TEXAS INSTRUMENTS

Access Control Reader and Credential A & E Specification

Specification for Architects, Consultants, and Engineers

TI-RFid

A TEXAS INSTRUMENTS TECHNOLOGY

Texas Instruments RFid Systems' 13.56 MHz High Frequency Contactless Technology Sample A & E Specification

Sample Specifications for Architects, Consultants, and Specifying Engineers

The following document contains sample specifications for TI-RFid Systems' 13.56 MHz contactless technology products. The document is written using industry standard formatting and language, and is designed for use by architects, consultants, and specifying engineers who are preparing bid specifications for access control, building control, and security systems.

The electronic version of these specifications may be copied into the appropriate sections of a complete bid specification by using the "cut and paste" method. They are written to highlight unique and powerful features of the TI-RFid Access Control Product Line.

Section headings mention specific models only for clarity – these may be deleted after insertion into the complete specification. Models covered include the S6410 wall-plate reader/writer, S6420 mullion reader/writer, S6430 Keypad reader/writer, and S6550 Long range Reader and associated antennas. Access Control credentials and accessories are also included.

For application information on the TI-RFid Access Control product line, or for technical specifications, please visit http://www.ti-security.com/.

1.1 ALARM AND ACCESS CONTROL EQUIPMENT

    A. Contactless Access Control Reader/Writers: Provide contactless reader/writers or equivalent where shown on the drawings. Credential reader/writers shall be "single-package" type, combining controller, electronics and antenna in one package, in the following configurations:

        1. S6410 - Wall-Plate Reader/Writer, Wall Mounting (Single-Gang Mounting Applications):

            a. Provide "single-gang" mounting style contactless reader/writers for non-metal wall mounting, non-metal vehicle stanchions and non-metal pedestals, and where shown on plans.

            b. The reader/writer shall be designed for European and Asian electrical back boxes having a mounting hole spacing of 52-60mm.

            c. The reader/writer shall be of potted, ABS material, sealed to a rating of (IP64).

            d. The reader/writer shall conform to UL/C 294 (ETL), and shall be FCC and CE certified, and shall conform to the following ISO Standards: 15693 (read/write), 14443A (CSN read-only).

            e. The reader/writer shall comply fully with ISO 15693 parts 1, 2, and 3 open card standards to fully enable interoperability among suppliers of similar products.

            f. The reader/writer shall conform fully to ISO 15693 Part 3 - Anti-collision and Transmission Protocol and must be capable of identifying multiple credentials in a single field and defining a common command set.

            g. The reader/writer shall operate in the 13.56 MHz High Frequency band only.

            h. The reader/writer shall have an approximate read range of 4"- 8" when used with ISO 15693 access control badges.

            i. The reader/writer shall require that a card, once read, must be removed from the RF field for one second before it will be read again, to prevent multiple reads from a single card presentation and anti-passback errors.

            j. The reader/writer shall be capable of reading access control data from any ISO 15693 compliant contactless credential, and transmitting that data in SIA standard Wiegand format.

            k. The reader/writer shall be capable of reading the CSN (card serial number – a permanent, unique identification number) from any MIFARE™ credential using the S50 chip or equivalent, and transmitting that data in SIA standard Wiegand format.

            l. The reader/writer shall be capable of writing to any ISO 15693 compliant credential.

            m. The reader/writer shall provide two communication ports:

                1) Wiegand port, for connection to standard access control panels

                2) RS485 Port, for connection to PC's or access control systems, either individually or on a multi-drop bus.

            n. The reader/writer shall provide two operational modes:

                1) Internal Control: Read-only Access Control applications, transmitting Wiegand Data

2) Host Control: Read/Write applications, externally controlled via the RS485 Port, supporting stored value or data applications including biometric template storage and retrieval.

o. The reader/writer shall have separate terminal control points for the green and red LED's, and for the audible indicator.

p. The reader/writer shall have multiple LEDs for increased visibility.

q. The reader/writer shall have an audio transducer capable of producing unique tone sequences for various status conditions.

