

# USER'S MANUAL

*SAR* SR10  
SR20

Philips Mifare™ Compatible Proximity Reader



[www.idteck.com](http://www.idteck.com)

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### 1. Important Safety Instructions

When using STAR SR10/SR20 Philips Mifare™ Compatible Proximity Reader, basic safety precautions should always be followed to reduce the risk of fire, electrical shock, and injury to persons. In addition, the following should also be followed:

1. Read and understand all instructions of the User's Manual.
2. Follow all warnings and instructions marked on the product.
3. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning. If necessary, use mild soap.
4. Do not use this product near water, such as bath-tub, wash bowl, kitchen sink, laundry tub, in a wet basement, or swimming pool.
5. This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your installation site, consult your dealer or local power company.
6. Never push objects of any kind into this product or through the cabinet slots as they may touch voltage points or short out parts that could result in fire or electric shock. Never spill liquid of any kind on the product.
7. To reduce the risk of electric shock, do not disassemble this product by yourself, but take it to qualified service whenever service or repair is required.
8. Unplug this product from the Direct Current (DC) power source and refer to qualified service personnel under these conditions:
  - When the power supply cord or plug is damaged or frayed.
  - If liquid has been spilled on the product.
  - If the product does not operate normally after following the operating instructions in this manual.
  - If the product exhibits a distinct change in performance.
9. Do not use this product under dusty or vibration circumstance.

### 2. Product Introduction

The STAR SR10/ SR20 Philips Mifare™ Compatible Proximity Reader is an elegant looking 4" (10cm) read range proximity reader which can be mounted to any flat wall surface. The SR10/SR20 Philips Mifare™ Compatible Reader reads serial numbers from Philips Mifare™ Compatible cards and transmits the data to control panel in various output formats. The SR10/ SR20 uses the same epoxy-potted electronics module that ensures you successful operation even in harsh environments. The two-color LED of green and red and the piezo buzzer inside the reader will guarantee you accurate and reliable system operations.

## PROXIMITY READER

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### 3. Features

- Philips Mifare™ Compatible Proximity Reader
- Maximum 4" (10cm) reading range
- External LED and Buzzer control inputs
- 2-Color LED(Red and Green) Indicator and Buzzer sound
- Output format selectable between 34-bit/26-bit Wiegand
- Optional RS232 communication port
- Operating voltage from 7V to 17VDC

### 4. Identifying Supplied Parts

Please unpack and check the contents of the box.



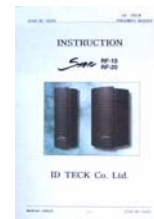
Reader Module  
ea)



SR10 Bezel  
(1 ea)



or SR20 Bezel  
(1 ea)



Instruction  
(1 ea)

(1

### 5. Specification

Read Range	:	Up to 4" (10cm)
Read Format	:	Philips Mifare™ Compatible Proximity Card Format
Operating Frequency	:	13.56MHz
Compatibility	:	ISO14443 type A
Power	:	DC 7V ~ 17V, Max. 150mA
Output Format	:	34-bit or 26-bit Wiegand, Optional RS232 communication port
External LED/ Buzzer control Input	:	Low Active, DC 0 ~ 5V, Max. 50 mA
LED/ Buzzer	:	Two-color LED(red and green)/ Piezo Buzzer
Color	:	Dark Pearl Gray
Operating Environment	:	5°F ~ 149°F (-15°C ~ +65°C), 10~90% RH
Overall Size (WxHxD)	:	SR10 1.82"x4.81"x0.87"(46x122x23mm) SR20 3.00"x4.89"x0.87"(76x124x23.5mm)
Weight (SR10 / SR20)	:	0.33lb(150g) / 0.35(160g)

