Intelligent Button Device as a Digital Security System

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Abstract

An Intelligent Button Device as a Digital Security System is the computer chip that is enclosed and integrated with the 16mm thick and durable weather which is resistant to the stainless steel etc. Because of the small size and the extreme durability of a digital button which can be travelled virtually anywhere. The intelligent buttons are frequently gets attached with the digital key fobs, digital rings, digital watches and the other personal items for digital applications such as the access control system to the commercial buildings and the computers. Additionally, intelligent button devices are commonly mounted on the digital storage crates and the other equipment for the asset of the management in the system. Furthermore the intelligent digital button security systems are mounted to the refrigeration units in indoor and outdoor environments that can even perform operations for the various data logging tasks in the digital intelligent button.

1. Introduction

The intelligent button device is a durable container chip which makes up-to-date information electronically, which is stored in a key with help of the key objects which is accessible anywhere. The durable of the intelligent button key micro can package is the highly resistant module which protects the device from the environmental hazards like dirt, moisture and the shocks. It is compact as like a small coin shaped button profile and is self-aligning with the mating receptacles in the system which is allowing the device to be used easily in any digital locking systems by the operators. Its accessories will permit the device to be mounted on the plastic key tabs with a button shaped device, in the photo Id badges, in the printed circuit boards of electronic devices and in any smooth surface of the object which is compatible. The applications can be included in the access control system which is in the work in the progress of the tracking system of a device, the security device tool management and also the digital security inventory control system.

- ## Intelligent button device varieties include as follows:

Digital secure Address Only, That Guaranteed with the unique 128-bit serial numbers in the system i.e., address of the ibutton & ROM id of the ibutton, it is ideal for getting access control to the route verification of the various digital key applications. The models will be of different types that the data can be stored in the NVRAM of the ibutton device, EPROM with the write at once read many and flashing with EEPROM.

The different models range from 31K bits to the 128K bits. The Real Time Clock also supplies the unique way to maintain the timings in the digital applications such as digital calendar, digital stopwatch, digital meters and digital Time Stamps.

The secure data connection can be protected with the help of the algorithm called SHA-1 Secure Hash Algorithm or with the password protection depending on the various level of the security is required.

2. Intelligent Button Components

An Intelligent Button device uses the stainless steel for making the device which acts as an electronic communication interface device system and is resistant to the weather and other environment conditions. Each can have the digital data contact with the source called lid and the ground contact with the device is also known as the base. The each of the contacts is connected to the unique silicon chip located inside the steel interface. The lid is only the top of the base forms in the device of the different sides and the bottom of the device button also includes the flange in order to simplify the attaching of the digital button to adjust the digital button about anything. The two different contacts are also separated by the polypropylene grommet in the silicon chip device.

- **1-Wire Interface**

By simplifying touch of the intelligent button device to the two different contacts as described above, you can communicate within and with through the 1-Wire protocol and the interface. The 1-Wire protocol and interface has the two-way communication speeds that is standard speed mode at 28kbps and the over drive speed mode at the 156kbps.

- **Intelligent Button Address**

Each intelligent button device has the unique and the unalterable address in the form of laser etched code onto its microchip inside the device. The address looks like e.g. 8200000095A33878 can be used as a key for the identifier for each ibutton device.

3. Intelligent Button Devices

The intelligent Button devices are very small and durably packaged with various modules with the globally unique digital key addresses. It offers a range of the functions in order to deliver the records and the record data values where the other products cannot do it, such as the harsh environments. Our intelligent Button products will lower the cost of the ownership in various cost reducing methods for the temperature and the humidity of the digital data logging, digital access control, asset digital tracking and the electronic cash or eCash transactions. The connected devices are also available for the various systems that requires the near field communications with NFC and RFID compatibility in the system.

4. Asset Management

Intelligent Button devices bring the unparalleled durable to asset the digital data management applications to even in the harsh industrial and the harsh outdoor environments.

- **Asset Management Tag**

It provides a simple and the secure way of identifying the assets of each digital intelligent button device has a unique 128-bit address that can be used for the electronic generated serial number that can be never duplicated by others. Additionally, the on-board memory is up to 64kB gives the assets to customize and own the personalized database. This current database enables the storage of the unique information about the each asset is integrating and including the maintenance records of the inventory management in the information that can be permanently affixed to the each asset which is defined.
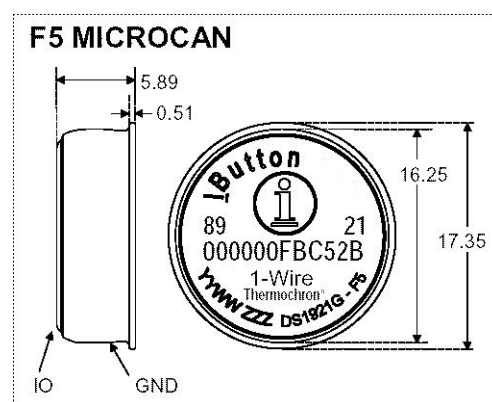
4.1 Intelligent Button Architecture

Figure: 1 iButton - Architecture

5. Access Control Key

Intelligent Buttons requires a physical or electrical connection to whatever it is writing the data or reading the data. However, the novel digital communication scheme is also known as 1-Wire interface which reduces the number of electrical contact points in the system to just one with ground reference. Only single conductor for the both power and the data communications is all which is needed. Devices that always read data and write data to the Intelligent Buttons seal all the electrical components inside the chip and then expose the only two electrical contact points in the chip and then get separated by the wide gap.

