

**Mult
Tasker™**



MANUAL PART NUMBER: 400-0153-003

ISM5000/5106

**INTERA MINI-CONTROLLER
MODULE – MASTER/SLAVE**

USER'S GUIDE

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PRECAUTIONS / SAFETY WARNINGS 1

Please read this manual carefully before using your **ISM5000/5106**. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **ISM5000/5106** and to prevent fire and shock hazard. Please read them carefully and heed all warnings.

1.1 GENERAL

- Qualified ALTINEX service personnel or their authorized representatives must perform all service.

1.2 INSTALLATION

- To prevent fire or shock, do not expose this unit to rain or moisture. Do not place the **ISM5000/5106** in direct sunlight, near heaters or heat radiating appliances, or near any liquid. Exposure to direct sunlight, smoke, or steam can harm internal components.
- Handle your **ISM5000/5106** carefully. Dropping or jarring can damage the unit. If the **ISM5000/5106** is not used for an extended period, disconnect the power cord from the power outlet or turn off the main connection.

1.3 CLEANING

- Unplug the **ISM5000/5106** power cord before cleaning.
- Clean surfaces with a dry cloth. Never use strong detergents or solvents such as, alcohol or thinner. Do not use a wet cloth or water to clean the unit.

1.4 FCC NOTICE

- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference that may cause undesired operation.

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense.
- Any changes or modifications to the unit not expressly approved by ALTINEX, Inc. could void the user's authority to operate the equipment.

ABOUT YOUR CONTROLLER 2

ISM5000/5106

INTERA 6-BUTTON CONTROL PANEL MODULE – MASTER/SLAVE

The **ISM5000/5106** are six button control panels designed to be mounted into the Decora style wall plate. The **ISM5000** is a master unit that can accommodate up to three **ISM5106** Slave units for a total of 24 control buttons. In addition, multiple **ISM5000s'** may be connected to a single Multi-Tasker™.

Each **ISM5000** can be assigned a unique Unit ID number. This makes it easy to combine the control for several rooms into one control or to separate a large working area with a single Multi-Tasker™.

Each unit has six buttons and six LEDs. The units are fully programmable from the Multi-Tasker™ and can execute any subroutine stored in a Multi-Tasker™ unit.

The LED's can be turned "ON" and "OFF", or made to FLASH, with simple subroutine calls. The buttons offer removable transparent faces allowing access to removable labels for easy identification of programmed functions.

TECHNICAL SPECIFICATIONS 3

FEATURES/ DESCRIPTION	ISM5000/5106
GENERAL	
Compatibility	Designed for use with the Multi-Tasker™ 20 / 19 / 12 / 8 / 4 -Slot Enclosures

Table 1. **ISM5000/5106** General

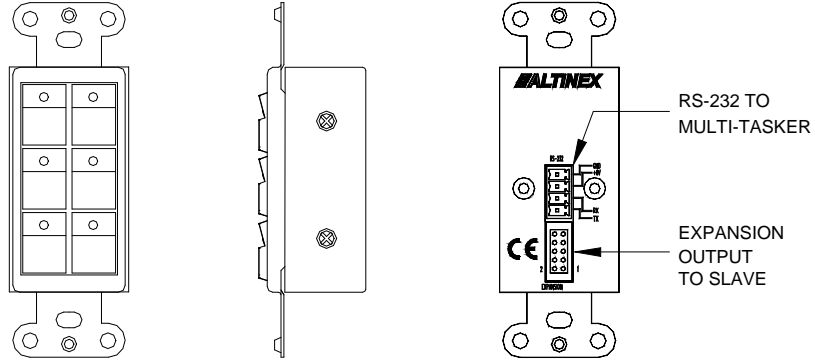
MECHANICAL	ISM5000/5106
T° Operating	10°C-40°C
T° Maximum	0 to 50°C
Humidity	90% non-condensing
MTBF (calc.)	65,000 hrs