# PROXIMITY READER

## 6. Installation

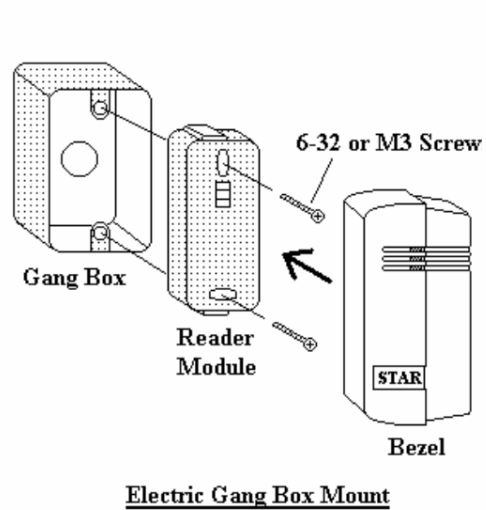
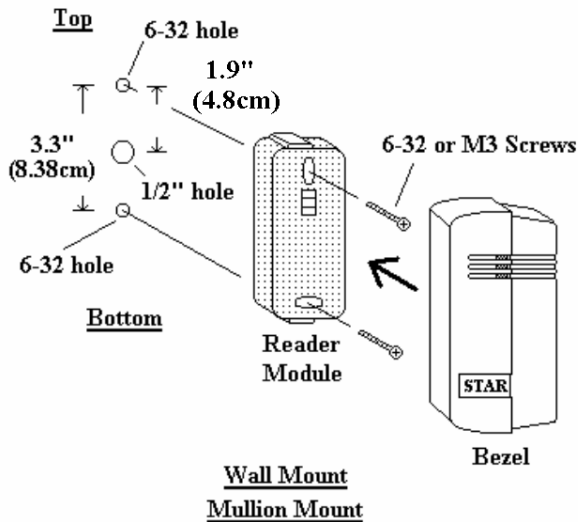
### 6-1. Mullion/Wall Mount

Drill two 6-32 or M3 holes 3.3"(8.38cm) apart in vertical and drill one 1/2" hole for the reader cable 1.7"(4.31cm) apart from the top hole.

(If you have installed electric gang box then skip this step.)

6-2. Put reader cable into the center hole and install the reader module by using two 6-32 or M3 screws.

6-3. Put bezel into the reader module then push bezel until you hear the locking sound.



## 7. Wire Color Table of the SR10/20

### POWER

Power (DC +7V ~ +17V)

DC(+)

Red wire

Power (Ground)

GND

Black wire

### INPUT

LED Control

LED\_CON

Yellow wire

Buzzer Control

Buzzer\_CON

Blue wire

Output Format Selection 34 bit / 26 bit select

34/26\_SLCT

Gray wire

### OUTPUT (Wiegand Format)

Wiegand Data-0

Data-0

Green wire

Wiegand Data-1

Data-1

White wire

### OUTPUT (RS232 Format)

RS232C

TX

Violet wire

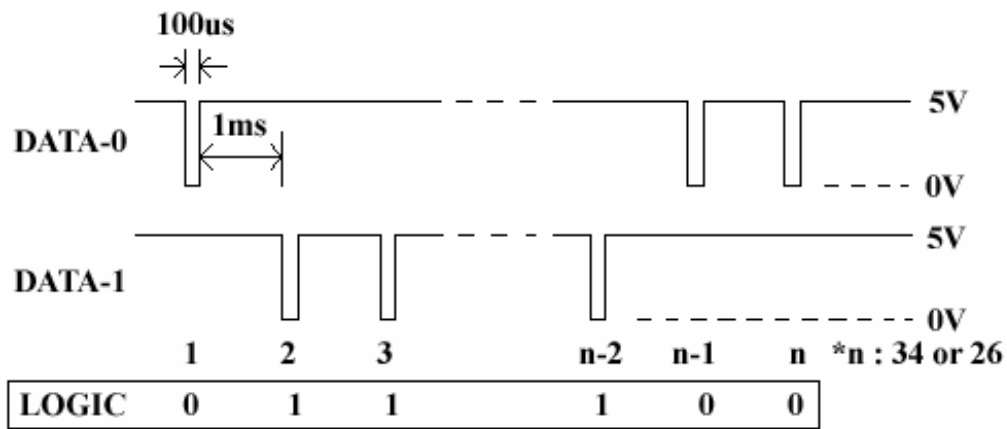
## 8. Output Format

### 8-1. Wiegand Output Format

Data format (34-bit /26-bit)

