

U.S.  
T 855 536 3573  
F 561 998 6224

Asia  
T 65 6424 7932  
F 65 6424 7978

Australia  
T 61 3 9239 1200  
F 61 3 9239 1299

Canada  
T 800 267 6317  
F 613 737 5517

EMEA  
T 48 58 326 22 40  
F 48 58 326 22 41

Latin America  
T 503 589 8614  
F 561 994 6572

www.utcfireandsecurity.com

© 2012 UTC Fire & Security. All rights reserved.

UTC Fire & Security, 9 Farm Springs Road,  
Farmington, CT 06034-4065, USA

# Transition Series

## Multi-technology Access Readers



## Description

Transition™ 500-PIV Series multi-technology card readers feature simultaneous compatibility with multi-vendor 125 kHz Proximity and PIV (ISO 14443A) credential technologies—all in one reader. With this remarkable technology combination, security administrators can now deploy the Transition readers into new or existing facilities.

Figure 1. Multi-technology Readers

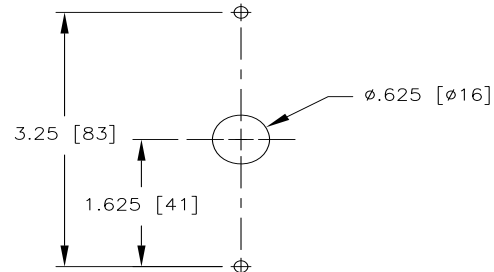


## Mounting the reader

All models of the T-500-PIV series readers can be mounted using a U.S. single-gang electrical box or directly to a wall.

1. Find a suitable mounting position on the door frame or wall.  
**Note:** For out of doors or wet locations, it is recommended that the gasket provided be installed on the base as shown in Figure 5.
2. If mounting directly to the wall, use one of the following methods:
  - 2a. Drill two vertical mounting holes from 3.25" (83 cm) to 4.891" (125 cm) apart on the mounting surface of the door frame or wall.

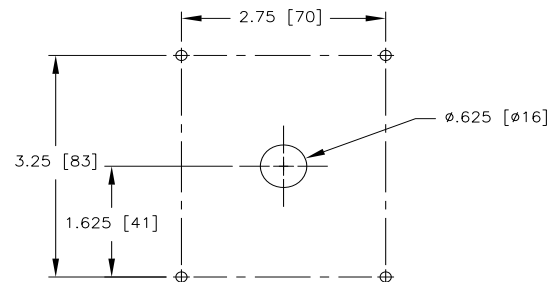
Figure 2. Direct wall mounting



DIMENSIONS = INCHES [MM]

- 2b. Models 520/525-PIV can be mounted using a second pair of vertical mounting holes, horizontally spaced 2.75" (70 cm) from the first pair.

Figure 3. T520/525-PIV Direct wall mounting alternative



DIMENSIONS = INCHES [MM]

3. Drill one 0.625" (15.87 mm) diameter hole in wall for the pigtail wire connection.
4. Follow the Cable Connection Chart to connect the reader to the field panel and external door equipment.
5. Mount the base plate to the wall using the supplied screws.
6. Install gasket if required, see Figure 5.

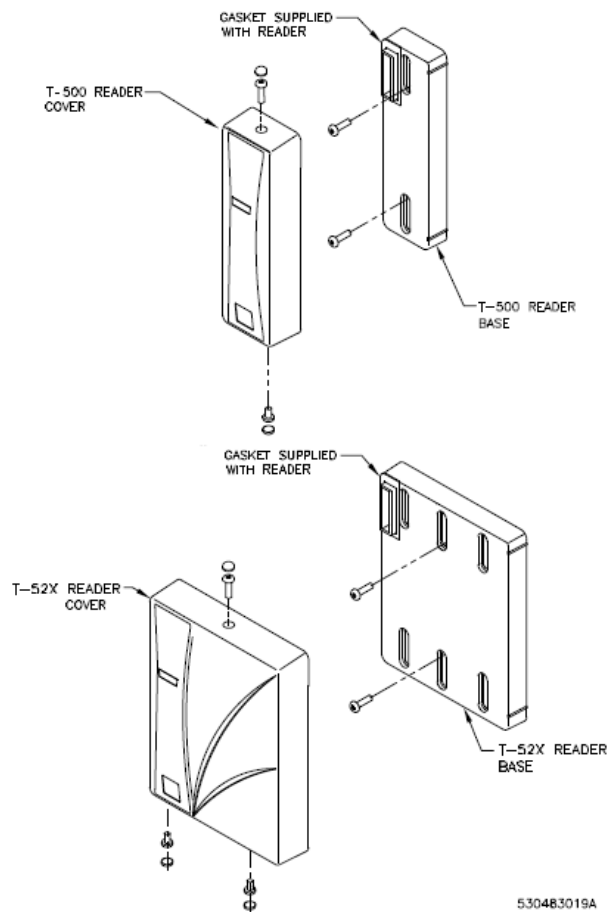
7. Install the top cover to the reader base. The base plate and top cover guides should be aligned, so the connectors seat correctly.

Figure 4. Aligning base plate and top cover



8. Verify the connection is secure and install the security screws on the top and bottom of the reader.
9. Cover the exposed screws with the rubber plugs provided.

