INSTALLATION MANUAL

Ness M1RF
Wireless Receiver

Specifications, Installation and Programming

Security Products

APPLICATION

The Ness M1RF Receiver is a unique high performance radio receiver designed to operate with up to 144 Ness proprietary radio transmitting devices, including radio keys, radio reed switches and radio PIRs.

The M1RF receiver is wired to the M1 via the 4 Wire High Speed Data bus and receives signals for connecting radio detectors and radio keys to the Ness M1 cross platform controller.

Placed upon the databus the M1RF Receiver may be located anywhere along the bus and does not need to be located next to the panel. This means that if required the receiver could be located up to 1 Km from the panel. Allowing more than 1 receiver to be connected to any system distances between detection devices to the receiver is not an issue.

The wireless zone alarms replace hard wired zones on the M1, where each radio key can either replace one of the 199 user codes, or alternately can be programmed in as addition to user codes 204-255. Each of the 4 buttons on the Ness Radio key can be programmed to work the same globally for each key, or each button can be programmed to work individually from each other.

FEATURES:

• Multi-channel Receiver for up to 144 Wireless Transmitters
• Operates on the 4-Wire Data Bus
• DIP Switch Address Settings
• Flash Memory for Firmware Updating
• Status and Diagnostic LED
• On-Board EOL Bus Termination Jumper
• Supplied in easy to mount equipment housing.

Please Note: For best receiver range ensure the antenna is streched out horizontal from the receiver PCB out the case. Do not mount the receiver inside the M1 housing near the M1 Control panel.

SPECIFICATIONS

Max. radio devices 144
Device types .... Keys and/or detectors
Protocol .... Ness proprietary; 24-bit nonencrypted and/or 56-bit encrypted
Receiver type .... Superheterodyne
Frequency ....303.875MHz. (Other frequencies availble for other countries.
Bandwidth (3dB) 800kHz
Sensitivity .... > -100dB
Operating voltage 9-14V

Note : The M1 RX requires Version 5.1.4 (or later) firmware and NessRP Version 1.6.24 (or later)

> **The Ness M1RF receiver is compatible with the following Wireless transmission devices at initial release.**
> - **Ness R15 PIR (100-663) / ■ Ness R15 PET (100-663PET)**
> - **Ness R12 PIR (100-691)**
> - **Ness RR1 Radio Reed (100-662) /   ■   Ness RR2 Universal Reed Tx (100-527)**
> - **Ness RK4 Radio Key (100-067) / ■ Ness RK3 Radio Key (100-664)**
> - **Ness Emergency Button (100-283)**
> - **Ness Wireless Door Bell (100-056)**
> - **Ness Wireless Smoke Detectors (106-040)**
> - **Ness Wireless Keypad (100-001)**
> - **Ness Mobile / Medial Pendant (100-683)**
>
> **Additional Ness transmitters may be added to the compatibility list in due course.**
> **Please confirm with your local Ness office for a full updated list.**

INSTALLATION AND ENROLLMENT OF NESS-M1RF RECEIVER

Select a suitable location for the receiver (not within a metal cabinet) with an ambient temperature range between 0° and 49° C (32° to +120° F).

The Ness M1RF Receiver connects onto the M1 data bus, which uses 4-wires. However, CAT5 or CAT6 eight (8) conductor is recommended for all data bus cables. The extra wires are for data return paths. If cable is to be installed in installations where electrical noise maybe present then a twisted pair shielded cable should be considered. **NOTE: See pages 12 and 13 in the M1 Installation Manual for important information about Data Bus termination when multiple homerun cables are installed. DO NOT SPLICE OR CONNECT WIRE WITH CONTROL POWER ON.** Minimum cabling should be four conductor 22 or 24 gauge. Maximum resistance per wire is 25 Ohms. Device placement beyond 305 mts (1000 feet) is not recommended.

Setting the Data Bus Address and Enrolling Device(s) into the System

Keypads and expander devices communicate with the M1 over the RS-485 4-wire data bus. Each device must have a unique address setting (from 1 to 16) within it's device type. Keypads are device TYPE 1, input (zone) expanders & Wireless RF Receivers are TYPE 2, output expanders TYPE 3, etc. The purpose of device types is so that the address numbers can be re-used in each different device type. It is acceptable to have a Keypad, and a Zone Expander, and a Output Expander all set to address 2 and on the same data bus since each device is a different device type.