Bit 1 / Bit 1 : Even parity from Bit 2 to Bit 17/ Bit 2 to Bit 13  
 Bit 2 to Bit33 / Bit 2 to Bit25 : 4-byte ID number / 3-byte ID number  
 Bit 34 / Bit 26 : Odd parity from Bit 18 to Bit 33/ Bit 14 to Bit 25

Timing diagram



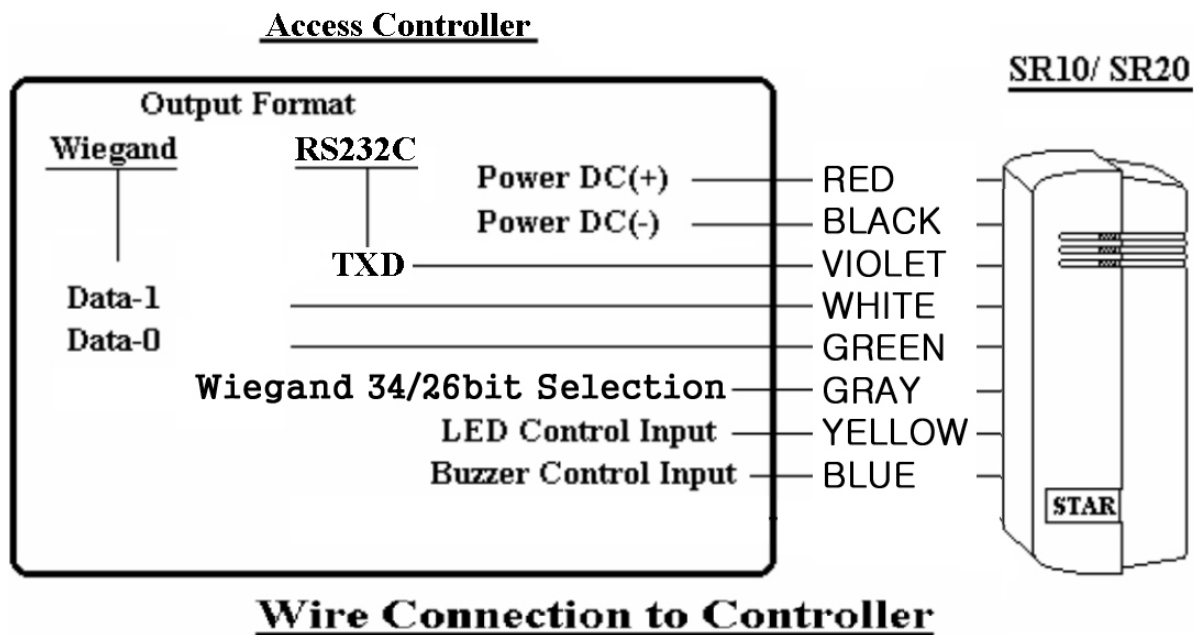
### 8.2 RS-232C(Optional) Data format

START(0x02H)	DATA(10 or 8 char's)	END(0x03H)	LRC
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Baud rate : 9600  
 DATA : 10 characters for 4-byte output, 8 characters for 3-byte.  
 LRC : The value made from XORing every byte from 'START' through 'END'

## 9. Wire Connection to Controller

The brown and the orange wire **MUST** be left unconnected. The violet wire is reserved for RS-232C output. Please be careful connecting the wires not to make a misconnection.



## 10. Operation

10-1. Apply power and you can see the red LED is on indicating the reader is on standby.

10-2. Present a proximity card to the reader until you hear a beep sound and the LED changes the color to Green simultaneously and the reader sends the RF card data to the controller then the LED changes the color to Red again for next reading.

10-3. LED Control;

To change the LED colors, you may connect the LED Control Input(Yellow wire) to the power ground then the Green LED is on.

Present a proximity card then the LED changes the color to Red simultaneously then Green again for next reading.

10-4. Buzzer Control;

When the reader reads proximity card, only one beep sound generates in normal operating mode but you can generate more beep sounds to distinguish whether the access is granted or denied.

