Ravel®

Ekonics

Digital Alarm & Voice Evacuation System

Installation, Commissioning & Operating

user Manual

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1.Product Description:

The Ekonics (Digital Alarm and Voice Evacuation System) is Digital Signal Processing (DSP) based voice alarm and Public Address System. The Ekonics System comprises router, Digital Amplifier and Power supply. This unit provides audio routing, full system control and fault reporting functions.

The Ekonics provides digital storage 120 Second Max, it is divided into Maximum 12 DVA messages eight audio outputs. The Ekonics has a front panel display control interface for commissioning the system, fault monitoring and diagnostics.

The Ekonics is supervised in – Building emergency communication system with 24V DC battery backup. The system has multifunction activity such as Evacuation, Emergency message and background music. This system gets the four audio inputs namely Alarm, Mic, DVA & Aux. The input is activated for corresponding zone or All zones depending upon the selection. It shall be possible to control the audio gain level of the all zone. Ekonics is linked / integrated with the Fire Alarm control Panel (Avani) through RS485.

1.1 Product Features:

- 4 audio inputs can configure to 8 outputs.
- 19" Rack mountable.
- All-call or zone wise paging.
- Built-in 12 Programmable DVA messages.
- 40x4 LCD Display.
- Interface with Avani via RS-485
- 3 Levels of Password protection.
- RS485 communication facility.
- Event log with RTC.
- User selectable Volume level & 3 Band Equalizer for audio input.
- All field circuits are supervised.

- Operates on 220V±10% SMPS.
- Inbuilt 250W Amplifier (2X125W)
- Zone wise selection through keypad
- Programmable one form C Relay
- Zone Selection, Fault status in unambiguous colored LED indication.

1.2Specification:

Primary Power : 220VAC + 10% -15%, 50 Hz.

Standby Power : 24V DC (Lead acid battery)

Operating Condition

Operating Temperature : 0 - 49° C / 32-120° F.

Relative Humidity : 93 ± 2% RH (non-condensing) at 32 ±2° C / 90 ±3° F.

Charging Circuit

Charging Voltage 28 V, ±0.5V Nominal

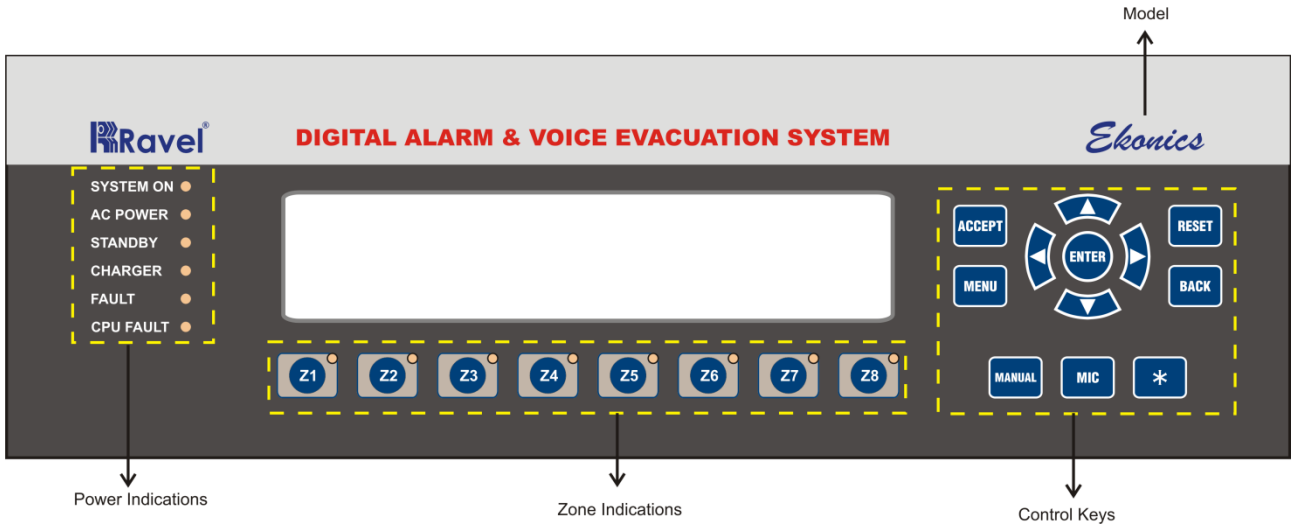
Charging Current 1.2A (Max.).

DC Output : 24 VDC @ Max 3A

Audio

Audio Inputs	: 4
Audio outputs	: 8 Zone
Build in DVA / Alarm storage	: Max 12 Messages or 120 seconds
Analogue input interfaces	: 8 Contacts (Normally Open)
Maximum Watts	: 250Watt (2X125W)
Dimensions(3U)	: 482.6 mm W X 134 mm H X 325D

2.Control and Indications



2.1 Controls

ACCEPT Key:

- ✓ To silence the internal buzzer tone in fault and fire condition.
- ✓ User or Admin password protected.

RESET Key:

- ✓ To reset the entire system.
- ✓ User or Admin password protected.

MENU Key:

- ✓ To enter into the Main Menu in the LCD.

BACK Key:

- ✓ This Key is used to go back to the previous screen in programming mode.

ENTER Key:

- ✓ Enter Key is used to Select, Edit and Save menu in LCD.

CURSOR KEYS:

- ✓ To move the cursor point in the LCD as required and increase and decrease the values.

MANUAL Key:

- ✓ This key is used to select the Alarm, DVA & Aux Sources.

MIC Key:

- ✓ This key is used to select the MIC.

'*' Key:

- ✓ * key is used to select the functions like Edit, Allcall, Delete, Number key 0 & 9. * Key is also used to Activate Main Panel Zones + Programmable Expander.

2.2 Indications

2.2.1 LED Indications

System ON – Green

AC Power – Green

Standby – Green

Charger – Green

Fault – Orange

CPU Fault – Orange

Zone- Orange

2.2.2 LCD Indications

The LCD is mainly used for the programming of the panel. It also indicates all events along with the LED indications except system on and system fault.

2.3 Input Circuits

A. *Primary Power:*

The Primary source for Ekonics is 220VAC / 50Hz , 2Amps using AC Socket with protection of Circuit breaker.

B. *Secondary Power*

Observe polarity when connecting the battery(2 X 12V 7AH Lead acid Battery) . Connect the battery cable to connector provided at unit back side.

C. *Record*

We can record an audio through this input using 3.5 mm stereo socket by connecting it to any source like PC / Mobile / Tablet.

D. *DVD I/P*

This input is used to play a background music through DVD player using AV Cable.

E. *Remote Input*

This input is used to connect any potential free contact. When contact is activated, audio can be routed from any combination of sources to any combination of outputs. Therefore a single contact may cause EVACUATE message to be broadcast in programmable zones, while remaining zones are remains idle.