Table 2. **ISM5000/5106** Mechanical

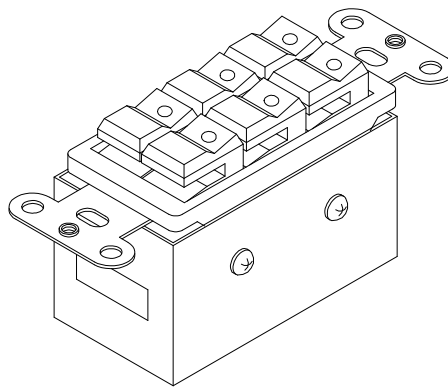
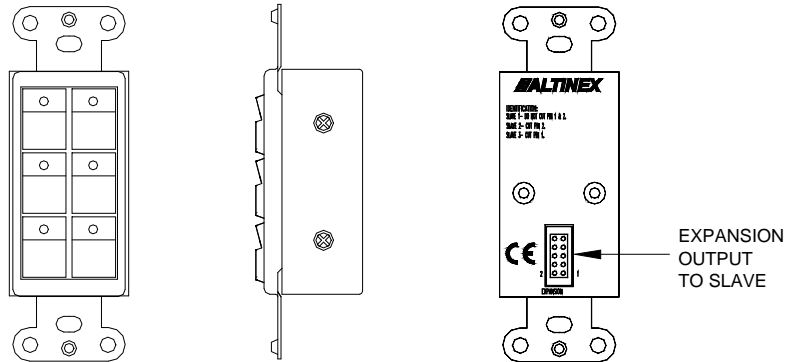
ELECTRICAL	ISM5000/5106
Power	
Power	6V from Multi-Tasker™ 9-pin connector
Power Consumption	0.25 watt max.