r. The reader/writer shall have a configurable hold input, which when asserted shall either buffer a single credential read or disable the reader/writer, until the line is released. This input may be used for special applications or with loop detectors.

s. Access control data shall be protected using 64-bit diversified security keys and encrypted RF data transmission using a non-proprietary security encryption key-based algorithm.

t. Security keys in the credentials and reader/writers shall be required to match, and may be customized for individual sites by using the TI Access Control Utility and Encryption software (or equivalent) or by special order from the OEM.

u. The reader shall have flash memory to allow future feature enhancements to be added in the field.

v. The Manufacturer shall provide configuration utility, credential programming, and encryption software free of charge in CD format or downloadable from the manufacturer's web site.

w. The reader/writer shall have a two-year warranty against defects in materials and workmanship.

x. Color shall be selected by the Architect: black or charcoal gray.

y. TI Model S6410, or equivalent, compatible with selected credentials.

2. S6420 - Mullion Reader/Writer, Wall Mounting (Single-Gang Mounting Applications):

a. Provide "single-gang" mounting style contactless reader/writers for non-metal or metal wall mounting, non-metal or metal vehicle stanchions and non-metal or metal pedestals, and where shown on plans.

b. The reader/writer shall be designed for European and Asian electrical back boxes having a mounting hole spacing of 52-60mm.

c. The reader/writer shall be of potted, ABS material, sealed to a rating of (IP64).

d. The reader/writer shall conform to UL/C 294 (ETL), and shall be FCC and CE certified, and shall conform to the following ISO Standards: 15693 (read/write), 14443A (CSN read-only).

e. The reader/writer shall comply fully with ISO 15693 parts 1, 2, and 3 open card standards to fully enable interoperability among suppliers of similar products.

f. The reader/writer shall conform fully to ISO 15693 Part 3 - Anti-collision and Transmission Protocol and must be capable of identifying multiple credentials in a single field and defining a common command set.

g. The reader/writer shall operate in the 13.56 MHz High Frequency band only.

h. The reader/writer shall have an approximate read range of 2"- 5" when used with ISO 15693 access control badges.

i. The reader/writer shall require that a card, once read, must be removed from the RF field for one second before it will be read again, to prevent multiple reads from a single card presentation and anti-passback errors.

j. The reader/writer shall be capable of reading access control data from any ISO 15693 compliant contactless credential, and transmitting that data in SIA standard Wiegand format.

k. The reader/writer shall be capable of reading the CSN (card serial number – a permanent, unique identification number) from any MIFARE™ credential using the S50 chip or equivalent, and transmitting that data in SIA standard Wiegand format.

l. The reader/writer shall be capable of writing to any ISO 15693 compliant credential.

m. The reader/writer shall provide two communication ports:

    1) Wiegand port, for connection to standard access control panels

    2) RS485 Port, for connection to PC's or access control systems, either individually or on a multi-drop bus.

n. The reader/writer shall provide two operational modes:

    1) Internal Control: Read-only Access Control applications, transmitting Wiegand Data

    2) Host Control: Read/Write applications, externally controlled via the RS485 Port, supporting stored value or data applications including biometric template storage and retrieval.

o. The reader/writer shall have separate terminal control points for the green and red LED's, and for the audible indicator.

p. The reader/writer shall have multiple LEDs for increased visibility.

q. The reader/writer shall have an audio transducer capable of producing unique tone sequences for various status conditions.

r. The reader/writer shall have a configurable hold input, which when asserted shall either buffer a single credential read or disable the reader/writer, until the line is released. This input may be used for special applications or with loop detectors.

s. Access control data shall be protected using 64-bit diversified security keys and encrypted RF data transmission using a non-proprietary security encryption key-based algorithm.

t. Security keys in the credentials and reader/writers shall be required to match, and may be customized for individual sites by using the TI Access Control Utility and Encryption software (or equivalent) or by special order from the OEM.

u. The reader shall have flash memory to allow future feature enhancements to be added in the field.

v. The Manufacturer shall provide configuration utility, credential programming, and encryption software free of charge in CD format or downloadable from the manufacturer's web site.

w. The reader/writer shall have a two-year warranty against defects in materials and workmanship.

x. Color shall be selected by the Architect: black or charcoal gray.

y. TI Model S6420, or equivalent, compatible with selected credentials.