We can select Eight contacts namely Alarm, DVA, Allcall Alarm, Allcall DVA, Fault Clear, Fault reset, Contact 7, Cantact 8. This Contact is located in the menu path

Menu→Config→Router→Control→contact

F. *FAP RS485 Input*

The Ekonics shall be integrated with Analogue Addressable panel Avani via this RS-485 Input. The connecting cable should be Cat 5E twisted pair cable or Equivalent.

G. 100V Input:

The Ekonics 8 Zone wise 100v input which can accept Maximum 250W per zone. The 100v input shall be connected from the Amplifier 100V output (Channel A & B) as shown in field wiring diagram. These zone wise 100v input is converted as 100V output respectively to connect speakers.

2.4 Output Circuits

A. 100V output

i) Channel A & B

The Ekonics has two 125 Watt 100V audio output as channel – A & B, these outputs given to 8 Zone wise 100V input as shown in the field wiring diagram.

ii) 100V output Zones

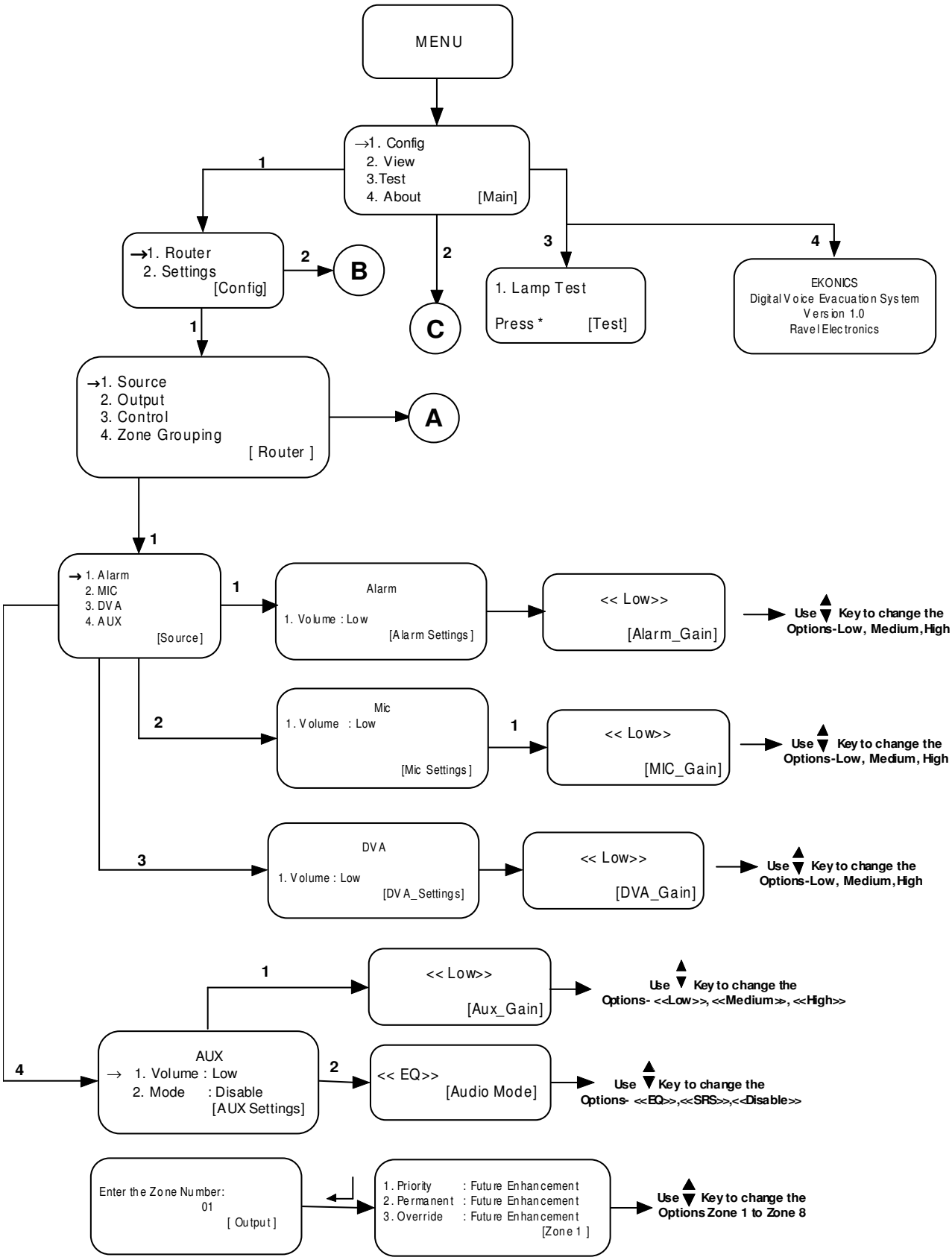
The Ekonics has 8 Zone wise 100v output to connect 100v RE-LSX series Speakers