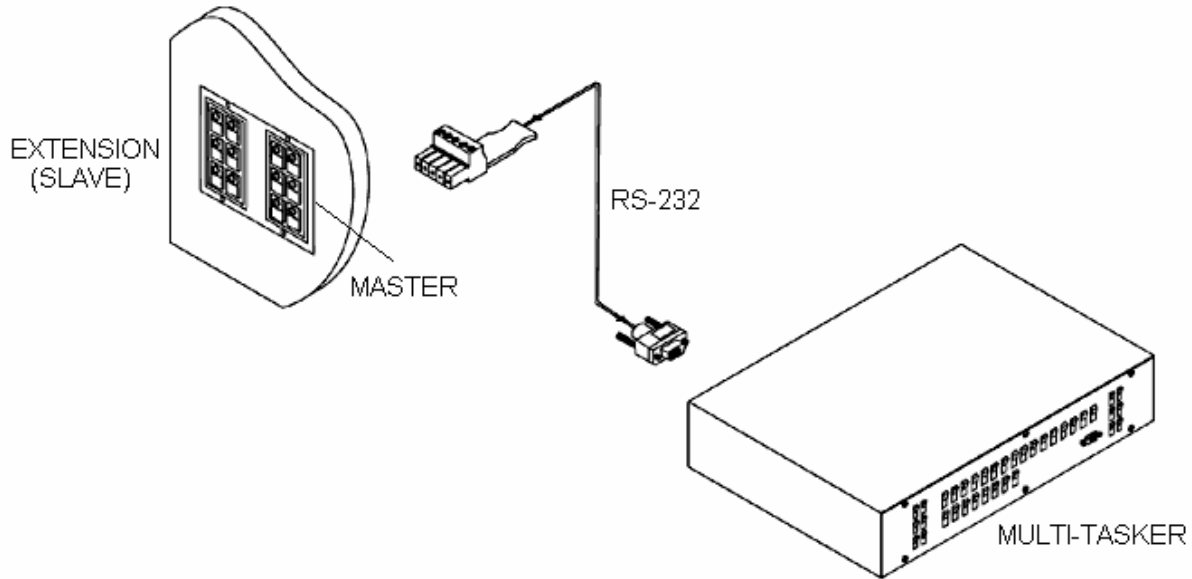
Table 3. **ISM5000/5106** Electrical

ISM5000 MASTER

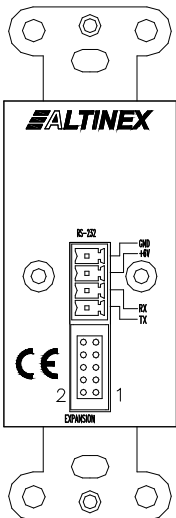


ISM5106 SLAVE



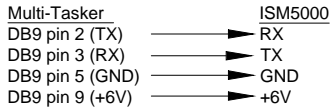


ISM5000 MASTER

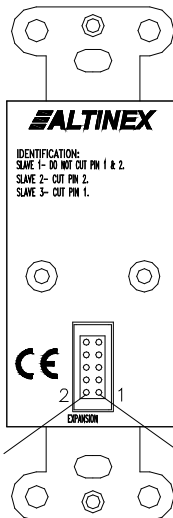


RS-232 CONNECTIONS

Make the following connections between the Multi-Tasker RS-232 port and the ISM5000 RS-232 input port.



ISM5106 SLAVE



IDENTIFYING SLAVE UNITS

SLAVE 1

Do NOT cut any pins for Slave 1. The units are identified as SLAVE 1 by default.

SLAVE 2

Cut pin 2 on the rear connector before installing the 10-pin ribbon cable assembly.

SLAVE 3

Cut pin 1 on the rear connector before installing the 10-pin ribbon cable assembly.

SLAVE 2 = Cut pin 2 only.

SLAVE 3 = Cut pin 1 only.

INSTALLING YOUR ISM5000/5106 6

The **ISM5000** communicates with the Multi-Tasker™ using an RS-232 link at 9600 baud. Careful consideration should be provided to minimize cable capacitance for long cable runs.

Typically, the control cable should be unshielded, four conductor, 22AWG. Shielded cable will reduce communication distance from 150ft to 25ft.

When selecting the cable, make sure that the total distance between the Multi-Tasker™ and the **ISM5000** does not exceed 150ft.

The power to the **ISM5000/5106** comes directly from the Multi-Tasker™ enclosure.

The following steps refer to details in the Application Diagram.

- Step 1.** Determine the installation locations for the Master and Slave units and install them using the hardware provided.
- Step 2.** Configure the Slave units as Slave 1, Slave 2 or Slave 3. See the Application Diagram for configuration details.
- Step 3.** Connect the Master unit's RS-232 port to the Multi-Tasker™ RS-232 port. A total of four wires are required to connect the **ISM5000** to the Multi-Tasker™: Ground, +6 Volts, Receive and Transmit.
- Step 4.** Connect the Master to Slave 1 using the 10-pin IDC cable assembly provided. Next, connect Slave 1 to Slave 2 and then Slave 2 to Slave 3.
- Step 5.** Power on the Multi-Tasker™. The **ISM5000** and **ISM5106** receive their power from the Multi-Tasker™. Make note of the Multi-Tasker™ Unit ID as it will be needed for programming some functions.
- Step 6.** Program the Master unit per the instructions in the OPERATION section of this manual.

OPERATION 7

The **ISM5000** can be expanded using **ISM5106** slave modules and a 10-pin ribbon cable. Depending on the number of expansion units, some pins may need to be cut to accommodate proper unit addressing.

The ISM5000 allows baud rate changes, however we recommend keeping the factory default of 9600 baud.

7.1 RS-232 CONTROL

The **ISM5000/5106** are able to control a Multi-Tasker™ from remote locations through standard RS-232 communication.

7.1.1 RS-232 INTERFACE

The RS-232 commands, for the **ISM5000/5106**, are in a simple ASCII character format.

1. Angle brackets "< >" are part of the command.
2. Use uppercase letters for all commands.

7.2 DESCRIPTION OF COMMANDS

Each command consists of two parts: Function and Unit ID.

[Function , Unit ID]

Example: <RDK1U2>

RDK1 = Function
U2 = Unit ID 2

For Functions, see a detailed explanation under each command description.

