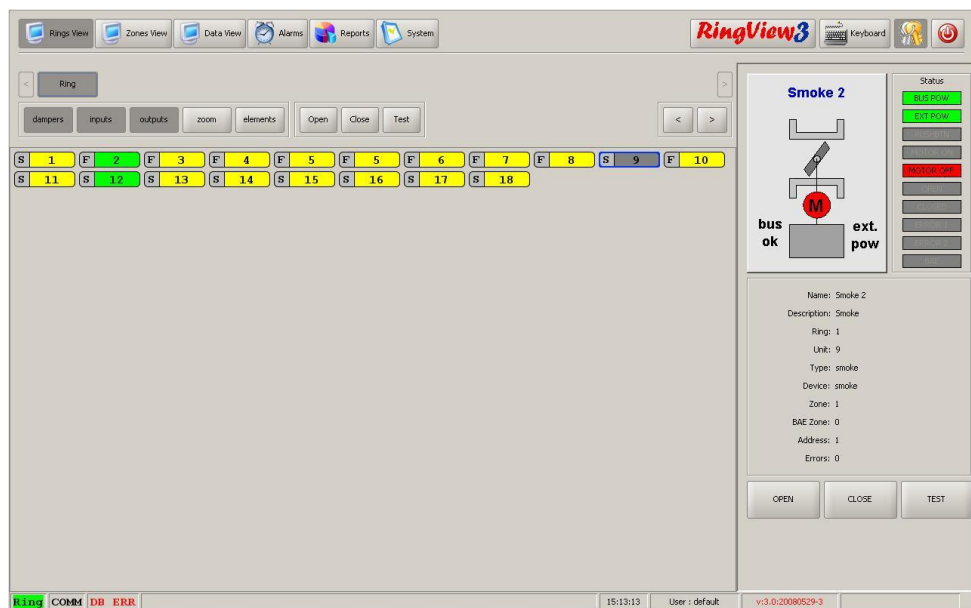


FIGURE 6.8: SMOKE/FIRE UNIT WINDOW

Similarly to the FIO unit previously described, the lower side of the window contains Unit data: Unit Number, Description, and Ring and Zone designators. Please read section 6.3.1 (FIO Unit) for more detailed explanation.

In the middle of the screen, Unit status is visualized. Colors are being used to depict the status of the damper: **green for fully opened**, and **red for fully closed** damper. **Yellow** indicates an error.

The upper right-hand side of the window shows status of system flags:

- If the damper (powered by the motor) is fully opened, the status indicator *OPEN* is written in **green**;
- If the aforementioned damper is fully closed, status *CLOSE* gets **red**;
- *MOTOR ON* colored **green** indicates that the damper is opening;
- *MOTOR OFF* colored **red** shows that the damper is closing;
- If any of the *ERROR 1*, *ERROR 2*, *BAE* errors is confirmed, it is shown in **yellow** (**orange** in the case of *BAE*);
- When the bus power supply is OK, *BUS POW* or *EXT POW* flags are **green**;
- *PUSHBTN* colored **green** indicator shows that a button has been pressed on the Unit;

The commands that can be used on these units are:

- **Open** – fully opens damper of this Unit;
- **Close** – fully closes the damper connected to this Unit;
- **Test** – performs a test sequence on this Unit;

Note: Same commands can be performed over multiple Units simultaneously, for Units grouped in Rings or Zones. Please refer to Sec.6.1 and 6.2 for more details.

6.3.4. Two-motor Fire device

Two-motor smoke/fire device has the same functionality and therefore the same variables displayed as previously described single-engine unit (section 6.3.2.) which is identical in the case of both unit and single motor device representations. The only difference is that, in this case, a single unit controls two dampers

simultaneously (Fig. 6.9). The system flag section on the right-hand side of the display is, naturally, doubled to display inputs for both dampers.