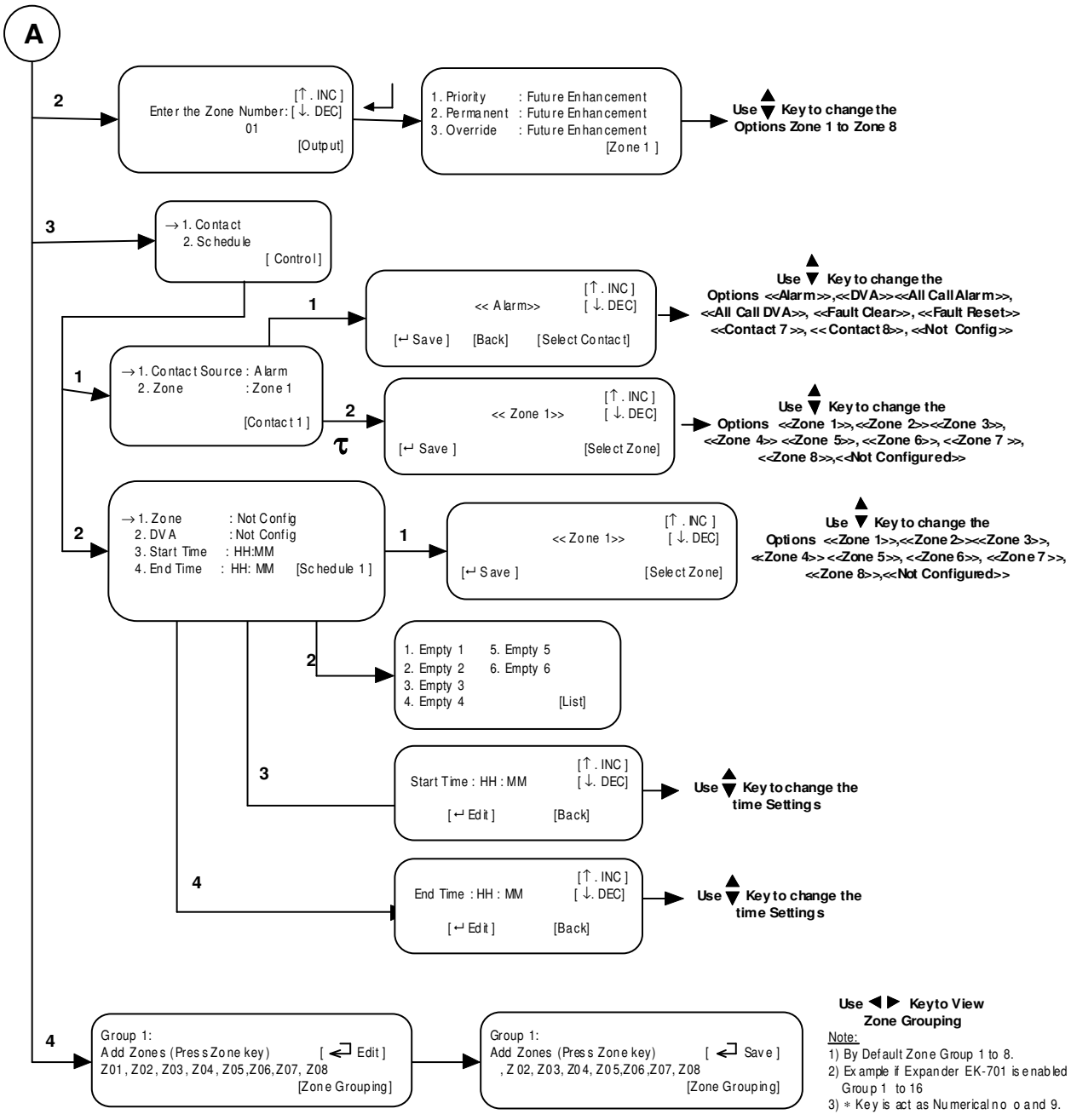
B. 24VDC output

The 24VDC output having a capacity of 0.3Amps.