To generate more beeps, you may control the Buzzer Control Input(Blue wire) to the power ground then you can turn the beeper on while you hold Buzzer Control Input to the power ground.

10-5. 4-byte(34bit) / 3-byte(26bit) selection:

The reader outputs the serial number of a card which is a 4-byte number. It is, however, possible to make the reader send only 3 bytes of it with the most significant byte trimmed off. It is useful when there are controllers which deal with 3-byte data only as most of existing controllers are.

For 3-byte outputs, connect the 34-bit / 26-bit selection input(Gray wire) to Ground.

**Caution :** It is unavoidable that some card numbers are duplicated in 3-byte output.

## 11. FCC REGISTRATION INFORMATION

### FCC REQUIREMENTS PART 15

**Caution:** Any changes or modifications in construction of this device which are not expressly approved by the manufacturer for compliance could void the user's authority to operate the equipment.

**NOTE:** This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interface, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to this equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the radio or television off and on, the user is encouraged to try to correct interference by one or more of the following measures.

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on another circuit.
4. Consult the dealer or an experienced radio/TV technician for help.



## 12. Warranty and Service

STAR SR10/SR20 Philips Mifare™ Compatible Proximity Reader warranty is valid for 2 years from the shipping date. The following warranty and service information applies only to the United States of America and Republic of Korea. For the information in other countries, please contact your local distributor or suppliers. To obtain in or out of warranty service, please prepay shipment and return the unit to the facility listed below.

### IN THE UNITED STATES

RF LOGICS Inc. Service Center  
3026 Scott Blvd.,  
SANTA CLARA, CA95054  
Tel. : (408) 980-0001  
Fax. : (408) 980-8060  
E-mail: rflogics@rflogics.com  
Web-site: www.rflogics.com

### OUTSIDE OF THE UNITED STATES

ID TECK CO., LTD. Service Center  
5F Ace Techno Tower Bldg.,  
684-1 Deungchon-dong, Gangseo-gu,  
SEOUL 157-030, KOREA  
Tel. : +82 2 2659-0055  
Fax. : +82 2 2659-0086  
E-mail: webmaster@idteck.com  
Web-site: www.idteck.com

Please use the original container, or pack the unit(s) in a sturdy carton with sufficient packing to prevent damage, include the following information:

1. A proof-of-purchase indicating model number and date of purchase.
2. Bill-to address
3. Ship-to address
4. Number and description of units shipped.
5. Name and telephone number of person to contact.
6. Reason for return and description of the problem.

NOTE: Damage occurring during shipment is deemed the responsibility of the carrier, and claims should be made directly to the carrier.

13. RMA Request Form & A/S Request Form

- RMA REQUEST FORM : ORIGINAL



5F, Ace Techno Tower B/D, 684-1, Deungchon Dong, Gangsuh Gu, Seoul, 157-030, Korea  
 TEL : +82-2-2659-0055, FAX ; +82-2-2659-0086, www.idteck.com