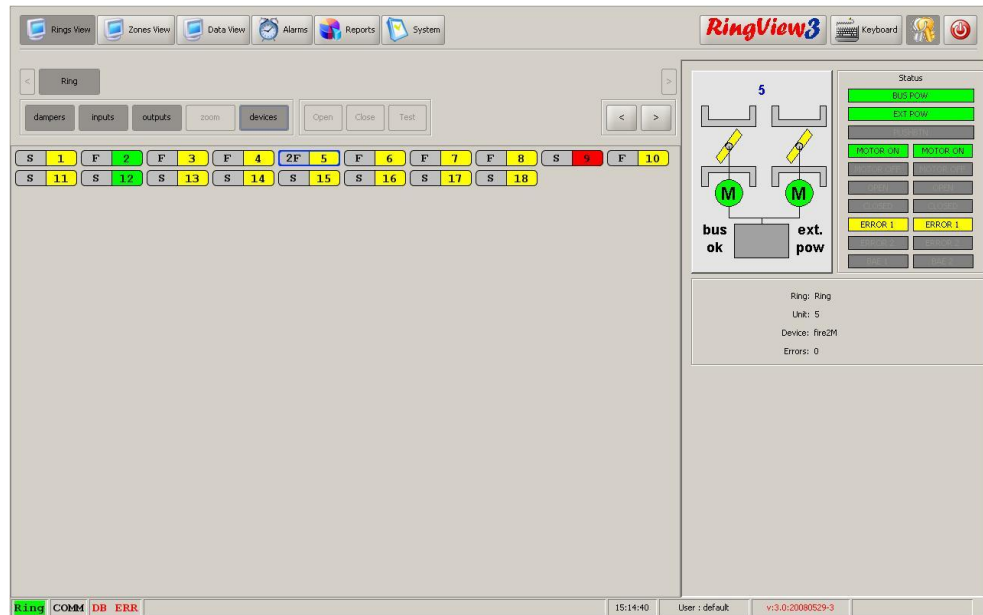


FIGURE 6.9: TWO-ENGINE SMOKE/FIRE UNIT WINDOW

6.3.5. Motorless unit window

Motorless damper control Units have similar windows, which are shown here (Fig.6.8).

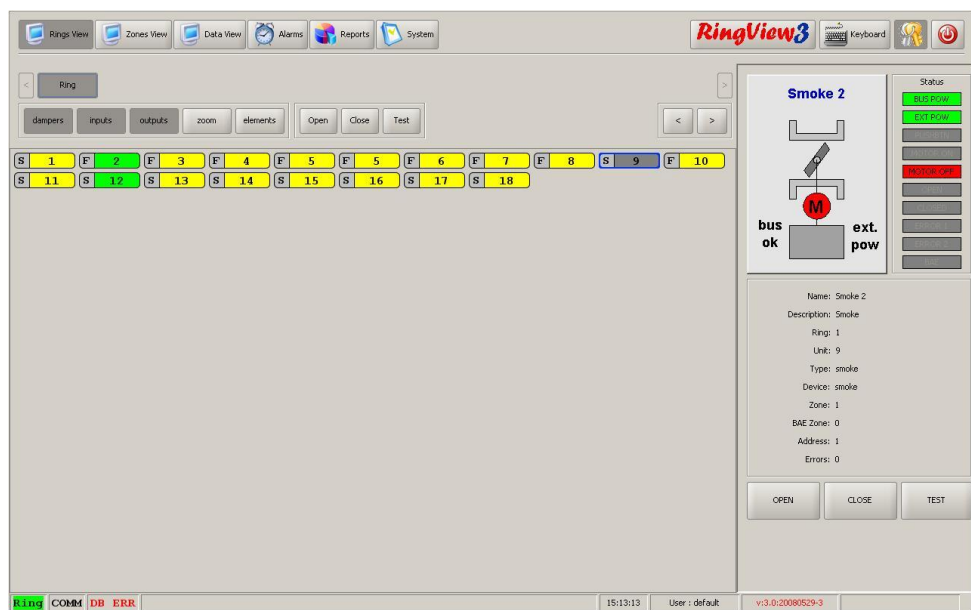


FIGURE 6.10: MOTORLESS UNIT WINDOW

Similarly to the FIO unit previously described, the lower side of the window contains Unit data: Unit Number, Description, and Ring and Zone designators. Please read section 6.3.1 (FIO Unit) for more detailed explanation.

In the middle of the screen, Unit status is visualized. Colors are being used to depict the status of the damper: **green for fully opened**, and **red for fully closed** damper. **Yellow** indicates an error.