It is NOT acceptable to have duplications of addresses within the same device type. I.E. Multiple keypads on the same control cannot be set to 'like' addresses.

ADDRESS SETTING: Locate the four "Address" switches. Each has a position of OFF or ON (binary 0 or 1) with a decimal equivalent of (1, 2, 4, or 8). The total decimal value for the "ON" switches sets the bus address. This determines which inputs (banks of 16) are assigned to the expander. E.G. Address 5 would be set with switches 1 and 4 ON (1+4=5) and switches 2 and 3 OFF. RF Receivers are factory pre-set to address 2.

> **Note 1: A Wireless Receiver is a type 2 bus device, therefore it is treated and looks to the system as an Input Expander.**
> **Note 2: It is possible to use more than 1 Wireless Receiver per system. This increases the range available to receive wireless devices. If more than one is used then ensure they are all set at different address.**
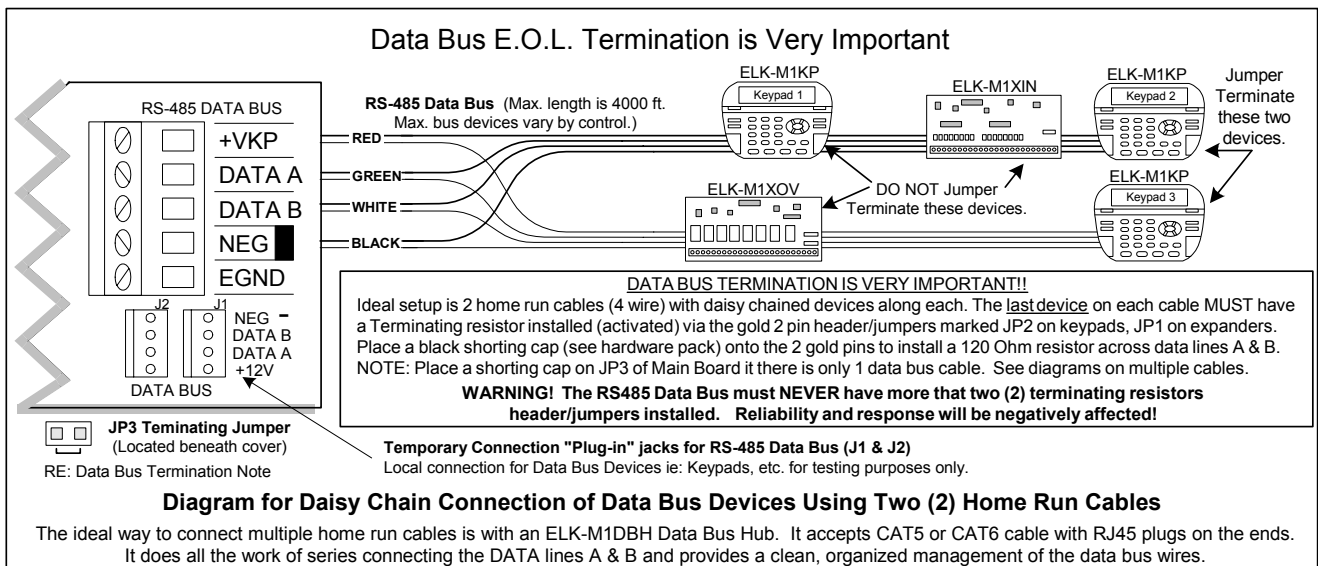
ENROLLING:

1. Press the ELK key, then press 9 (or scroll up) to display 9 - Installation Programming. Press the RIGHT arrow key to select this menu. The Installer Program Code (PIN) must be entered to access this menu.

   `Auth.  Required`
   `Enter  Valid  Pin`

2. Enter the Installer Program Code. (See M1 Manual for the default Code)
3. The first Installer Programming menu displayed will be "Bus Module Enrolment"
4. Press the RIGHT arrow key to select this menu. "Enrolling Bus Modules" will display

   `Enrolling`
   `Bus Modules`

5. The M1 transmit an enrolment message to all data bus devices, following by a display showing the total Bus Modules that are enrolled. To view the enrolled devices and/or remove a device press the RIGHT arrow key next to the word Edit.