3.Programming Instructions

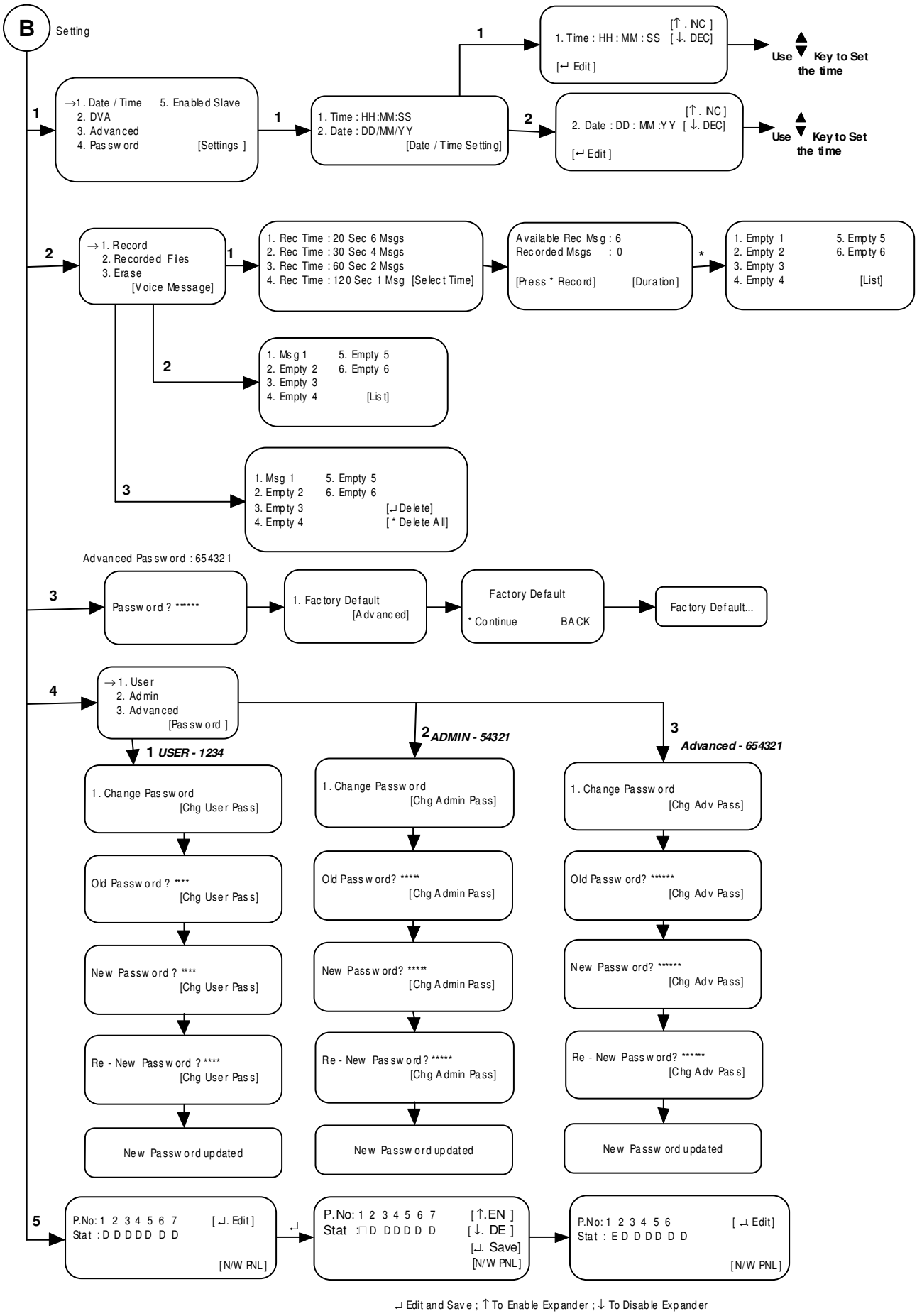
3.1 Menu Key Flow Diagram

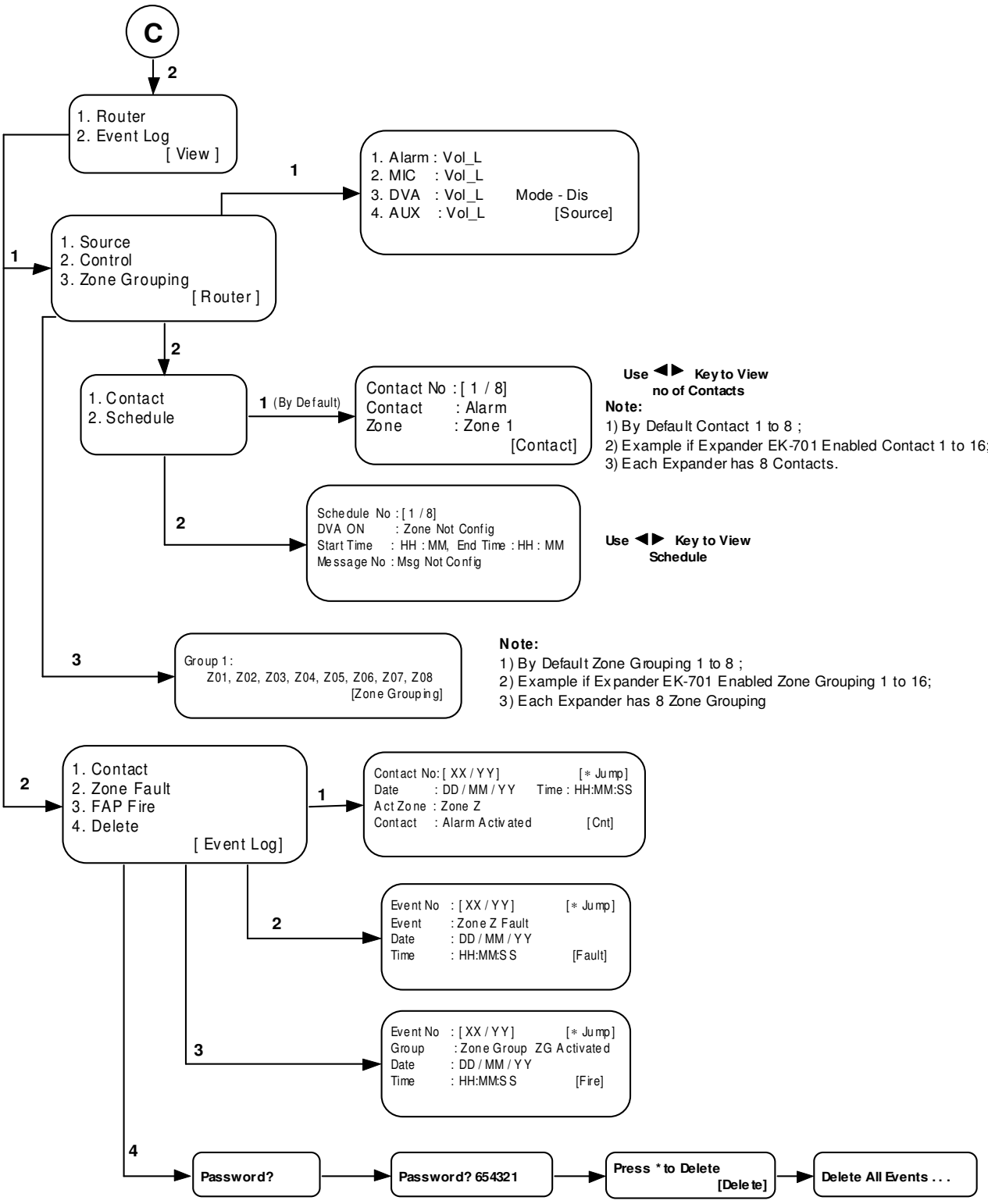

MENU
→1. Config
2. View
3.Test
4. About [Main]
1
2
3
4
→1. Router
2. Settings
[Config]
B
C
1. Lamp Test
Press * [Test]
EKONICS
Digital Voice Evacuation System
Version 1.0
Ravel Electronics
→1. Source
2. Output
3. Control
4. Zone Grouping
[Router]
A
→ 1. Alarm
2. MIC
3. DVA
4. AUX
[Source]
Alarm
1. Volume : Low
[Alarm Settings]
<< Low>>
[Alarm_Gain]
Use ▲▼ Key to change the Options-Low, Medium,High
Mic
1. Volume : Low
[Mic Settings]
<< Low>>
[MIC_Gain]
Use ▲▼ Key to change the Options-Low, Medium, High
DVA
1. Volume : Low
[DVA_Settings]
<< Low>>
[DVA_Gain]
Use ▲▼ Key to change the Options-Low, Medium,High
<< Low>>
[Aux_Gain]
Use ▲▼ Key to change the Options- <<Low>>, <<Medium>>, <<High>>
AUX
→ 1. Volume : Low
2. Mode : Disable
[AUX Settings]
<< EQ>>
[Audio Mode]
Use ▲▼ Key to change the Options- <<EQ>>,<<SRS>>,<<Disable>>
Enter the Zone Number:
01
[Output]
1. Priority : Future Enhancement
2. Permanent : Future Enhancement
3. Override : Future Enhancement
[Zone 1]
Use ▲▼ Key to change the Options Zone 1 to Zone 8



Note:

τ - By Default Contact 1 to 8 ; Example if Expander EK-701 Enabled Contact 1 to 16; Use ◄► Key to view no of Contact. Each Expander has 8 Contacts.


B
Setting
1
→1. Date / Time 5. Enabled Slave
2. DVA
3. Advanced
4. Password [Settings]
1
1. Time : HH:MM:SS
2. Date : DD/MM/YY
[Date / Time Setting]
1
1. Time : HH : MM : SS [↑. INC] [↓. DEC]
[↵ Edit]
Use Key to Set the time
2
2. Date : DD : MM :YY [↑. INC] [↓. DEC]
[↵ Edit]
Use Key to Set the time
2
→1. Record
2. Recorded Files
3. Erase
[Voice Message]
1
1. Rec Time : 20 Sec 6 Msgs
2. Rec Time : 30 Sec 4 Msgs
3. Rec Time : 60 Sec 2 Msgs
4. Rec Time : 120 Sec 1 Msg [Select Time]
Available Rec Msg : 6
Recorded Msgs : 0
[Press * Record] [Duration]
*
1. Empty 1 5. Empty 5
2. Empty 2 6. Empty 6
3. Empty 3
4. Empty 4 [List]
2
1. Msg 1 5. Empty 5
2. Empty 2 6. Empty 6
3. Empty 3
4. Empty 4 [List]
3
1. Msg 1 5. Empty 5
2. Empty 2 6. Empty 6
3. Empty 3 [↵ Delete]
4. Empty 4 [* Delete All]
Advanced Password : 654321
3
Password ? ******
1. Factory Default
[Advanced]
Factory Default
* Continue BACK
Factory Default...
4
→1. User
2. Admin
3. Advanced
[Password]
1 USER - 1234
2 ADMIN - 54321
3 Advanced - 654321
1. Change Password
[Chg User Pass]
Old Password ? ****
[Chg User Pass]
New Password ? ****
[Chg User Pass]
Re - New Password ? ****
[Chg User Pass]
New Password updated
1. Change Password
[Chg Admin Pass]
Old Password? *****
[Chg Admin Pass]
New Password? *****
[Chg Admin Pass]
Re - New Password? *****
[Chg Admin Pass]
New Password updated
1. Change Password
[Chg Adv Pass]
Old Password? ******
[Chg Adv Pass]
New Password? ******
[Chg Adv Pass]
Re - New Password? ******
[Chg Adv Pass]
New Password updated
5
P.No: 1 2 3 4 5 6 7 [↵. Edit]
Stat : D D D D D D D
[N/W PNL]
↵
P.No: 1 2 3 4 5 6 7 [↑.EN]
Stat : □ D D D D D D [↓. DE]
[↵. Save]
[N/W PNL]
P.No: 1 2 3 4 5 6 [↵ Edit]
Stat : E D D D D D D
[N/W PNL]
↵ Edit and Save ; ↑ To Enable Expander ; ↓ To Disable Expander

