

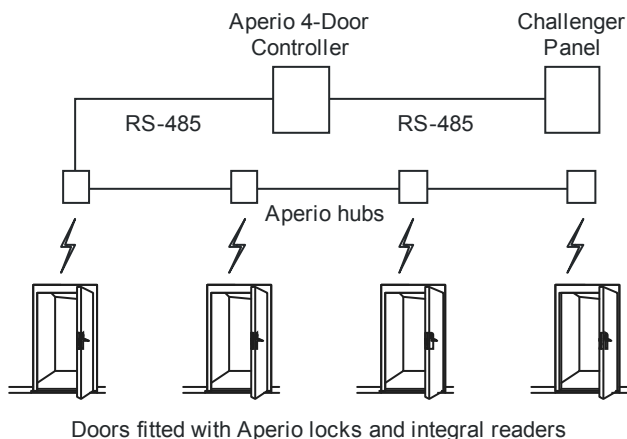


Aperio Four-Door Controller Installation Sheet

Overview

Aperio Four-Door Controllers enable the Challenger™ access control system to work with ASSA ABLOY Aperio™ doors (Figure 1 below). The main benefit of using Aperio technology is that the door locks are operated wirelessly: the locks and integral card readers are battery-powered.

Figure 1: System diagram



A facility's internal doors can be easily integrated into the Challenger system by upgrading the locks to Aperio locks. Each Aperio lock has a corresponding Aperio hub located within 5 meters, and communicates with the hub via a 128-bit encrypted wireless protocol.

This installation sheet is an addendum to the Challenger Four-Door Controller installation instructions provided with Aperio Four-Door Controllers. It also provides instructions for converting TS0866 or TS0867 Four-Door Controllers to Aperio functionality via a firmware upgrade.

We recommend that the *Aperio Technology Installation Manual* (from ASSA ABLOY) be read in conjunction with this installation sheet.

Operation

When a user (card holder) presents their MIFARE™ card to the Aperio lock, the user credentials are transmitted wirelessly to the hub, and then by RS-485 connection to the controller. The Challenger system decides whether access is to be granted, and then communicates the appropriate command back to the Aperio lock.

In addition to user credentials, the Aperio system also reports system status messages such as low battery warnings to the Challenger system.

Installation

NOTICE! A qualified service person, complying with all applicable codes, should perform all required hardware installation.

Notes

- The local LAN is for use only with Aperio hubs, not for Challenger LAN devices (such as readers).
- Aperio hubs must be no more than 1000 m cabling distance from the controller.
- Aperio hubs are polled as RASs by the controller.
- Door lock relay wiring is not used.
- The local LAN's TERM link is not used. A termination resistor is provided for the controller (if needed). See "Data bus termination" on page 2.

If you purchased a model TS0866AP or TS0867AP, install it according to the Challenger Four-Door Controller installation instructions provided.

If you purchased the firmware upgrade TS0867APS to use in a Challenger Four-Door Controller, see "Upgrading Four-Door Controller firmware" below.

Upgrading Four-Door Controller firmware

Upgrading to Aperio firmware requires that the controller's memory is in the factory default state. If the controller has been previously used, you must reset the memory to the factory default state by shorting the supercapacitor from pins on the underside of the PCB. The supercapacitor location can be identified from the front of the PCB (Figure 2 on page 2).

Caution: Take static preventive measures during installation, and then avoid touching the pins of the chip.

To install the EPROM module:

1. Disconnect the plug pack and battery from the controller.
2. Remove the controller PCB from its enclosure in order to access the rear of the PCB.
3. Carefully remove the old module from the IC socket marked "EPROM" on the PCB.