The Unit ID has a value from 0 to 9.

Unit ID 0 should be used for single unit operation. If the Unit ID is set to zero, each command may be used without Ui. Use the command <SETU0>, as explained later in the User's Guide.

Example:

<LED1=1>: For Unit ID Zero
<LED1=1>: Equivalent to <LED1=1i0>
<LED1=1li>: For Unit ID other than Zero

7.2.1 ISM5000/5106 COMMANDS

1. <VER>

This command displays the current version of the firmware for the ISM5000.

Command Format: <VERli>

li = Unit ID (i = # from 0 to 9)

Example:

Query the **ISM5000** with Unit ID 1 for the installed firmware version. Send the command <VER1> to the unit and it will return feedback similar to the following:

690-0117-003 ISM5000

690-0117-003 = software version
ISM5000 = model number

2. <SETUi>

This command is used to set the ID number of the Multi-Tasker™ unit to be controlled by the **ISM5000**.

Command Format: <SETUi>

Ui = Unit ID (i = # from 0 to 9)

Example:

The Multi-Tasker™ ID to be controlled is ID 1. The ID of the **ISM5000** is ID 0. Connect the **ISM5000** to the Multi-Tasker™. Send the command <SETU1> to the **ISM5000**. Now, when a button on the **ISM5000** is pressed, it will call subroutines on Multi-Tasker™ with ID 1. Multi-Taskers with ID's other than 1 will ignore the pressed button.

3. <SETIi>

This command is used to set the **ISM5000** Unit ID number. The Unit ID is in the range of 0 to 9. This ID is used for the **ISM5000** only and is independent of the Multi-Tasker™ ID.

NOTE: In Multi-Tasker™ systems having front panel firmware revisions prior to those below, the **ISM5000** ID must match the Multi-Tasker™ ID.

In order to determine the front panel firmware revision, use the command [VERUi] to send to the enclosure. The unit will return feedback similar to the following:

[690-0122-020 690-0123-005 690-0124-019]

690-0122-020: Control CPU software version.
690-0123-005: Process CPU software version.
690-0124-019: Panel CPU software version.

The last 3 digits indicate the revision number. If the last 3 digits are less than those above, the **ISM5000** ID must match the enclosure ID.

Command Format: <SETIi>

li = Unit ID (i = # from 0 to 9)

Example: ID 1

Only the unit to receive the new ID should be connected to the Multi-Tasker™. Set the Unit ID to 1 by sending the command <SETI1>. After this command is executed, all commands for this unit must include I1 (i.e. <VERI1>).

Example: ID *n*

There are 3 ISM5000's being used. The first two ISM5000's will control the Multi-Tasker™ with Unit ID 0. These are ISM5000 ID's 1 and 2. The third ISM5000, Unit ID 3, will control the Multi-Tasker™ with Unit ID 1. Set the Unit ID's using the following procedure:

- 1) Disconnect all units.
 - a) Connect the first ISM5000 to control the Multi-Tasker™ with ID 0.
 - b) Send the command <SETI1>.
 - c) Send the command <SETU0>.
- 2) Disconnect all units.
 - a) Connect the second ISM5000 to control the Multi-Tasker™ ID 0.
 - b) Send the command <SETI2>.
 - c) Send the command <SETU0>.

- 3) Disconnect all units.
 - a) Connect the third ISM5000 to control the Multi-Tasker™ with ID 1.
 - b) Send the command <SETI3>.
 - c) Send the command <SETU1>.
- 4) Connect all units. The new Unit ID's are now set.