   `XX Bus Modules`
   `Enrolled,   Edit ▸`

6. Press the * or Exit keys to exit Installer Programming.

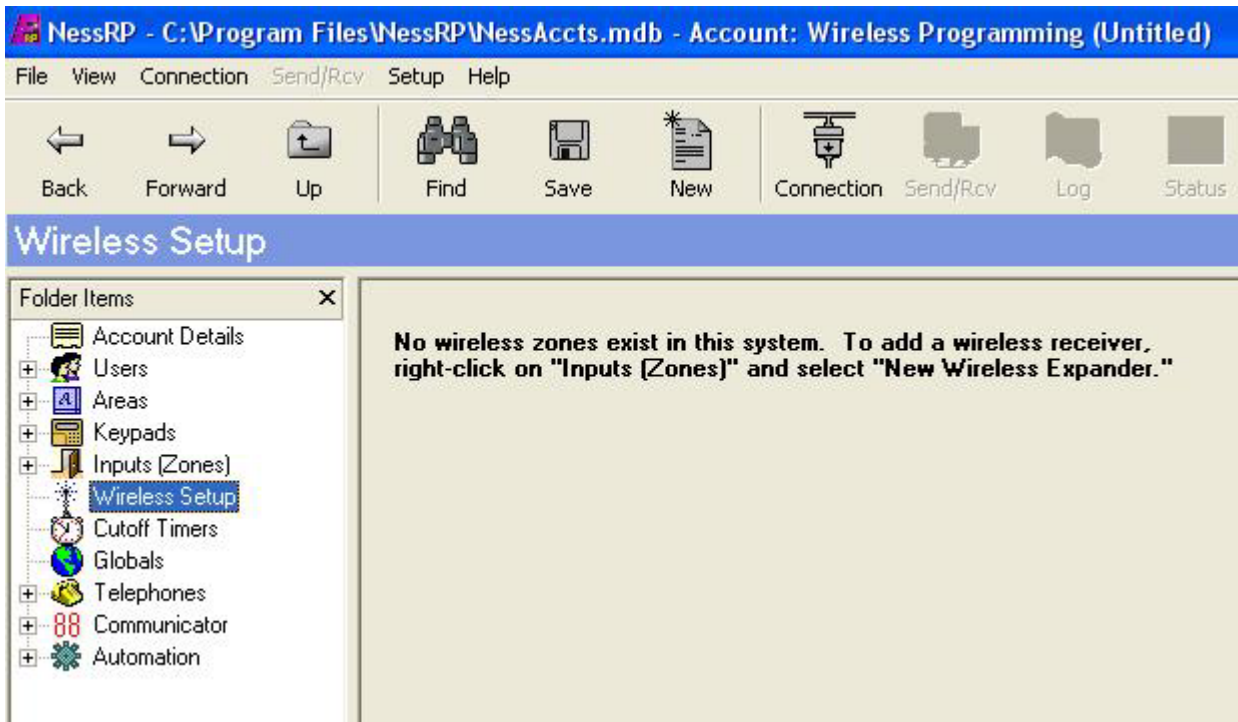(Optionally the modules can be enrolled into the system using the NessRP software)

Data Bus E.O.L. Termination is Very Important

Diagram for Daisy Chain Connection of Data Bus Devices Using Two (2) Home Run Cables

The ideal way to connect multiple home run cables is with an ELK-M1DBH Data Bus Hub. It accepts CAT5 or CAT6 cable with RJ45 plugs on the ends. It does all the work of series connecting the DATA lines A & B and provides a clean, organized management of the data bus wires.

Programming.

Ness RP Wireless Set-Up

NessRP - C:\Program Files\NessRP\NessAccts.mdb - Account: Wireless Programming (Untitled)

File   View   Connection   Send/Rcv   Setup   Help

Back   Forward   Up   Find   Save   New   Connection   Send/Rcv   Log   Status

Wireless Setup

Folder Items

- Account Details
- Users
- Areas
- Keypads
- Inputs (Zones)
- Wireless Setup
- Cutoff Timers
- Globals
- Telephones
- Communicator
- Automation