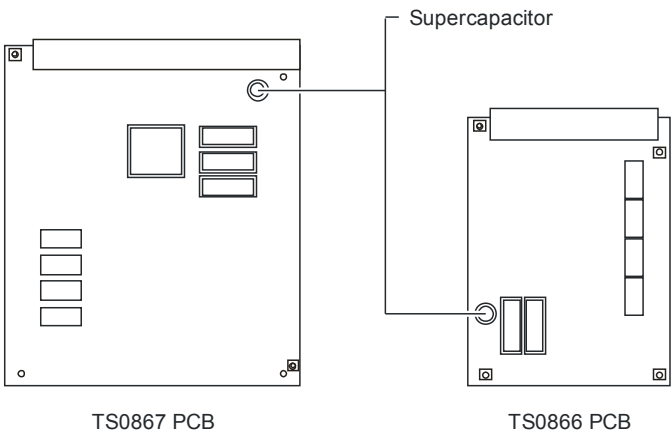
4. Carefully remove the new module from its packaging, taking extreme care that none of the pins are bent.

Note the orientation of the module. The module has a notch, which corresponds with a notch on the IC socket.

5. With the notch on the module aligned with the notch on the IC socket, carefully insert the module into the socket making sure that no pins are bent under.
6. Gently press the module into the socket until all of the pins sit firmly in the socket.

- 7. Clear the controller's memory by shorting the supercapacitor for about 10 seconds from the two soldered connectors on the underside of the PCB.
- 8. Reinstall the controller PCB into its enclosure.
- 9. Reapply power to the controller.

Figure 2: Location of supercapacitor on TS0867 and TS0866 PCBs



Data bus termination

Aperio uses 100 to 120 Ω termination. On long bus lengths ensure that the two farthest devices on the LAN are terminated correctly.

- In configurations where the Aperio hub must be terminated, use DIP switches 6, 7 and 8 (see Figure 3 below). Refer to the *Aperio Technology Installation Manual* for details.
- In configurations where the controller must be terminated, connect a 100 to 120 Ω termination resistor (supplied) across the controller's D+ and D– terminals (at J22).

Addressing

Set the hub's DIP switch Figure 3 below to correspond to the RAS address in the range 1 to 4. Switch 5 is not used and must be set to OFF.

Figure 3: DIP switches for LAN addressing and termination



Table 1: LAN address DIP switch settings

Address	Switch 1	Switch 2	Switch 3	Switch 4
01	I	O	O	O
02	O	I	O	O
03	I	I	O	O
04	O	O	I	O

Legend: I = ON, O = OFF

Paired hubs and locks

Each Aperio hub and lock are paired to work together from the factory. The paired units share an identification serial number to indicate which locks go with which hubs.

LED indications on Aperio devices

The hub's LED shows solid green to indicate correct polling.

The lock's LED indicates status when a card is presented. An invalid card results in a momentary red flash. A valid card results in a momentary green flash.

MIFARE cards

MIFARE cards may be unsectored or sectored, and may be used as follows:

- The use of unsectored MIFARE cards requires no additional programming.
- The use of sectored MIFARE cards requires the use of the Aperio Programming Application to program the RFID configuration parameters to read sectors. The Challenger system cannot support more that 6 bytes (48 bits) of card data. Therefore, the maximum number of bytes for "length of sector" must not exceed 6.

Aperio trouble codes

The following events may be reported to management software.

Battery Low event: Indicates that the lock's battery is running low and should be replaced.

Device offline: The hub and lock are not communicating, indicating no radio contact. Possible causes include incorrect pairing, hub-to-lock distance greater than 5 meters, or a malfunction in the lock or the hub.

Known limitations

It is not possible to control doors via management software.

It is not possible to set the door open access time from the door controller, because the parameter can only be programmed from the Aperio Programming Application. The access time is 5 seconds by default.

Regulatory information

Manufacturer	UTC Fire & Security Americas Corporation, Inc. 1275 Red Fox Rd., Arden Hills, MN 55112-6943, USA Authorized Australia and New Zealand manufacturing representative: UTC Fire & Security Australia Pty Ltd Unit 3, 310 Ferntree Gully Road, Notting Hill, VIC, 3168, Australia
ACMA Compliance	 N4131 Notice! This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Contact information

For contact information, see www.utcfs.com.au.