RMA REQUEST FORM					
<b>Send To</b> RMA Control Center 5F, Ace Techno Tower B/D 684-1, Deungchon-Dong, Gangsuh-Gu Seoul, 157-030, Korea Sales Person In Charge			<b>RMA No. &amp; Date :</b> <b>Original Invoice No. &amp; Date :</b>		
			<b>Requested From :</b>		
<b>Shipping Port :</b>		<b>Departure Date :</b>			
<b>Air / Vessel :</b>					
NO	Model	Serial Number	Error Check Box by shipper		
1	Engineer Comment		RS 232 Com. <input type="checkbox"/>	Power <input type="checkbox"/>	Card Reading <input type="checkbox"/>
			Input/Output <input type="checkbox"/>	Keypad <input type="checkbox"/>	RS 422 Com <input type="checkbox"/>
			Others <input type="checkbox"/> :		
2	Engineer Comment		RS 232 Com. <input type="checkbox"/>	Power <input type="checkbox"/>	Card Reading <input type="checkbox"/>
			Input/Output <input type="checkbox"/>	Keypad <input type="checkbox"/>	RS 422 Com <input type="checkbox"/>
			Others <input type="checkbox"/> :		
3	Engineer Comment		RS 232 Com. <input type="checkbox"/>	Power <input type="checkbox"/>	Card Reading <input type="checkbox"/>
			Input/Output <input type="checkbox"/>	Keypad <input type="checkbox"/>	RS 422 Com <input type="checkbox"/>
			Others <input type="checkbox"/> :		
4	Engineer Comment		RS 232 Com. <input type="checkbox"/>	Power <input type="checkbox"/>	Card Reading <input type="checkbox"/>
			Input/Output <input type="checkbox"/>	Keypad <input type="checkbox"/>	RS 422 Com <input type="checkbox"/>
			Others <input type="checkbox"/> :		
5	Engineer Comment		RS 232 Com. <input type="checkbox"/>	Power <input type="checkbox"/>	Card Reading <input type="checkbox"/>
			Input/Output <input type="checkbox"/>	Keypad <input type="checkbox"/>	RS 422 Com <input type="checkbox"/>
			Others <input type="checkbox"/> :		
<b>Manufacture's Verification</b>					
Product Defective : User's Misuse : Communication Error :			Installation Error : Connection Error : Others :		
<b>Packing Details</b>					
Dimension(L:W:H) :			No. of Units		
Net & Gross Weight :			No. of Boxes		
Requested By  _____ Buyer's Signature			Received By  _____ IDTECK's Signature		

**PROXIMITY READER**

• **RMA REQUEST FORM : SAMPLE**




5F, Ace Techno Tower B/D, 684-1, Deungchon-Dong, Gangsuh-Gu, Seoul, 157-030, Korea  
 TEL : +82-2-2659-0055, FAX ; +82-2-2659-0086, www.idteck.com

RMA REQUEST FORM					
<b>Send To</b> RMA Control Center 5F, Ace Techno Tower B/D 684-1, Deungchon-Dong, Gangsuh-Gu Seoul, 157-030, Korea			<b>RMA No. &amp; Date :</b> We send this No. , when you want. <b>Original Invoice No. &amp; Date :</b> 00-00-0-000 / 1990.01.01		
Sales Person In Charge  <p style="text-align: center;"><b>Karina Kwak</b></p>			<b>Requested From :</b> <p style="text-align: center;"><b>Mr. Luis Castro</b>                      ABC Company,... address....                      Tokyo, Japan</p>		
<b>Shipping Port :</b>		<b>Narita</b>	<b>Departure Date :</b>		<b>2003, 11. 25</b>
<b>Air / Vessel :</b>		<b>Air</b>			
NO	Model	Serial Number	Error Check Box by shipper		
1	<b>SR 10</b>	<b>XXXXXXXXXXXXXX</b>	RS 232 Com. <input type="checkbox"/>	Power <input checked="" type="checkbox"/>	Card Reading <input checked="" type="checkbox"/>
	Engineer Comment	<b>Write problem to be detailed.</b>	Input/Output <input type="checkbox"/>	Keypad <input type="checkbox"/>	RS 422 Com <input type="checkbox"/>
Others <input type="checkbox"/> :					
2	<b>others</b>		RS 232 Com. <input type="checkbox"/>	Power <input type="checkbox"/>	Card Reading <input type="checkbox"/>
	Engineer Comment		Input/Output <input type="checkbox"/>	Keypad <input type="checkbox"/>	RS 422 Com <input type="checkbox"/>
Others <input type="checkbox"/> :					
3			RS 232 Com. <input type="checkbox"/>	Power <input type="checkbox"/>	Card Reading <input type="checkbox"/>
	Engineer Comment		Input/Output <input type="checkbox"/>	Keypad <input type="checkbox"/>	RS 422 Com <input type="checkbox"/>
Others <input type="checkbox"/> :					
4			RS 232 Com. <input type="checkbox"/>	Power <input type="checkbox"/>	Card Reading <input type="checkbox"/>
	Engineer Comment		Input/Output <input type="checkbox"/>	Keypad <input type="checkbox"/>	RS 422 Com <input type="checkbox"/>
Others <input type="checkbox"/> :					
5			RS 232 Com. <input type="checkbox"/>	Power <input type="checkbox"/>	Card Reading <input type="checkbox"/>
	Engineer Comment		Input/Output <input type="checkbox"/>	Keypad <input type="checkbox"/>	RS 422 Com <input type="checkbox"/>
Others <input type="checkbox"/> :					
<b>Manufacture's Verification</b>					
Product Defective :			Installation Error :		
User's Misuse :			Connection Error :		
Communication Error :			Others :		
<b>Packing Details</b>					
<b>Dimension(L:W:H) :</b>		<b>30 * 25 * 80</b>	<b>No. of Units</b>	<b>20</b>	
<b>Net &amp; Gross Weight :</b>		<b>150g</b>	<b>No. of Boxes</b>	<b>2</b>	
Requested By <u>Luis Castro</u> Buyer's Signature			Received By _____ IDTECK's Signature		