The upper right-hand side of the window shows status of system flags:

- If the damper (powered by the motor) is fully opened, the status indicator *OPEN* is written in **green**;
- If the aforementioned damper is fully closed, status *CLOSE* gets **red**;
- If any of the *ERROR 1*, *ERROR 2*, *BAE* errors is confirmed, it is shown in **yellow** (**orange** in the case of *BAE*);
- When the bus power supply is OK, *BUS POW* or *EXT POW* flags are **green**;
- *PUSHBTN* colored **green** indicator shows that a button has been pressed on the Unit;

6.4. System features

System features consider the system – related tasks, such as (re)configuration, I/O definitions, etc. It is being accessed through the System menu (Fig.6.10)

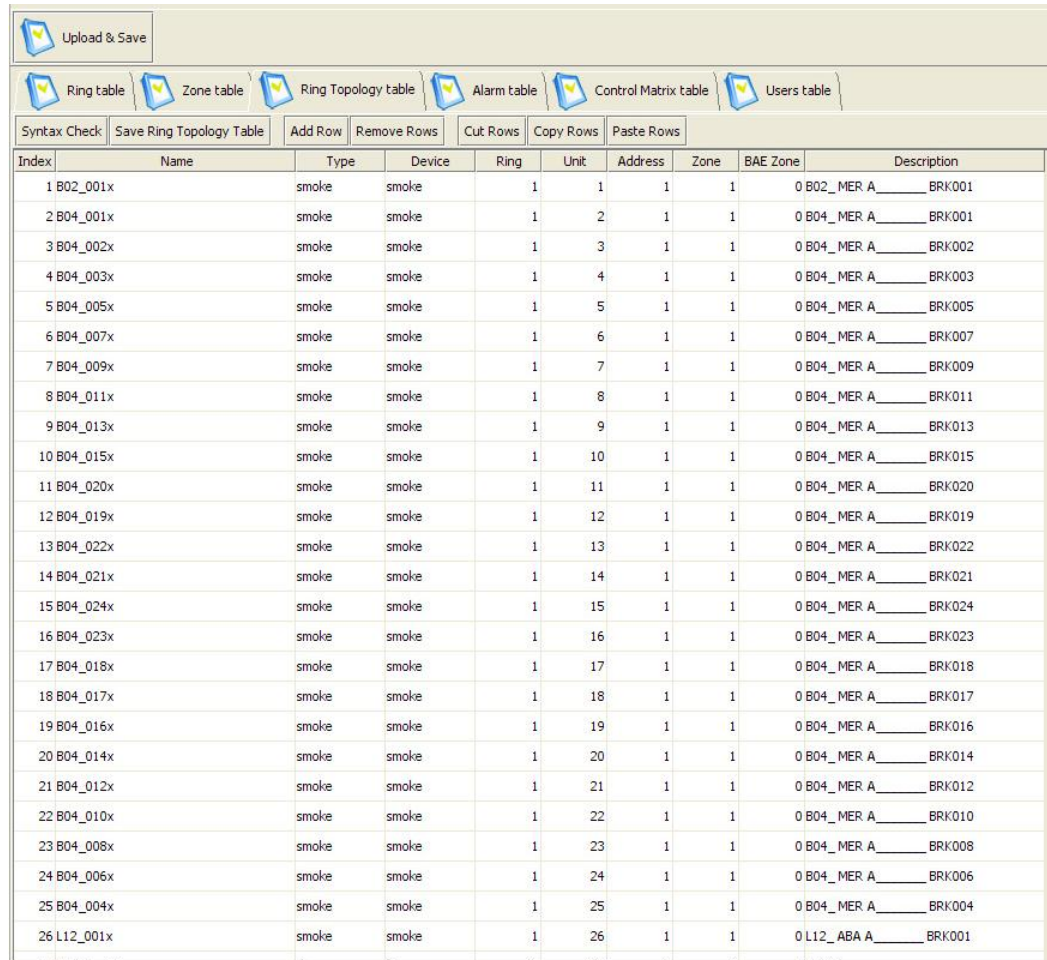
Note: Since changes on this level affect the entire system, access to these resources should be limited, and only several experienced and trusted users should be authorized to access this section of application.



FIGURE 6.10: THE SYSTEM MENU

6.4.1. Ring Topology

The Ring Topology table contains information on all the Units, grouped and sorted into Rings and Zones as needed, and displayed in a table. Here, all the relevant information on each Unit available in the system is displayed (Fig.6.11).