No wireless zones exist in this system. To add a wireless receiver, right-click on "Inputs (Zones)" and select "New Wireless Expander."
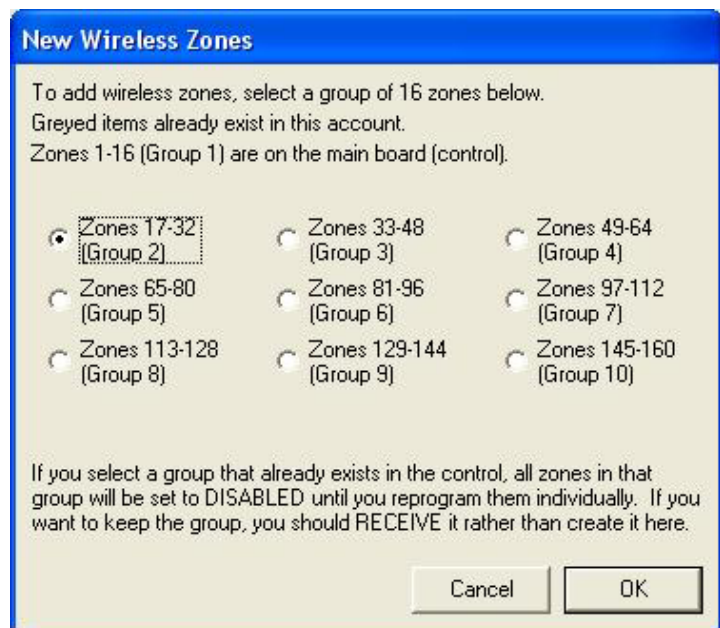
1. In NessRP click on "Wireless Setup" then "New" to assign zone to be wireless.
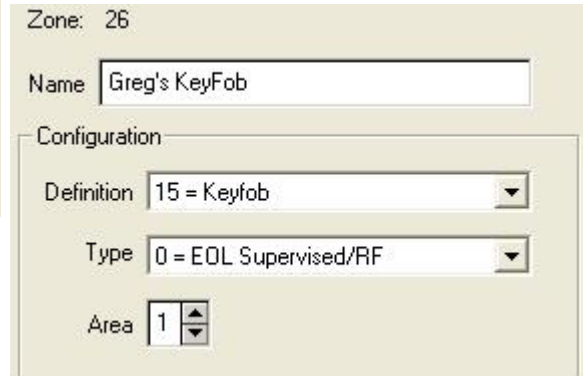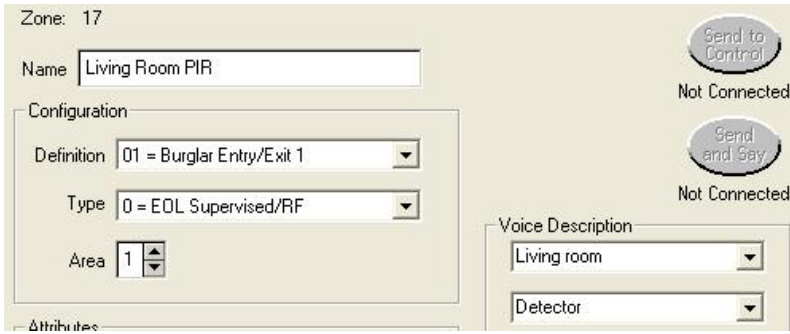
New Wireless Expander

2. Select the zones (that match the address of the wireless expander module) for the zone to be allocated for wireless .

Note: You can add / assign more than 16 zones of wireless on one wireless receiver by adding more wireless expanders and allocating more groups to wireless.
If the group is greyed out then those zones will already exist in this account.

New Wireless Zones

To add wireless zones, select a group of 16 zones below.
Greyed items already exist in this account.
Zones 1-16 (Group 1) are on the main board (control).

- ● Zones 17-32 (Group 2)
- ○ Zones 33-48 (Group 3)
- ○ Zones 49-64 (Group 4)
- ○ Zones 65-80 (Group 5)
- ○ Zones 81-96 (Group 6)
- ○ Zones 97-112 (Group 7)
- ○ Zones 113-128 (Group 8)
- ○ Zones 129-144 (Group 9)
- ○ Zones 145-160 (Group 10)

If you select a group that already exists in the control, all zones in that group will be set to DISABLED until you reprogram them individually. If you want to keep the group, you should RECEIVE it rather than create it here.