4. <LED>

This command will cause one or more LED's to turn ON, turn OFF or to FLASH

Command Format: <LEDn=sl>

n = # from 1 to 24 for a single LED
 = # - ## for a sequential range from 1 to 24
 = Ü for all LED's

s = # from 0 to 2
 = 0 for OFF
 = 1 for ON
 = 2 for FLASH

li = Unit ID (i = # from 0 to 9)

Examples:

Command	LED#	Results
< LED6=2 >	6	FLASH, ID0
< LED10=111 >	10	ON, ID1
< LEDÜ=0 >	ALL	OFF, ID0
< LEDÜ=112 >	ALL	ON, ID2
< LEDÜ=2 >	ALL	FLASH, ID0
< LED1-10=1 >	1 to 10	ON, ID0
< LED13-24=011 >	13 to 24	OFF, ID1

5. <WRK>

This command will associate up to three subroutine numbers with a key on a wall mount unit. Which subroutine is performed when the key is pressed depends on the state of the LED for that key. By default, associated subroutine numbers are calculated as follows:

If LED is Flashing: Sub# = 100 + (Key# - 1)*3
 If LED is ON: Sub# = 101 + (Key# - 1)*3
 If LED is OFF: Sub# = 102 + (Key# - 1)*3

EX: KEY1: 102,101,100
 KEY2: 105,104,103
 ...
 KEY24: 171,170,169

These are the default settings and are set when the <CLR> command is issued. Any available subroutine number may be assigned to any key. These are simply the default settings. The table below defines the key states.

State	What to do when a key is pressed and...
1	the LED is OFF
2	the LED is ON
3	the LED is FLASHING

Command Format: <WRKn=s₁,s₂,s₃li>

Kn = Key # (n = # from 1 to 24)

s₁ = subroutine ID (#0 to 180) for state 1

s₂ = subroutine ID (#0 to 180) for state 2

s₃ = subroutine ID (#0 to 180) for state 3

li = Unit ID (i = # from 0 to 9)

NOTE: Use subroutine zero if nothing should happen for a particular state. The key definition <WRK2=2,0,0> tells the controller to perform subroutine 2 for state 1 and nothing for the remaining states.

Example: Key 6 Unit ID 2

<WRK6=10,20,30I2>

10 - State 1: Go to subroutine 10 when key 6 is pressed and LED6 is **OFF**.

20 - State 2: Go to subroutine 20 when key 6 is pressed and LED6 is **ON**.

30 - State 3: Go to subroutine 30 when key 6 is pressed and LED6 is **FLASHING**.

6. <RDK>

This command reads the associated subroutine numbers for a key and returns the data.

Command Format: <RDKnli>

Kn = Key No. (n = # from 1 to 24, Ü for all)

li = Unit ID number (i = # from 0 to 9)

Feedback Format: Key: s1, s2, s3

Key = Key number (1-24)

s1 = subroutine for state 1

s2 = subroutine for state 2

s3 = subroutine for state 3

Example 1:

The Unit ID is 1 and key number 1 is assigned to perform subroutine number 102 when the LED is OFF and subroutine 101 when the LED is ON. Nothing should happen if the LED is flashing. Send the command <RDK111> and receive the following feedback:

KEY1: 102,101,000

Example 2:

The Unit ID is zero. In order to see all the key assignments, send the command <RDK*>. The feedback will be similar to the following:

KEY1: 102,101,100

KEY2: 005,004,003

...

KEY24: 171,170,169

7. <CLR>

This command is used to clear the **ISM5000** and return it to the factory defaults.

Command Format: <CLRli>

li = Unit ID number (i = # from 0 to 9)

Example:

Send the command <CLR> to reset the **ISM5000** with Unit ID 0 to its factory defaults.

8. <HELP>

This command displays information available for the Multi-Tasker interface commands.

Command Format: [HELPCnli]

Cn = Card ID (n = # from 1 to max slots)

li = Unit ID (i = # from 0 to 9)

Example:

In order to display the RS-232 commands available for the **ISM5000/5106**, send the command <HELP>. The commands along with a brief description will be displayed in the Terminal Window.

7.2.2 COMMANDS FROM CONTROL

9. {SUB}

This command is sent out over the RS-232 bus when a key is pressed. The **ISM5000/5106** will automatically append the command with the Multi-Tasker™ Unit ID as defined using the <SETUi> command. This will cause the Multi-Tasker™ with the matching ID to execute the functions programmed in that subroutine.