Index	Name	Type	Device	Ring	Unit	Address	Zone	BAE Zone	Description
1	B02_001x	smoke	smoke	1	1	1	1	1	0 B02_MER A _____ BRK001
2	B04_001x	smoke	smoke	1	2	1	1	1	0 B04_MER A _____ BRK001
3	B04_002x	smoke	smoke	1	3	1	1	1	0 B04_MER A _____ BRK002
4	B04_003x	smoke	smoke	1	4	1	1	1	0 B04_MER A _____ BRK003
5	B04_005x	smoke	smoke	1	5	1	1	1	0 B04_MER A _____ BRK005
6	B04_007x	smoke	smoke	1	6	1	1	1	0 B04_MER A _____ BRK007
7	B04_009x	smoke	smoke	1	7	1	1	1	0 B04_MER A _____ BRK009
8	B04_011x	smoke	smoke	1	8	1	1	1	0 B04_MER A _____ BRK011
9	B04_013x	smoke	smoke	1	9	1	1	1	0 B04_MER A _____ BRK013
10	B04_015x	smoke	smoke	1	10	1	1	1	0 B04_MER A _____ BRK015
11	B04_020x	smoke	smoke	1	11	1	1	1	0 B04_MER A _____ BRK020
12	B04_019x	smoke	smoke	1	12	1	1	1	0 B04_MER A _____ BRK019
13	B04_022x	smoke	smoke	1	13	1	1	1	0 B04_MER A _____ BRK022
14	B04_021x	smoke	smoke	1	14	1	1	1	0 B04_MER A _____ BRK021
15	B04_024x	smoke	smoke	1	15	1	1	1	0 B04_MER A _____ BRK024
16	B04_023x	smoke	smoke	1	16	1	1	1	0 B04_MER A _____ BRK023
17	B04_018x	smoke	smoke	1	17	1	1	1	0 B04_MER A _____ BRK018
18	B04_017x	smoke	smoke	1	18	1	1	1	0 B04_MER A _____ BRK017
19	B04_016x	smoke	smoke	1	19	1	1	1	0 B04_MER A _____ BRK016
20	B04_014x	smoke	smoke	1	20	1	1	1	0 B04_MER A _____ BRK014
21	B04_012x	smoke	smoke	1	21	1	1	1	0 B04_MER A _____ BRK012
22	B04_010x	smoke	smoke	1	22	1	1	1	0 B04_MER A _____ BRK010
23	B04_008x	smoke	smoke	1	23	1	1	1	0 B04_MER A _____ BRK008
24	B04_006x	smoke	smoke	1	24	1	1	1	0 B04_MER A _____ BRK006
25	B04_004x	smoke	smoke	1	25	1	1	1	0 B04_MER A _____ BRK004
26	L12_001x	smoke	smoke	1	26	1	1	1	0 L12_ABA A _____ BRK001

FIGURE 6.11: THE RING TOPOLOGY MATRIX

From here, data on each individual Unit can be altered.

With this table, a user can alter the data for individual Unit: By clicking on a data within the table's cell, edit field for this cell is activated. The values can be edited through the common PC keyboard, or through one of the virtual keyboards, in case the touch-screen interface is used. (Fig.6.12).

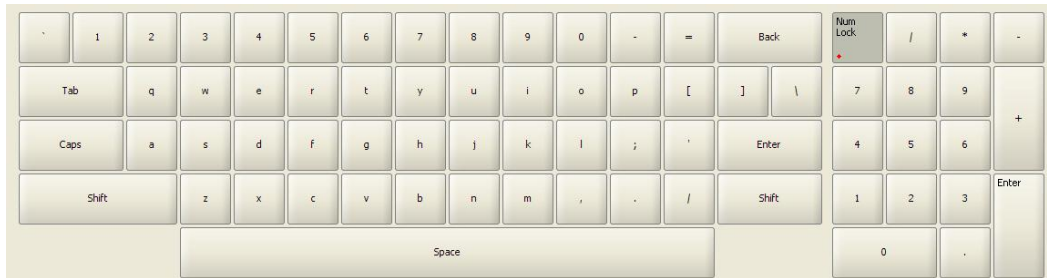


FIGURE 6.12: VIRTUAL KEYBOARDS

After editing Unit data directly in table, changes can be saved and uploaded.

6.4.2. Ring table

In this table new Rings can be defined. They can be then referenced from the RingTopology table.