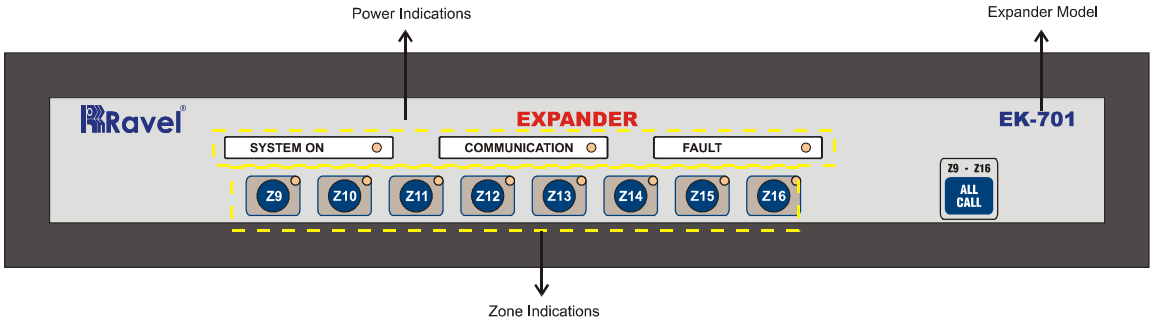

C
2
1. Router
2. Event Log
[View]
1
1. Alarm : Vol_L
2. MIC : Vol_L
3. DVA : Vol_L Mode - Dis
4. AUX : Vol_L [Source]
1
1. Source
2. Control
3. Zone Grouping
[Router]
2
1. Contact
2. Schedule
1 (By Default)
Contact No : [1 / 8]
Contact : Alarm
Zone : Zone 1
[Contact]
Use ◄► Key to View no of Contacts
Note:
1) By Default Contact 1 to 8 ;
2) Example if Expander EK-701 Enabled Contact 1 to 16;
3) Each Expander has 8 Contacts.
2
Schedule No : [1 / 8]
DVA ON : Zone Not Config
Start Time : HH : MM, End Time : HH : MM
Message No : Msg Not Config
Use ◄► Key to View Schedule
3
Group 1 :
Z01, Z02, Z03, Z04, Z05, Z06, Z07, Z08
[Zone Grouping]
Note:
1) By Default Zone Grouping 1 to 8 ;
2) Example if Expander EK-701 Enabled Zone Grouping 1 to 16;
3) Each Expander has 8 Zone Grouping
2
1. Contact
2. Zone Fault
3. FAP Fire
4. Delete
[Event Log]
1
Contact No: [XX / YY] [* Jump]
Date : DD / MM / YY Time : HH:MM:SS
Act Zone : Zone Z
Contact : Alarm Activated [Cnt]
2
Event No : [XX / YY] [* Jump]
Event : Zone Z Fault
Date : DD / MM / YY
Time : HH:MM:SS [Fault]
3
Event No : [XX / YY] [* Jump]
Group : Zone Group ZG Activated
Date : DD / MM / YY
Time : HH:MM:SS [Fire]
4
Password?
Password? 654321
Press * to Delete
[Delete]
Delete All Events . . .

EXPANDER

Product Overview:

The Expander series is a zone expander for DSP based voice alarm and Digital Alarm and Voice Evacuation System (Ekonics). The system comprises of router which provides audio routing, expander control and fault reporting functions. The system is capable of 8 audio outputs and 8 programmable contact inputs. There are totally Seven Expanders EK-701,EK-702,EK-703,EK-704, EK-705, EK-706, EK-707.

Control and Indications



Keys

Zone Key – To turn on / off zones

All Call (Z9-16) - Select All Call Switch to turn on/off zones (9-16).

The All Call key is used to activate Corresponding Expander Zones.

Indications

System on - Green

Communication – Orange

Fault – Orange

Zone - Orange

Note:

Communication LED Continuous On - Communication Error.

Communication LED Blinks - Communication Ok

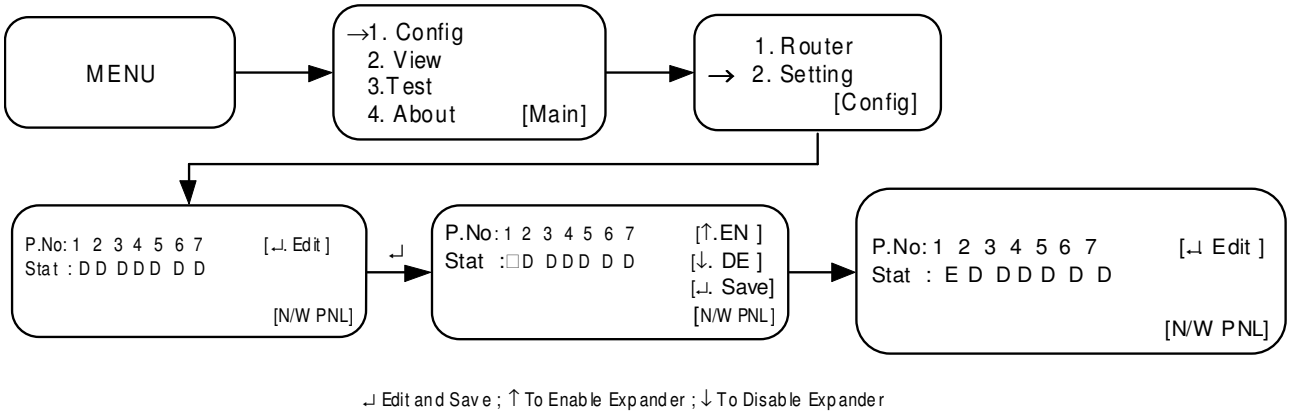
How to Configure Expander

Pre conditions:

1. Connect RS485 wiring between EKONICS and Expander
2. Check communication LED is ON in Expander
3. Configure the Expander.

Goto *Menu->Config->Settings -> Enabled Slave*

Enable the connected Expander



↵ Edit and Save ; ↑ To Enable Expander ; ↓ To Disable Expander

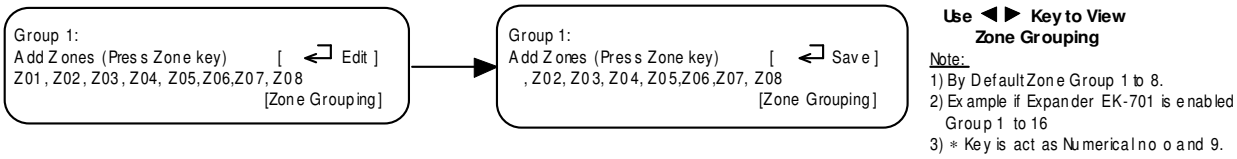
Zone Grouping

Pre conditions:

i. RS485 : Connect the 485 wire between Ekonics FAP-485 to AVANI RS485 output.