3. S6430 - Keypad Reader/Writer, Wall Mounting (Single-Gang Mounting Applications):

a. Provide "single-gang" mounting style contactless reader/writers for non-metal or metal wall mounting, non-metal or metal vehicle stanchions and non-metal or metal pedestals, and where shown on plans.

b. The reader/writer shall be designed for European and Asian electrical back boxes having a mounting hole spacing of 52-60mm.

c. The reader/writer shall be of potted, Aluminum material, sealed to a rating of (IP68).

d. The reader/writer shall be FCC and CE certified, and shall conform to the following ISO Standards: 15693 (read/write), 14443A (CSN read-only).

e. The reader/writer shall comply fully with ISO 15693 parts 1, 2, and 3 open card standards to fully enable interoperability among suppliers of similar products.

f. The reader/writer shall conform fully to ISO 15693 Part 3 - Anti-collision and Transmission Protocol and must be capable of identifying multiple credentials in a single field and defining a common command set.

g. The reader/writer shall operate in the 13.56 MHz High Frequency band only.

h. The reader/writer shall have an approximate read range of 0.5"- 2" when used with ISO 15693 access control badges.

i. The reader/writer shall require that a card, once read, must be removed from the RF field for one second before it will be read again, to prevent multiple reads from a single card presentation and anti-passback errors.

j. The reader/writer shall be capable of reading access control data from any ISO 15693 compliant contactless credential, and transmitting that data in SIA standard Wiegand format.

k. The reader/writer shall be capable of reading the CSN (card serial number – a permanent, unique identification number) from any MIFARE™ credential using the S50 chip or equivalent, and transmitting that data in SIA standard Wiegand format.

l. The reader/writer shall be capable of writing to any ISO 15693 compliant credential.

m. The reader/writer shall provide two communication ports:

1) Wiegand port, for connection to standard access control panels

2) RS485 Port, for connection to PC's or access control systems, either individually or on a multi-drop bus.

n. The reader/writer shall provide two operational modes:

1) Internal Control: Read-only Access Control applications, transmitting Wiegand Data

2) Host Control: Read/Write applications, externally controlled via the RS485 Port, supporting stored value or data applications including biometric template storage and retrieval.

o. The reader shall have a 12-button Piezo driven keypad which outputs keyed-in data in SIA standard Wiegand format.

p. The reader/writer shall have separate terminal control points for the green and red LED's, and for the audible indicator.

q. The reader/writer shall have an audio transducer capable of producing unique tone sequences for various status conditions.

r. The reader/writer shall have a configurable hold input, which when asserted shall either buffer a single credential read or disable the reader/writer, until the line is released. This input may be used for special applications or with loop detectors.

s. The reader/writer shall have an optical tamper switch for security against tampering.

t. Access control data shall be protected using 64-bit diversified security keys and encrypted RF data transmission using a non-proprietary security encryption key-based algorithm.

u. Security keys in the credentials and reader/writers shall be required to match, and may be customized for individual sites by using the TI Access Control Utility and Encryption software (or equivalent) or by special order from the OEM.

v. The reader shall have flash memory to allow future feature enhancements to be added in the field.

w. The Manufacturer shall provide configuration utility, credential programming, and encryption software free of charge in CD format or downloadable from the manufacturer's web site.

x. The reader/writer shall have a two-year warranty against defects in materials and workmanship.

y. Color shall be Brushed Aluminum.

z. TI Model S6430, or equivalent, compatible with selected credentials.

B. Contactless Access Control Long range Readers and antennas: Provide Contactless readers and antennas as shown on the drawings.