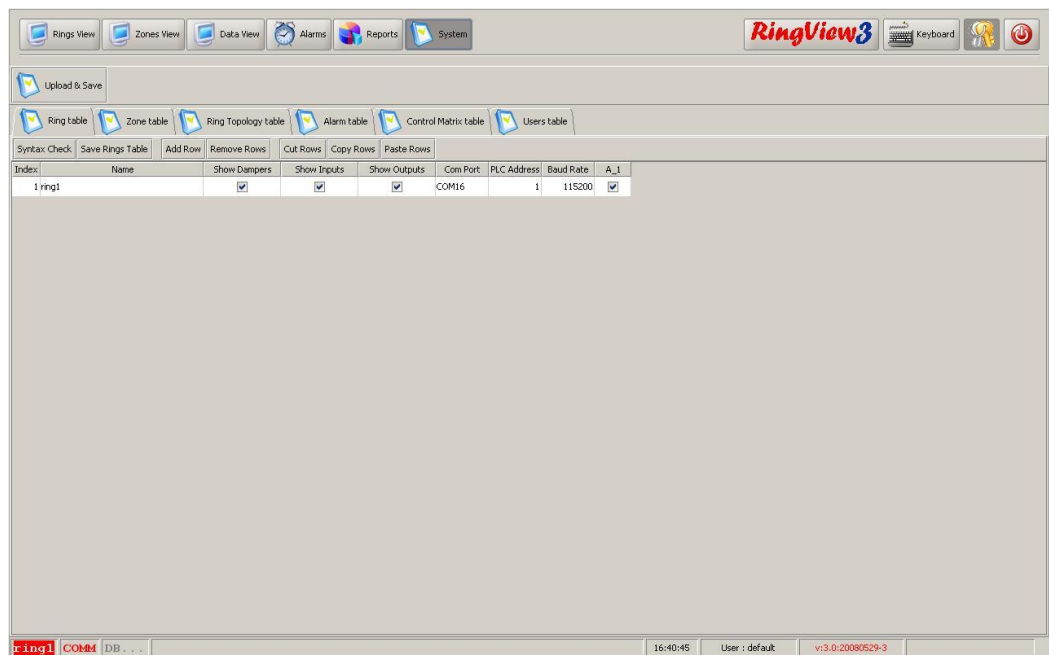
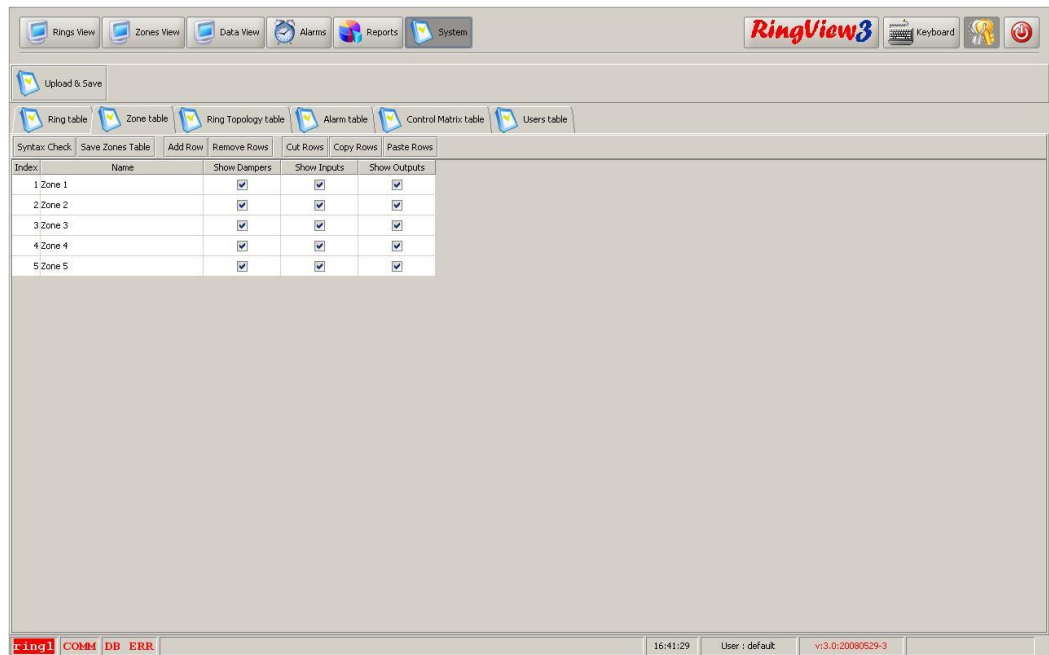


FIGURE 6.13: RING TABLE

6.4.3. Zone table

Functionally similar to Ring table, only used to define zones instead of rings.