- With the connection are simplified to get very durable to the dust and the moisture immune that probes the interface to the most surfaces.
- An intelligent Button reader draws the virtually the no power in the standby mode and which is less than 3mA during the communication.
- For the battery powered devices such as the electronic door locks etc., Reading the intelligent Button's unique address that takes no more than 15ms.
- A typical intelligent Button lock can also operate more than 60,000 openings in single unlock procedure on a set of four AA batteries for the device.

Memory with Time Dependent Access

The intelligent Button has the on board real-time clock that can be armed in order to expire at a future date and the time. This also feature that can be used to disable the access to the data inside the intelligent Button. Access can also be denied which is based on the elapsed time in a device or chip or number of accesses in the chip.

Memory with Password Protected Access

When the user or customer want to a limit access to the secure data, an intelligent Button can also require the local host to know the local password for any read data or write data operation. The intelligent button has three service data pages in the chip. Each has 58-byte page and it has its own 128-bit access to the password and the service ID. The intelligent button has 38kB of EEPROM memory in the chip. Access to internal memory can also be password protected with the different

unique passwords for the read only and the full access for the iButton.
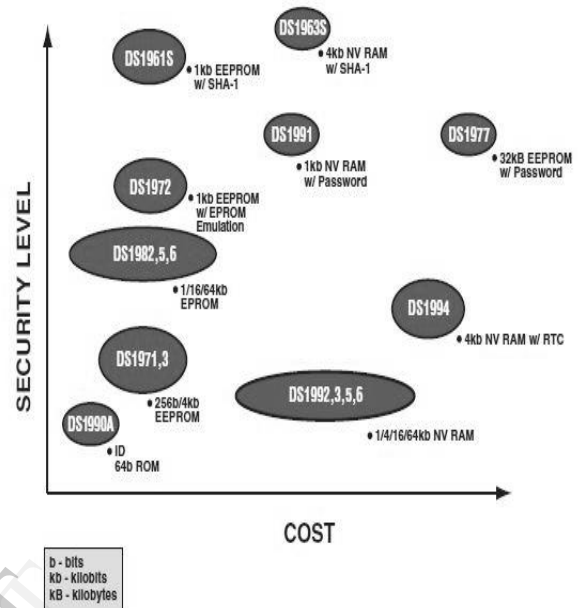
5.1 Security Levels

Figure: 1 iButton Security Levels

Humidity Data Loggers

The Hygrochron family of the Intelligent Button for data loggers, it adds the embedded humidity sensor to the high and low temperature logging capability in the thermochron in order to create the data logger which records the both temperature & humidity. With the help of two pieces of the data, the relative humidity can also be logged as the virtual function of the time. The small opening in the lid of a Hygrochron in the Intelligent Button, the data logger also employs the special filter which allows the water vapour in order to pass through and the reach of the internal humidity sensor, the repels liquid phase in the water. For the applications where the both temperature & humidity is very important, Hygrochron data logger will deliver the unprecedented performance in an unbelievably compact size of iButton device.

- **Temperature Data Loggers**

The Thermochron of Intelligent Button with multiple devices, the temperature of the data logger that track the temperature of the specific asset locations in the device. Now it can be easily log into the thermal exposure of the asset during the shipment to stays within the specified temperature ranges in the device. Thermochron data loggers will make it simpler and the inexpensive to monitor anything that it is the temperature sensitive. Thermochron internal data loggers can be used for the warranty of the tracking purposes in any equipment that it must be kept in a certain range of temperature, the log that results the process which it must be monitored for the compliance of temperature profile in the device.

6. Conclusion

The Intelligent Buttons can also be mounted virtually anywhere in any location to any mountable area, the up to the date information can also travel with the person or with object anywhere the person go. Person can expose it to the high or low temperature extremes in any environmental conditions, you can step on it or you can drop it in water, but the data will not be lost. The reading mission which results and start the new mission can be done with the PC. The Intelligent Button connects to the Blue Dot is called receptor of data and reader, which it can turn and can get connected to the 1-Wire adapter which is attached to any computer.

We here by conclude that iButton can be used for Security System such as digital locking System, which can unlock with the iButton reader in 10 ms. Therefore, Intelligent Button Reader can be used as a Digital Security System for any device or digital lock system.

Applicable for: Applicable for: 1. Digital Lock System, 2. Mechanical with Digital Lock System.

References

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