1. S6550 - Contactless Housed Reader:

a. Provide housed contactless readers for long range applications.

b. The reader shall be sealed to a NEMA rating of 4X (IP65).

c. The reader shall FCC approved and CE certified, and shall conform to the following ISO Standards: 15693 (read-only).

d. The reader/writer shall comply fully with ISO 15693 parts 1, 2, and 3 open card standards to fully enable interoperability among suppliers of similar products.

e. The reader shall conform fully to ISO 15693 Part 3 - Anti-collision and Transmission Protocol and must be capable of identifying multiple credentials in a single field and defining a common command set.

f. The reader shall operate in the 13.56 MHz High Frequency band only.

g. The reader shall have an approximate read range of 6"- 36" depending upon antenna, credential, and environment.

h. The reader shall require that a card, once read, must be removed from the RF field for one second before it will be read again, to prevent multiple reads from a single card presentation and anti-passback errors.

i. The reader shall be capable of reading access control data from any ISO 15693 compliant contactless credential, and transmitting that data in SIA standard Wiegand format.

j. The reader shall have a configurable Wiegand output port and shall operate under internal control for read-only access control applications.

k. Access control data shall be protected using 64-bit diversified security keys and encrypted RF data transmission using a non-proprietary security encryption key-based algorithm.

l. Security keys in the credentials and reader/writers shall be required to match, and may be customized for individual sites by using the TI Access Control Utility and Encryption software (or equivalent) or by special order from the OEM.

m. The reader shall have flash memory to allow future feature enhancements to be added in the field.

n. The Manufacturer shall provide configuration utility, credential programming, and encryption software free of charge in CD format or downloadable from the manufacturer's web site.

o. The reader shall have a one (1) year warranty against defects in materials and workmanship.

p. Housing color shall be beige.

2. 800 x 600 Gate Antenna:

a. Provide weather-resistant gate antenna for long range applications.

b. The antenna shall be sealed to a NEMA rating of 4X (IP65).

c. The antenna shall be CE certified.

d. The antenna shall operate in the 13.56 MHz High Frequency band only.

e. The antenna shall have an approximate read range of 6" - 36" depending upon power level, credential, and environment.

f. The antenna shall have a one (1) year warranty against defects in materials and workmanship.

g. Housing color shall be Black.

3. 300 x 300 Gate Antenna:

a. Provide weather-resistant gate antenna for long range applications.

b. The antenna shall be sealed to a NEMA rating of 4X (IP65).

c. The antenna shall be CE certified.

d. The antenna shall operate in the 13.56 MHz High Frequency band only.

e. The antenna shall have an approximate read range of 6" - 12" depending upon power level, credential, and environment.

f. The antenna shall have a one (1) year warranty against defects in materials and workmanship.

g. Housing color shall be Black.

4. Standing walk-through Gate Antenna pair:

a. Provide weather-resistant gate antenna pair for long range applications.

b. The antenna pair shall be sealed to a NEMA rating of 4X (IP65).

c. The antenna pair shall be CE certified.

d. The antenna shall operate in the 13.56 MHz High Frequency band only.

e. The antenna pair shall have a maximum read range of 36" depending upon power level, credential, and environment.

f. The antenna pair shall have a one (1) year warranty against defects in materials and workmanship.

g. Housing color shall be Gray.

C. ACCESS CREDENTIALS

Provide (specify quantities) TI ISO 15693 compliant Contactless Credentials in the following form factors:

1. Access Badge

a. Access badges shall be used with access readers to gain entry to access controlled portals (e.g.; doors, gates, turnstiles) and to hold information specific to the user.

d. The badge shall operate in the 13.56 MHz High Frequency band only.

c. The badge shall comply fully with ISO 15693 parts 1, 2, and 3 open card standards to fully enable interoperability among suppliers of similar products.

d. The badge shall conform fully to ISO 15693 Part 3 - Anti-collision and Transmission Protocol and must be capable of identifying multiple credentials in a single field and defining a common command set.

e. The badge shall meet ISO 7810 card specifications for length, width, thickness, flatness, card construction and durability, and shall be in a form suitable for direct two-sided dye-sublimation or thermal transfer printing on the specified badge printer.

f. Presentation to the access control reader at any angle within a minimum of one (1) inch shall result in an accurate reading of the badge.