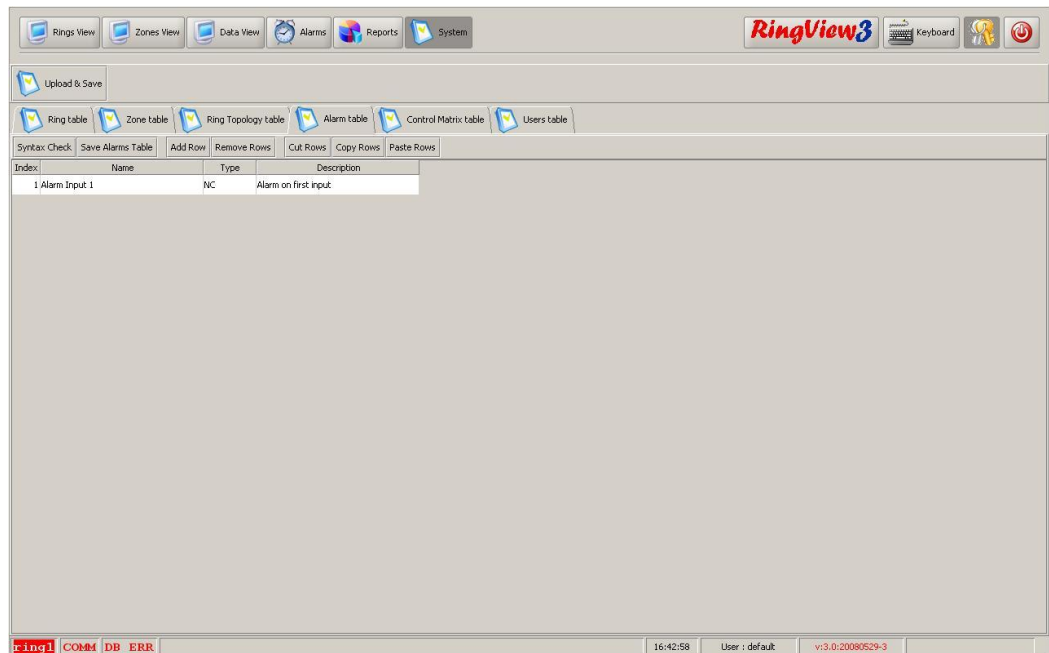


Index	Name	Show Dampers	Show Inputs	Show Outputs
1	Zone 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	Zone 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	Zone 3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Zone 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	Zone 5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

FIGURE 6.14: ZONE TABLE

6.4.4. Alarm table

Alarms are defined in this table. All defined input channels from FIO or DOM devices can be mapped to a certain alarm. Alarm can be NO or NC type



Index	Name	Type	Description
1	Alarm Input 1	NC	Alarm on first input

FIGURE 6.15: ALARM TABLE

6.4.5. Control Matrix table

Control Matrix is designed to allow the System user adjust Unit data and set alarms default state, for all the available Units, from a single spot (Fig.6.13). Much like with the Ring Topology matrix, the data is altered by a single click. Each Unit has its default state and the state mapped to each of the defined alarms.

Index	Name	Ring	Type	Normal	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	A_9	A_10	A_11	A_12	A_13	A_14	A_15	A_16	A_17	A_18	A
1	B02_001x	1	smoke	OPEN	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
2	B04_001x	1	smoke	CLOSE	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN
3	B04_002x	1	smoke	CLOSE	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN
4	B04_003x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
5	B04_005x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
6	B04_007x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
7	B04_009x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
8	B04_011x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
9	B04_013x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
10	B04_015x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
11	B04_020x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
12	B04_019x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
13	B04_022x	1	smoke	OPEN	CLOSE	CLOSE	OPEN	OPEN	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
14	B04_021x	1	smoke	OPEN	CLOSE	CLOSE	OPEN	OPEN	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
15	B04_024x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
16	B04_023x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
17	B04_018x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
18	B04_017x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
19	B04_016x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
20	B04_014x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
21	B04_012x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
22	B04_010x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
23	B04_008x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
24	B04_006x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
25	B04_004x	1	smoke	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
26	L12_001x	1	smoke	OPEN	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE	CLOSE
27	L14_B_01	1	do	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

FIGURE 6.16: THE CONTROL MATRIX

6.4.6. Users table

New users can be defined in this table, along with their user privileges. If a user by the name of “default” exists, he will be logged in automatically upon application startup.