Cancel   OK

- Users
- Areas
- Keypads
- Zones (Inputs)
  - Hardwired - Main Bd
  - Wireless - Group 2
- Wireless Setup
- Cutoff Timers

Once zones have been allocated as "Wireless Zones" the Input module will be shown as a "Wireless" rather than a "Input Expander"

Zone: 17

Name Living Room PIR

Configuration

Definition 01 = Burglar Entry/Exit 1

Type 0 = EOL Supervised/RF

Area 1

Attributes

Send to Control — Not Connected

Send and Say — Not Connected

Voice Description

Living room

Detector

Zone: 26

Name Greg's KeyFob

Configuration

Definition 15 = Keyfob

Type 0 = EOL Supervised/RF

Area 1

3. Configure all your wireless zones in the "Wireless Expander" and then 'send' the data to the M1 System.

LEARNING IN DEVICES INTO THE M1

```
14-Wireless
Definitions        ▶
```

From within Installation program mode select menu 14 "Wireless Definition".

Press RIGHT arrow key to select this menu. Press UP or DOWN arrow keys to select menu 3 "Learn Wireless Transmitter".

```
3:Learn Sel⬍ Prg▶
WirelessTransmtr
```

Press RIGHT arrow key to enter learn mode. Either enter the zone number you wish to program in or use the UP or DOWN arrow key to scroll to the zone you wish to enter. Once the correct zone number is selected press the RIGHT arrow key to enter LEARN mode.

```
WZone = xxx  ▶
TransmtToEnroll
```

Go to the transmitter and activate it to send the 'learn signal' to the RF Receiver (re below of how to send a learn signal for each device).   The keypad should emit a short tone when the transmitter becomes enrolled.

If the M1 voice is enabled (not available on M1 EZ8 systems), the system will provide voice prompts and feedback of enrolment. If the voice prompt speaks "Press Transmitter button for ..." If the zone prompt does not speak a Voice description then it is will be because you have not entered one in for the Zone being enrolled.

```
WZone = xxx Push
TransmiterButton
```

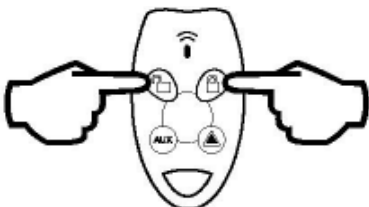Once enrolled the system will automatically move to learn mode of the next zone.

If a zone has already been enrolled and an attempt is made to enrol it again into another zone an error will be annunciated.
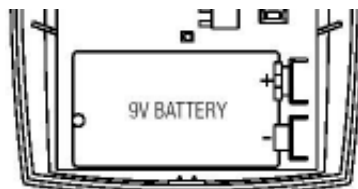
SENDING A "LEARN SIGNAL"

Radio Key	**Radio PIR & RR1**	**Radio Reed Switch**	**Radio Buttons**
RK3 (3 Button) & RK4 (4 Button)	R12, R15, R15 Pet & RR1 Reed Switch	(Model RR1)	

Press both On and Off Buttons at the same time

Connect the battery

Activate the Tamper Switch

Press & Hold the button

Wireless Keypad

Press both * panic buttons

Wireless Smoke Detector

Connect the battery then press and hold Test button for approx 10-20 seconds until it learns in.

Receiving Data to NessRP

Once transmitters have been learnt into the M1 their data can be uploaded to NessRP.

RIGHT mouse click on "Wireless Setup" and then select "Receive Wireless Setup"

Once data has been received their Tx ID's can be viewed when wireless "Transmitters" tab is selected.

Zone	Definition	Enabled	Supv	Opt1	Opt2	FobID	Tx ID
17	08 = Burglar 24 Hour	☑	1	☐	☐	199	0A09421
18	08 = Burglar 24 Hour	☑	1	☐	☐	199	0A0A4BC
19	08 = Burglar 24 Hour	☑	1	☐	☐	199	0A08C79
20	08 = Burglar 24 Hour	☑	1	☐	☐	199	0A03CB1
21	01 = Burglar Entry/Exit 1	☑	1	☐	☐	199	0A0D3C2
22	08 = Burglar 24 Hour	☑	1	☐	☐	199	0A04A8C
23	08 = Burglar 24 Hour	☑	1	☐	☐	199	0A0A7E7
24	08 = Burglar 24 Hour	☑	1	☐	☐	199	0A04A14
25	08 = Burglar 24 Hour	☑	1	☐	☐	199	0A0D66D
26	15 = Keyfob	☑	0	☐	☐	204	0F042D8
27	15 = Keyfob	☑	0	☐	☐	205	0F082AD
28	00 = Disabled	☑	0	☐	☐	210	0F01943
29	00 = Disabled	☐	1	☐	☐	199	0000000
30	00 = Disabled	☐	1	☐	☐	199	0000000
31	00 = Disabled	☐	1	☐	☐	199	0000000
32	00 = Disabled	☐	1	☐	☐	199	0000000

Change

To change setting in the transmitter settings, click on the Zone and then change.