Go to Menu->Config->Router->Zone Grouping

In this grouping maximum 64 zone can grouped. Each Group can be added maximum 8 Zones of FACP. After entering, screen will be as below



ii. Zone Grouping : Ekonics grouping should programmed for AVANI zones.

iii. Zone : Programmed zone should be normal condition.

Max number of group: 64

Each group can be added max 8 zones.

Total no of Group: Ekonics Group + Enabled Expander Group

Example1: (Ekonics Only) (Group-1 to Group-8)

Group 1:

FACP: Z01, Z02, Z03, Z04, Z05, Z06, Z07, Z08

Example2: (EKonics With EK-701) (Group 1 to Group 16)

Group 9:

FACP : Z01, Z02, Z03, Z04, Z05, Z06, Z07, Z08

Control

Pre conditions:

i. Zone : Selected Zone should not be fault position

ii. Message : Message must be recorded.

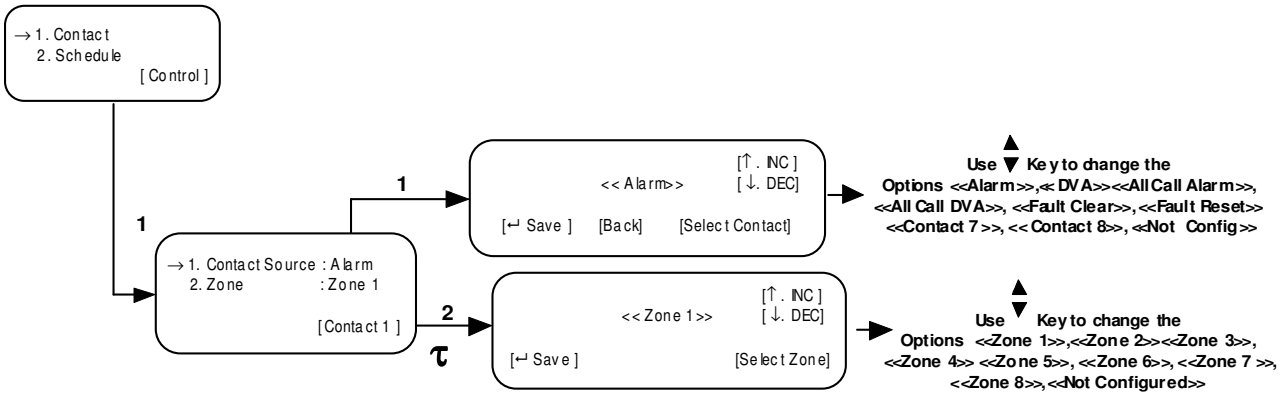
By Pressing the Menu→Config→Router→Control

Contacts

By Selecting the contact from Control key it enters into the Contacts. It is further classified into contact source & Zone.

The maximum no of Contact source is 8. They are Alarm, Allcall Alarm, Allcall DVA, DVA, Fault clear, Fault Reset, Contact-7 and Contact-8.

Example: If Contact-1 is shorted, Alarm signal will activate in Zone-1.After release, Zone will turn default condition.



Note:

τ - By Default Contact 1 to 8 ; Example if Expander EK-701 Enabled Contact 1 to 16; Use ◄► Key to view no of Contact. Each Expander has 8 Contacts.

Schedule

Pre conditions:

i.Zone : Selected Zone should not be fault position

ii. Message : Message must be recorded.

iii. Time : Start time and End time should be programmed.