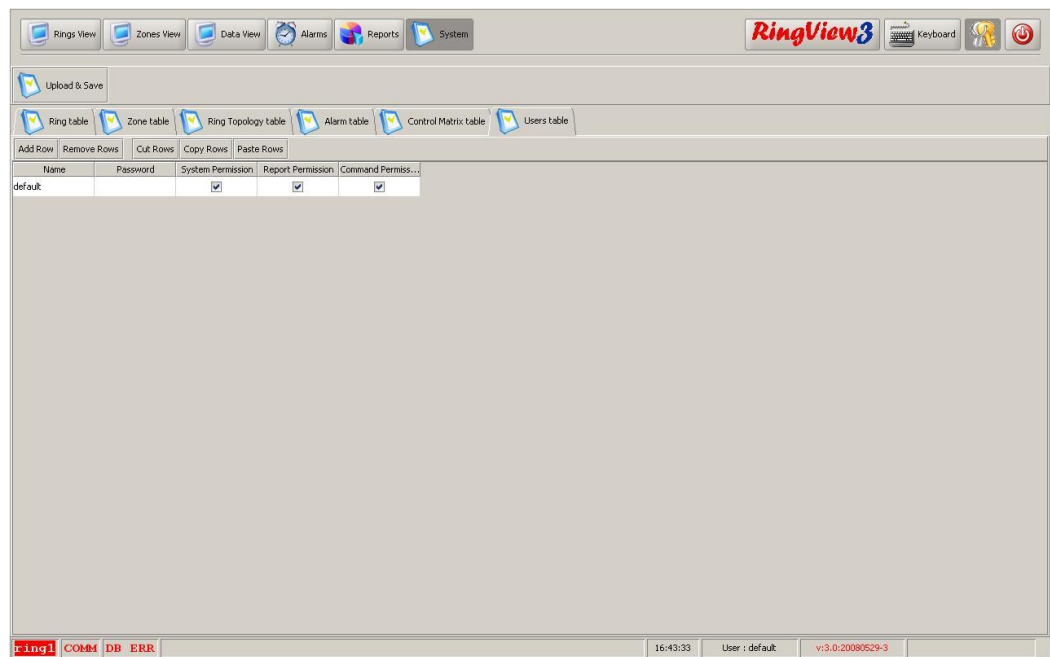


FIGURE 6.17: USERS TABLE

7. COMMON PROCEDURES

7.1. Adding/Replacing a RingBus unit

If a Unit gets broken and needs to be replaced, or if the actual ring needs to be expanded by one or more new Units, this is the procedure that should be followed:

1. Disconnect the power supply for the Ring;
2. Replace the broken Unit/ insert new Unit(s);
3. Reconnect the Unit(s) to the RingBus, and to the sensors and actuators.

Note: Instructions for connecting each individual type of Unit to the bus, sensors and actuators are supplied with the Unit itself.

4. Connect the power back on, and wait for the RBM Unit to restart.
5. In the System Ring, Control and IO tables, adjust the Unit properties, set up alarm states, IOs (for FIO Units). Save the altered data to the server (<File...Save>) and to the RBM, <File...Save Definitions> and <File...Write to RBCU> commands. The task-specific Unit data are thus transferred to the Unit itself and to the Unit Definition Table, on the RingView Server machine.

Note: There is no need to restart either the RingView Client(s) or the Server during this process.

8. OPERATING CONDITIONS & INSTALLATION REQUIREMENTS

In this Section, the general-type operating conditions and requirements for the RingView system and components are given. More detailed, equipment-targeted requirements are delivered with each particular piece of equipment.

Note: If the general-type requirements and equipment-specific requirements do not match, the more restrictive ones are to be applied.

TABLE 8.1: GENERAL-TYPE OPERATING CONDITIONS AND INSTALLATION REQUIREMENTS

RingView SCADA equipment:	
General conditions	Indoor conditions
Ambient temperature	
Relative humidity	
Altitude	
IP rating	
Installation requirements	
RingBus Units:	
General conditions	Indoor
Ambient temperature	
Relative humidity	
Altitude	
IP rating	
Installation requirements	
RingBus Units:	
General conditions	outdoor
Ambient temperature	

TABLE 8.1: GENERAL-TYPE OPERATING CONDITIONS AND INSTALLATION REQUIREMENTS

Relative humidity	
Altitude	
IP rating	
Installation requirements	