Enabled - Ensure this is ticked to enable the
Wireless Transmitter to be activated
by the M1 Control Panel.

Supervised - Select if you require the Zone to be
Supervised. (i.e. to activate an
alarm if no signal is received within
a selected time (e.g. 24 hours)
Only available with R15 PIR's and
RR1 Reed Switch's. Do not select on
for R12's or Feyfobs.
*Fire Zone Supervision is reserved for
future products.*

Option 1 & Option 2 - For future use. DO NOT
select these options or the wireless
signal may not be actioned by the M1.

This device is a PIR - This is selected if the device
learnt is a PIR where Auto Restores are
sent immediately.

Keyfob User ID - Only valid for Radio Keys (Keyfobs)
Select a user Code you wish the radio
key to be set to. This can be User 1-255
(excluding 200-203 as these are
reserved.)

Tx ID (or) DL - This is the Radio Transmitters unique ID.
If this ID is known (e.g. learnt in and recorded from another "test" system) it can be manually
entered and downloaded into the M1 which will allow the transmitter to work.

Deleting Transmitters.

If a Radio Key is lost it can be deleted by replacing the Tx ID to all
Zero's, OR alternatively if a Radio detection devices needs to be
replaced then uncheck the "enabled" box which will allow a new
transmitter to be programmed in its place.

Supervision Times

Within the "receiver" Tab the Non-Fire Supervision Time Window can be adjusted. This is used if "Supervised 1= Normal Supervision is selected".
Note Only available for R15 and Radio Reeds.
Fire Zone Supervision is reserved for future products.

Programming Buttons on Radio Keys.

RK4 Radio Keys (Keyfobs)
Recommended for M1 Systems

Button 1

Button 2

Button 3

Button 4

RK3 Radio Keys (Keyfobs)

Button 1

Button 2

Button 8

The Emergency panic button & Medical (Mobile) pendant is learnt in as button 8

The Wireless Doorbell button is learnt in as button 4

As Default buttons 1 & 2 are programmed as Arm & Disarm. Buttons 3, 4 & 8 can be programmed as required. This can be done either via the Keyfob events or in the Rules.

Receiver | Transmitters | Keyfob Events

Select the event each keyfob button activates.

Button 1 | 27 = Key Momentary Arm Away
Button 2 | 29 = Key Momentary Disarm
Button 3 | 00 = Disabled
Button 4 | 00 = Disabled
Button 5 | 00 = Disabled
Button 6 | 00 = Disabled
Button 7 | 00 = Disabled
Button 8 | 00 = Disabled

Changing the function of the Keyfob buttons in the "Keyfob Events" screen will change the function of these buttons on ALL programmed Keyfobs.

It is also possible to have each button on each individual Keyfob perform different functions to the same button on other keyfobs. (e.g. Aux (button 3) on keyfob 1 may open a garage door, where Aux button on keyfob 2 may turn lights on or off.

If this is required then select "Disabled" in the Keyfob Events screen and use rules as detailed below to set buttons on each keyfob.

Programming Individual Buttons on Radio Keys each key.

Using "rules" programming within the M1 each button on each radio key can be programmed individually as the following examples show.

To use this feature, ensure the buttons in the Keyfob Events, in the wireless section are disabled for the individual buttons to be used. The following "rules" will then enable them.

EXAMPLE:

      Whenever RF KEYFOB BUTTON 3 is ACTIVATED
         AND Last User was Greg Kingsley (user 2)
            THEN Turn Garage Door1 (Out 9) ON for 2 seconds

      Whenever RF KEYFOB BUTTON 3 is ACTIVATED
         AND Last User was Pam Kingsley (user 3)
            THEN Turn Garage Door2 (Out 10) ON for 2 seconds