g. Unique 64-bit, fixed serial number (UID), used for anti-collision and key diversification.

h. The badge shall support read/write capability, with a minimum of 2 Kbits [256 bytes] of EEPROM memory, organized into 64 blocks. Data retention shall be 10 years, nominal. Encrypted Wiegand data up to 64 bits in length shall be programmable in blocks 0-4 for use with TI access control systems.

i. The badge shall be capable of completing any write operation, even if the badge is removed from the RF field during that operation.

j. The badge shall be warranted against defects in materials and workmanship for one (1) year.

k. Provide (specify quantity) fully ISO 15693 compliant access control badges, compatible with the specified reader/writers.

l. The badge shall not carry any identification showing the location of the property unless otherwise specified herein.

m. The badge shall be capable of accepting a slot punch on one of two adjacent edges, allowing it to be hung from a strap/clip in a portrait or landscape orientation.

n. The badge shall be available with or without a magnetic stripe.

o. The Manufacturer shall provide configuration utility, credential programming, and encryption software free of charge in CD format or downloadable from the manufacturer's web site.

2. Access Key Fob

a. Access Key Fobs shall be used with access readers to gain entry to access controlled portals (e.g.; doors, gates, turnstiles) and to hold information specific to the user.

b. The Key Fob shall operate in the 13.56 MHz High Frequency band only.

c. The Key Fob shall comply fully with ISO 15693 parts 1, 2, and 3 open card standards to fully enable interoperability among suppliers of similar products.

d. The Key Fob shall conform fully to ISO 15693 Part 3 - Anti-collision and Transmission Protocol and must be capable of identifying multiple credentials in a single field and defining a common command set.

e. The Key Fob shall be constructed of durable PVC plastic, with a metal eyelet at one end, and shall be suitable for placement on a key ring.

f. Presentation to the access control reader at any angle within 0.5 inches shall result in an accurate reading of the key fob.

g. Unique 64-bit, fixed serial number (UID), used for anti-collision and key diversification.

h. The Key Fob shall support read/write capability, with a minimum of 2 Kbits [256 bytes] of EEPROM memory, organized into 64 blocks. Data retention shall be 10 years, nominal. Encrypted Wiegand data up to 64 bits in length shall be programmable in blocks 0-4 for use with TI access control systems.

i. The Key Fob shall be capable of completing any write operation, even if the badge is removed from the RF field during that operation.

j. Provide (specify quantity) key fobs compatible with the specified readers.

k. The key fob shall not carry any identification showing the location of the property unless otherwise specified herein.

l. The key fob shall be warranted against defects in materials and workmanship for one (1) year.

m. The Manufacturer shall provide configuration utility, credential programming, and encryption software free of charge in CD format or downloadable from the manufacturer's web site.

3. Access Label

a. Access Labels shall be used with access readers to gain entry to access controlled portals (e.g.; doors, gates, turnstiles) and to hold information specific to the user.

b. The Label shall operate in the 13.56 MHz High Frequency band only.

c. The Label shall comply fully with ISO 15693 parts 1, 2, and 3 open card standards to fully enable interoperability among suppliers of similar products.

d. The Label shall conform fully to ISO 15693 Part 3 - Anti-collision and Transmission Protocol and must be capable of identifying multiple credentials in a single field and defining a common command set.

e. The Label shall be a flat rectangular-shaped unit with a printable, durable surface and a self-stick adhesive back.

f. The Label shall be capable of affixation to non-metallic personal items such as PDAs, cell phones, business assets, or to existing access control or identification credentials for the purpose of transitioning from earlier technologies to contactless.

g. Presentation to the access control reader at any angle within 0.5 inches shall result in an accurate reading of the Tag.

h. The Label shall be warranted against defects in materials and workmanship for one (1) year.

i. Provide (specify quantity) Access Labels compatible with the specified readers.

j. The Tag shall not carry any identification showing the location of the property unless otherwise specified herein.

k. The Manufacturer shall provide configuration utility, credential programming, and encryption software free of charge in CD format or downloadable from the manufacturer's web site.