Figure 5. Gasket detail



## Connecting the cable

1. The readers are supplied with a 12-conductor cable pigtail with drain wire. Connect the pigtail to the host panel. Use the Cable Connection Chart (below) to correctly match the color of each wire.

Color	Signal
Red	6 to 16 VDC
Black	Ground
Green	Data 0
White	Data 1
Orange	Green LED Control
Brown	Red LED Control
Yellow	Beeper Control
Gray	Door DI
Pink	REX DI
Tan	Tamper Output
Blue	Hold
Purple	Reserved
.....	Drain Wire

2. Use a DC Power source between 6-16 VDC.
3. Verify the reader is properly grounded by attaching the ground wire to an earth ground connection at the power supply or field panel end of the cable. Connect reader's drain wire to the cable shield. Connect shield wires at the field panel.

## Testing the reader

1. Power up the reader. Verify the power-on self test LED/beep sequence:
  - green LED flashes; two short beeps
  - yellow LED flashes; three short beeps
  - red LED flashes.
  - yellow LED flashes.
2. Verify the yellow LED is on continuously indicating the reader is ready.
3. Present a badge that has been properly enrolled in the system. Verify the yellow LED flashes and a short beep is heard.

## Removing the cover

1. Remove all security screws.
2. Pull cover off the base. Refer to Figure 4 on page 2.

## Keypad configuration card

1. Place the reader in tamper mode by briefly removing and replacing the reader's cover while the power is on. The reader stays in tamper mode for 60 seconds (minimum) after power is applied or the cover is replaced.
2. Present the keypad configuration card within one minute. The LED turns green and a short triple-beep indicates the reader is ready to configure.
3. Enter the keypad entry within five seconds. Use the chart below to identify the correct keypad entry.

Mode/Keypad entry	Setting	UTC	non-UTC
1 * followed by 0 (Factory default setting)	8 bits per key, no buffering	✓	✓
2 * followed by 1	6 bits per key, no buffering		✓
3 # followed by 3 keys (0 to 9 only)	26-bits output custom configuration. (Contact Sales Engineering/Pre-Sales Support for assistance)		✓
4 1 followed by 1 key (0 to 9 only)	4 bits per key, no parity, up to 9 keys buffered		✓
5 1 followed by *	4 bits per key, no parity, up to 10 keys buffered		✓
6 1 followed by #	4 bits per key, no parity, up to 11 keys buffered		✓

For non-UTC keypad configurations, contact Sales Engineering/Pre-Sales Support for assistance.

## FCC compliance

The FCC requires the following statement: This reader uses radio frequency energy and has been tested, and complies with the limits of FCC testing. Changes, modification, or disregard of proper installation and instructions not expressly approved by UTC Fire & Security, and is strictly prohibited by the FCC and could void the user's authority to operate the equipment.

## Specifications

Colors	Black
Power supply	Linear DC recommended
Power usage	T-500-PIV: 210 mA @ 12 VDC T-520-PIV: 130 mA @ 12 VDC T-525-PIV: 130 mA @ 12 VDC
Voltage range	6—16 VDC

Temperature range <sup>a</sup>	-31°F to +149°F (-35°C to +65°C)
Cable distance to panel	Up to 500 ft. (152.4 m) @ 12 VDC with 20 AWG shielded cable
Read Range <sup>b</sup> (Distances may vary depending on environment.)	Proximity Perfect and Ultralight cards are not supported by the Transition Series reader. Model T-500-PIV: - Proximity: up to 3.5" (8.89 cm) - HID Proximity: up to 3.5" (8.89 cm) - PIV: up to 1" (2.54 cm) Model T-520-PIV and T-525-PIV: - Proximity: up to 5" (15.24 cm) - HID Proximity: up to 5" (15.24 cm) - PIV: up to 1" (2.54 cm)
Wiegand output	Proximity 4002 (40-bit) HID Proximity (depends on card format) PIV (75-bit and 200-bit)
Tamper output	Open Collector
Regulatory approvals and standards	UL 294, CE, and FCC (part 15)
ISO Standards	ISO 14443A, B

UL evaluation for UL Listed Installations:

- 25°F to 125°F (-32°C to 52°C)
- Model T-500-PIV, T-520-PIV and T-525-PIV Proximity and HID Proximity up to 4.5" (11.43 cm)
- Power consumption:  
Model 500-PIV: 210 mA @ 12 VDC  
Model 520-PIV and 525-PIV: 130 mA @ 12 VDC
- Request to exit terminals on the reader are not to be connected in UL listed installations.

The voltage specification for this reader is 6—16 VDC, although 12 VDC or greater is recommended for better performance and cable run distances.

## Ordering information

Product	Part Number
T-500-PIV (Black; Mullion mount; Wiegand output) *	430212006
T-520-PIV (Black; 1-Gang US mount; Wiegand output) *	430213006
T-525-PIV (Black; 1-Gang US mount; Keypad; Wiegand output) *	430214006
* Installation wrench (Required)	385001001

Copyright © 2012, UTC Fire & Security. All Rights Reserved.

The Transition Series product name and logo are trademarks of UTC Fire & Security. Other trade names used in this document may be trademarks or registered trademarks of the manufacturers or vendors of the respective products.

Document number: 460661001G - November 2012