- A/S REQUEST FORM : ORIGINAL

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 **A/S Request Form**

1. Model:	2. RMA No:
3. Original Invoice No:	4. Serial No:
5. Distributor:	6. Date:

**User's Check List**

<input type="checkbox"/> Card Reading	<input type="checkbox"/> Power	<input type="checkbox"/> Keypad
<input type="checkbox"/> Communication	<input type="checkbox"/> Relay	<input type="checkbox"/> LCD
<input type="checkbox"/> LED & Buzzer	<input type="checkbox"/> Registration	
Others :		


**How to return...**

1. Require 'RMA Request Form' to your contact point before sending the units.
2. Send back the 'RMA Request Form' filled and get RMA No. from RMA Control Center.
3. Return the defective goods with this Form filled and packed as it was.
4. If out of warranty, repairing invoice will be issued.

**IDTECK RMA CONTROL CENTER**  
5F Ace Techno Tower B/D, 684-1, Deungchon-Dong, Gangsuh-Gu, Seoul  
Korea 157-030. Online RMA service : [www.idteck.com](http://www.idteck.com)  
Hotline : +82-19-264-7550(Customer support), +82-17-340-4170(R&D)

- A/S REQUEST FORM : SAMPLE

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## A/S Request Form

1. Model: <b>XXXXX V X.XX</b>	2. RMA No: <b>XXXXXXXX</b>
3. Original Invoice No: <b>XXXXXXXXXX</b>	4. Serial No: <b>XXXXXXXXXXXXXXXXXX</b>
5. Distributor: <b>XXXXXXX</b>	6. Date: <b>2003.XX.XX</b>

### User's Check List

<input checked="" type="checkbox"/> Card Reading	<input type="checkbox"/> Power	<input type="checkbox"/> Keypad
<input checked="" type="checkbox"/> Communication	<input type="checkbox"/> Relay	<input checked="" type="checkbox"/> LCD
<input type="checkbox"/> LED & Buzzer	<input type="checkbox"/> Registration	
Others : <b>Write problem!</b>		

### How to return...

1. Require 'RMA Request Form' to your contact point before sending the units.
2. Send back the 'RMA Request Form' filled and get RMA No. from RMA Control Center.
3. Return the defective goods with this Form filled and packed as it was.
4. If out of warranty, repairing invoice will be issued.

**IDTECK RMA CONTROL CENTER**  
5F Ace Techno Tower B/D, 684-1, Deungchon-Dong, Gangsuh-Gu, Seoul  
Korea 157-030. Online RMA service : [www.idteck.com](http://www.idteck.com)  
Hotline : +82-19-264-7550(Customer support), +82-17-340-4170(R&D)





## PROXIMITY READER

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The specification contained in this manual are subject to change without notice at any time.



5F, Ace Techno Tower B/D, 684-1, Deungchon-Dong,  
Gangsu-Gu, Seoul, 157-030, Korea  
Tel : (82) 2 2659-0055  
Fax : (82) 2 2659-0086  
E-mail : [webmaster@idteck.com](mailto:webmaster@idteck.com)

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