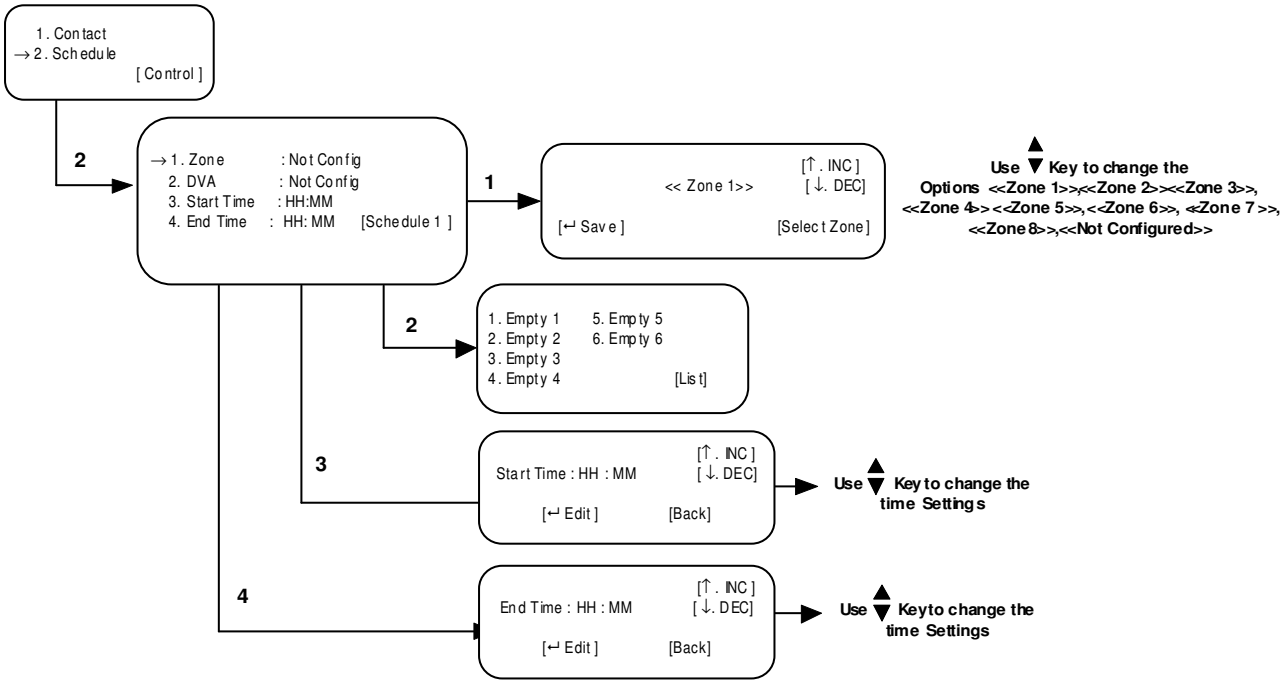
IV. Zone : Zones should be programmed

V. Message : Message should be programmed.

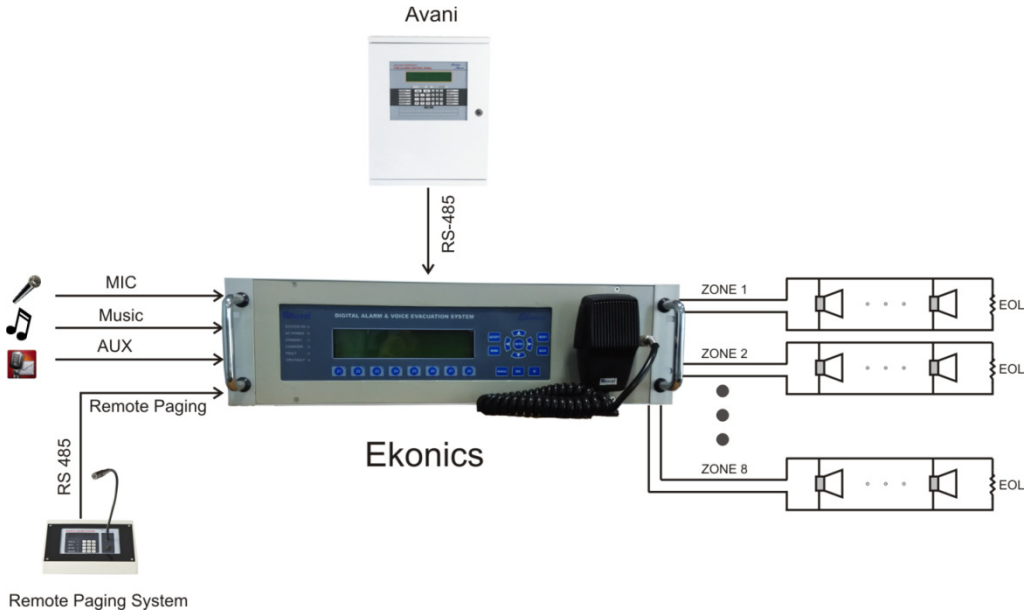
NOTE: The DVA signal is to be played only the programmed zones all other zones should be muted.

The Schedule mode automatically activated for pre-programmed timing.

The total no of schedule is 8.