Command Format: {SUBnUi}

n = subroutine ID (n = # from 1 to 180)

Ui = Unit ID (i = # from 0 to 9)

Example 1:

The command {SUB10U1} executes Subroutine 10 of Unit ID 1.

Example 2:

KEY1 on the ISM5000 Master unit (Unit ID 1) is defined as "WRK1=102,101,100". The Multi-Tasker™ command ID has been set with the command <SETU1>. If the LED is OFF and the key is pressed, the **ISM5000/5106** will send {SUB102U1} over the RS-232 bus. When the Multi-Tasker™ with Unit ID 1 receives the command, it will execute the functions stored in subroutine 102.

7.3 SUMMARY OF COMMANDS

Card Commands

- 1) <VER> Receives software version
- 2) <SETUi> Define the Multi-Tasker™ ID
- 3) <SETIi> Set the ISM5000 Unit ID
- 4) <LED> Control LED's
- 5) <WRK> Program subroutines for keys
- 6) <RDK> Read back key programs
- 7) <CLR> Clear/reset to factory defaults
- 8) <HELP> Show the available RS-232 commands.
- 9) {SUB} Multi-Tasker™ command sent from the ISM5000/5106.

7.4 BUTTON CONFIGURATION

The buttons for an **ISM5000/5106** are shown in the table below. The Master unit is always the unit connected directly to the Multi-Tasker™. The Slaves (1, 2 and 3) are determined at installation.

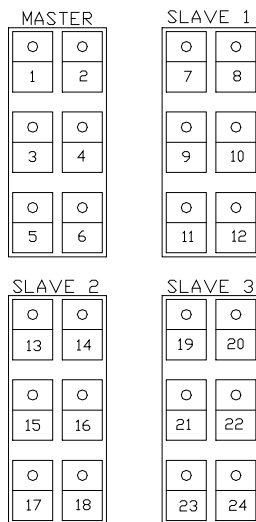


Figure 1

7.5 BAUD RATE SETTING

This configuration instruction is used to set the baud rate to 9600, 2400 or 1200 Bps.

To enter the setting mode, press Keys 4, 5, and 6 simultaneously and then release the keys.

LED's 1, 3, and 5 will turn ON indicating the setup state is active. Next, press any of the three keys depending on a desired Baud Rate.

Key#1 = 9600 Bps

Key#3 = 2400 Bps

Key#5 = 1200 Bps.

The **ISM5000** will automatically return to normal operation at the new baud rate. If any of the LEDs were ON prior to changing the baud rate, they will return to the original state.

TROUBLESHOOTING

8

We have carefully tested and have found no problems in the supplied **ISM5000**; however, we would like to offer the following suggestions. Additionally, it may be necessary to refer to the command descriptions in order to send the correct commands in the following section.

8.1 NO RESPONSE ON RS-232 BUS

Cause 1: ISM5000 does not respond.

Solution: Verify there is communication with the Multi-Tasker™. Use the [VER] command for the Multi-Tasker™ and verify the system returns the proper feedback. If there is no feedback, there is a problem between the PC and the Multi-Tasker™. If there is feedback, see Solution 2.

Solution2: Check the connection between the Multi-Tasker™ and the ISM5000. The cable should be wired as described in the Application Diagram. If the cable is good, call ALTINEX at (714) 990-2300.

Cause 2: Multi-Tasker™ does not respond.

Solution: Use the [VER] command to get the model number and firmware version of the Multi-Tasker™. If there is no feedback, see Solution 2.

Solution 2: Check the cable connection between the PC and the Multi-Tasker™. The connection is normally made through a standard RS-232 cable with a DB-9 connector on both ends. If the cable connection is good, call ALTINEX at (714) 990-2300.

ALTINEX POLICY

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9.1 LIMITED WARRANTY/RETURN POLICY

Please see the Altinex website at www.altinex.com for details on warranty and return policy.

9.2 CONTACT INFORMATION

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