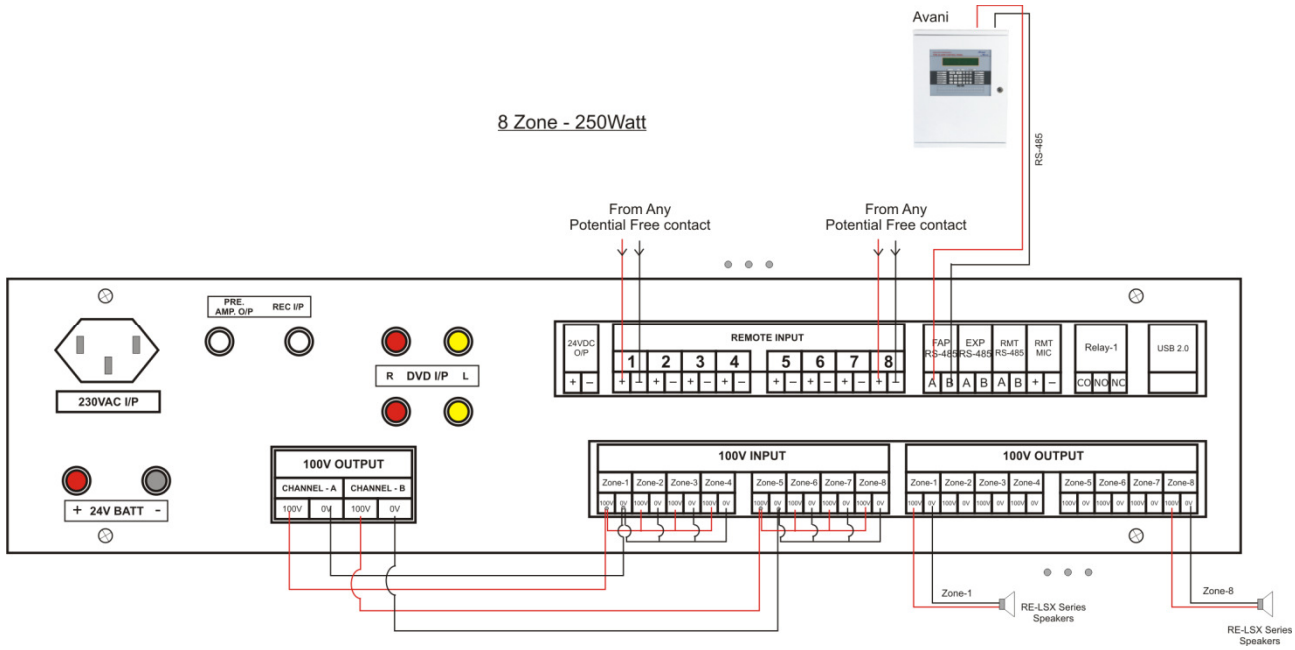


Block diagram

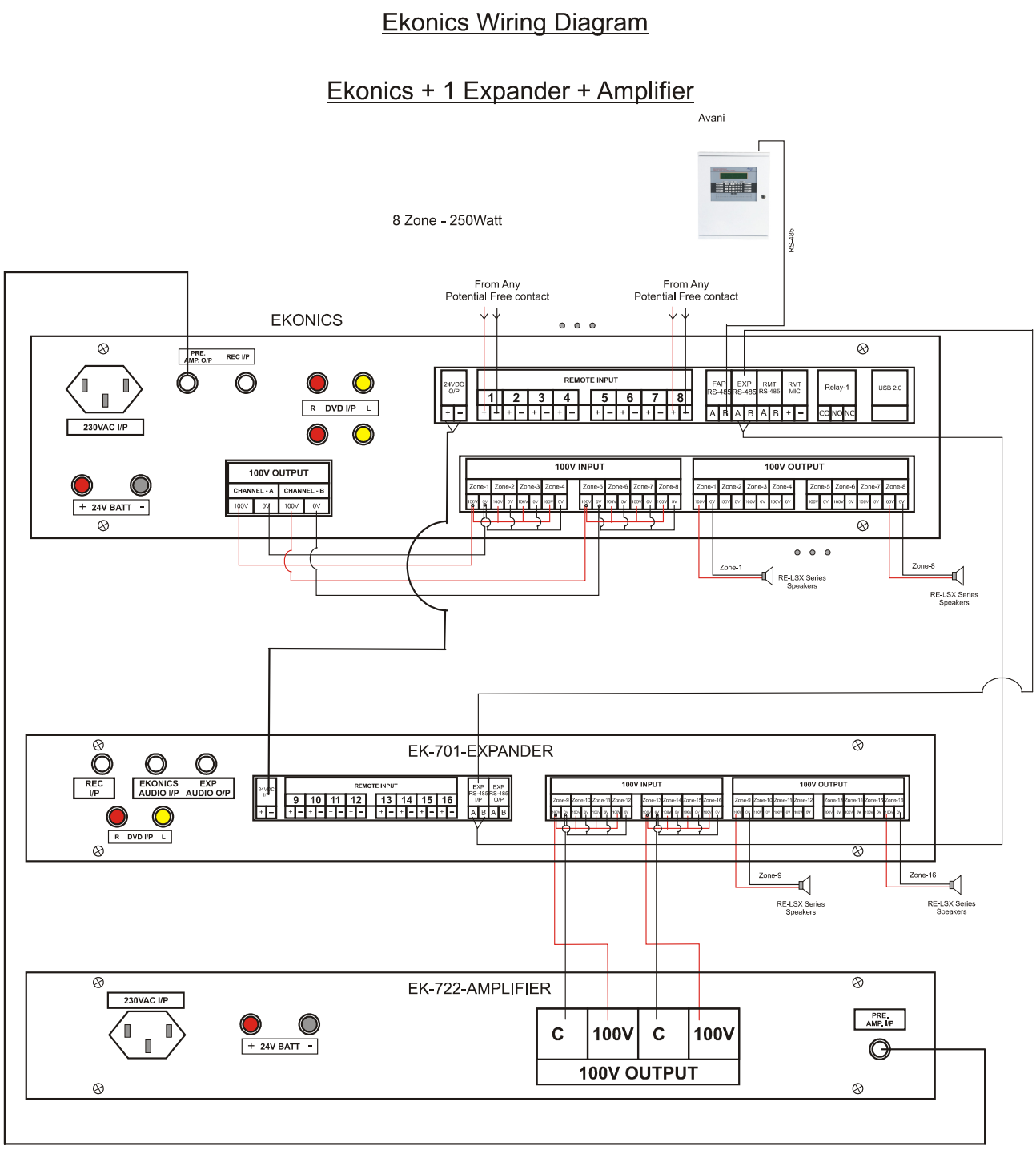


EKONICS is compatible with Addressable Panel (Avani)

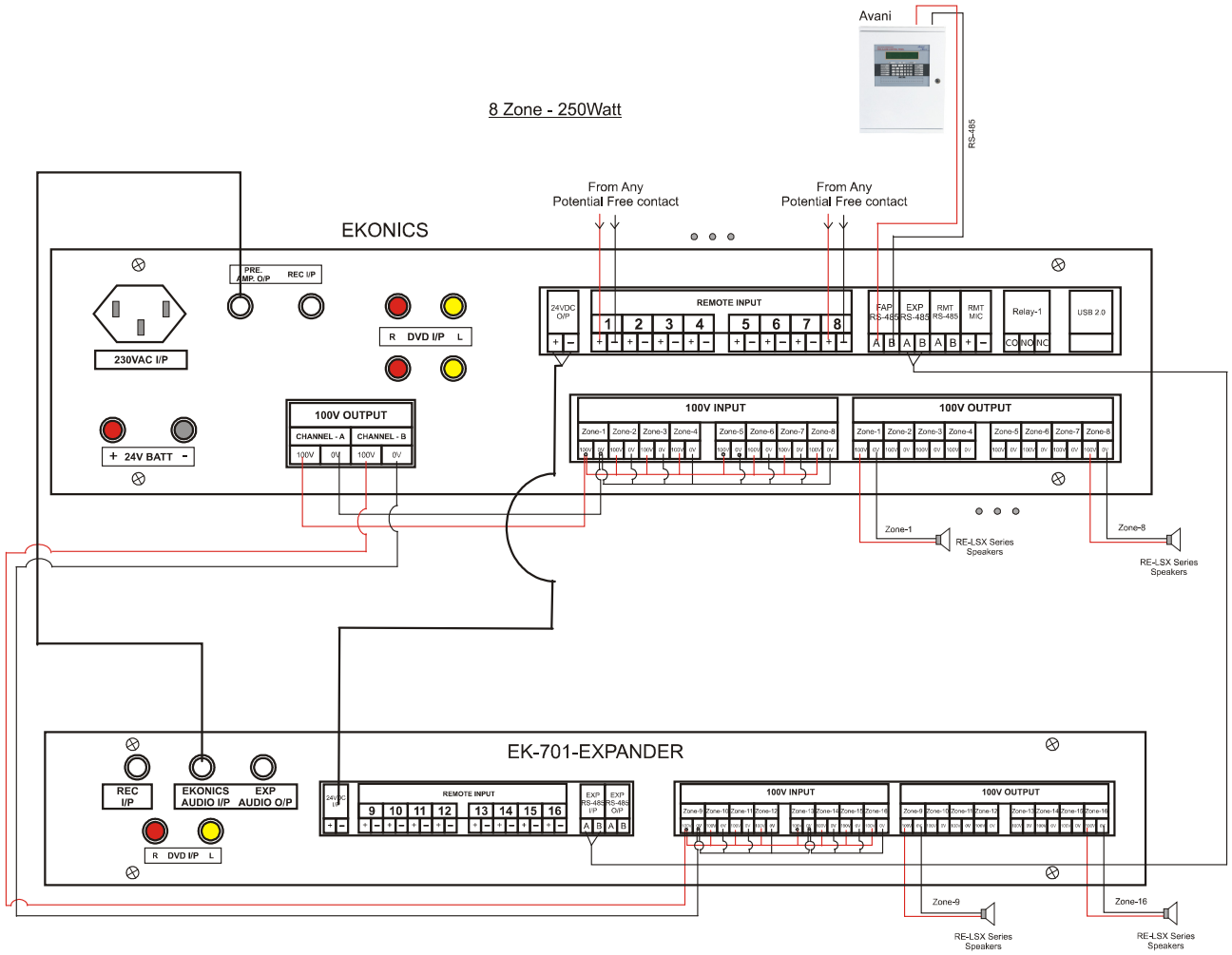
Field wiring Diagram - Ekonics



Field wiring Diagram – Ekonics with Expander



Ekonics + 1 Expnder



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Web: www.ravelfire.com

ISO 9001 - 2008

DATE:

TEST CERTIFICATE

We hereby certify that the items detailed hereon have been manufactured, inspected and electrically tested to ensure the compliance with Ravel Product and process specification.

Model No.: **EKONICS**

Serial No.:

No. of Zones:

For **RAVEL ELECTRONICS PVT.LTD,**

Q.C. – Engineer Tested By

RAVEL ELECTRONICS PVT. LTD
No. 150-A, Elec. Indsl. Estate, Perungudi, chennai – 600 096. India
Tel.: 24961004 / 24960825 Fax: 044-4204 9599
Email: marketing@ravelfire.com
Web: www.ravelfire.com

WARRANTY CERTIFICATE

Model No.: **EKONICS**

Serial No.:

Ravel Electronics warrants each product to be free from defects in material and workmanship. This obligation is limited to servicing or part returned to the company for that purpose and making good any parts thereof which shall be within warranty period, returned to the company under a written intimation and which to the company's satisfaction to be found defective. The company reserves the right to decide the workplace for the repair work. The freight for defective material will have to be borne by the purchaser, and the transit risk for such material will rest with the purchaser.

This warranty will last for a period of **12 months** from the date of Invoice of the product from the factory. The warranty is applicable only if the product is used within its specifications. The warranty for the replaced components will lapse along with that of the main product.

THIS WARRANTY IS VALID UP TO: **12 months from the date of invoice**

Authorised Signatory

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Email: marketing@ravelfire.com