User Manual

Access Touch 4.0

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Author</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>21.9.2015</td>
<td>Hal</td>
<td>First version</td>
</tr>
<tr>
<td>1.01</td>
<td>15.12.2015</td>
<td>Hal</td>
<td>Added connector 2</td>
</tr>
</tbody>
</table>
1. Purpose of this user manual .................................................................................. 3
2. Other available documents ...................................................................................... 3
3. Description of Access Touch 4.0 ............................................................................. 3
4. Package content ..................................................................................................... 5
5. Notes .................................................................................................................... 5
6. Installation .............................................................................................................. 6
   6.1. Installation, mechanics ...................................................................................... 6
   6.1.1. Exploded view ............................................................................................... 6
   6.1.2. Installation plate ............................................................................................. 7
   6.1.3. Back cover ...................................................................................................... 7
   6.2. Installation, electronics .................................................................................... 8
   6.2.1. Power supply .................................................................................................. 8
   6.2.2. Connector 1 .................................................................................................. 9
   6.2.3. Connector 2 .................................................................................................. 10
   6.2.4. Connector 3 .................................................................................................. 11
   6.2.5. Connector 4 .................................................................................................. 12
   6.2.6. Ethernet Connection .................................................................................... 13
   6.2.7. PoE ................................................................................................................ 13
   6.2.8. SD card connector ......................................................................................... 14
   6.2.9. USB Ports .................................................................................................... 14
   6.2.10. Reset button ............................................................................................... 14
   6.2.11. Boot ............................................................................................................. 14
   6.2.12. Mic ............................................................................................................... 14
   6.2.13. Line .............................................................................................................. 14
   6.3. Mounting ......................................................................................................... 15
   6.4. Booting ............................................................................................................ 15
7. System shutdown .................................................................................................... 15
8. Dimensions ............................................................................................................ 15
   8.1. Front panel measures ....................................................................................... 15
   8.2. Side measures .................................................................................................. 16
9. Technical data ........................................................................................................ 17
1. Purpose of this user manual

The purpose of this manual is to give you information about Access Touch 4.0 screen terminal and help you install it.

2. Other available documents

Please also see following documents for more information:

- Access Touch 4.0 Protocol Description
  - Description of communication between on board microcontroller and Computer on Module.
  - Sensors (temperature sensor, external voltage, I/O-state..), LED control etc also described in this document

- Access Touch 4.0 Open Embedded Build System

- Access Touch 4.0 Embedded Linux OS Description

3. Description of Access Touch 4.0

Access Touch 4.0 is a touch screen terminal that:

- Enables you to manage a wireless identification system
- Can be used as an independent control unit

Access Touch 4.0 consists of an integrated computer module and an RFID reader. It can be used for management of a wireless system or as an independent unit, for e.g. time and attendance, payment applications, alarm control, as an info screen etc.

Access Touch 4.0 operates on Embedded Linux or Windows EC7 operating system. Access Touch 4.0 includes a fully operating integrated computer on module with great performance offering a variety of options for different types of customised solutions.

Access Touch 4.0 has an integrated RFID reader unit, available with a variety of RFID technologies working on 125 kHz and 13.56 MHz frequencies.
The front panel is fully customisable to your needs. The device consists primarily of a screen module with embedded electronics and a back plate for installation.

Contact Idesco for special needs. E.g. display vertical orientation.
4. Package content

- Access Touch 4.0 including RFID reader unit, one of following:

1. **7C 2.0:**
   MIFARE® DESFire: UID, MIFARE® Classic: UID, MIFARE® Ultralight UID, MIFARE® Plus UID, MIFARE® SmartMX (MIFARE® Classic emulation mode) UID, NFC (UID), Mifare Classic 7 Byte UID

2. **8CD 2.0:**
   MIFARE® DESFire: UID + Application files, MIFARE® Classic: UID + Security, MIFARE® Ultralight UID + pages, MIFARE® Plus UID security levels 1 and 3, MIFARE® SmartMX (MIFARE® Classic emulation mode), NFC (UID), Mifare Classic 7 Byte UID + sectors.

3. **7AH:**
   UID-number of Sokymat Unique, EM 4102, HID Proximity 26, 34, 35, 37 and 40 bits

4. **IR6090B2:**
   Supporting Idesco Microlog technology

5. Other RFID reader modules available optionally

- Other optional equipment depending on specific order requirements:
  1. WLAN USB module
  2. Additional SSD memory
  3. NOTE! Two additional USB ports available with default HW-configuration

5. Notes

- Handle the unit, especially the front cover, with care.
- Handle the electronics with care to avoid any electrostatic discharges
- Use a soft towel when cleaning the front panel
- It is recommended to deploy a power back up (UPS) for power interruptions.
6. Installation

NOTE! Power must be turned off when making connections!

6.1. Installation, mechanics

6.1.1. Exploded view

Picture 1 Exploded view
6.1.2. Installation plate

Attach installation plate to wall/desk using four screws. See picture 2. Optionally installation plate can be installed on VESA-connector.

Install four M3x12 screws loosely to installation plate as in picture 2.

![Installation plate](image)

Picture 2 Installation plate

6.1.3. Back cover

Install the back cover to the installation plate by hanging it on the loosely installed screws. See picture 3. Tighten the screws. Feed all necessary wires through seal on the back cover.
6.2. Installation, electronics
Connect all necessary wires to the Access Touch 4.0 PCB (e.g. +Vin, GND, Relay control...)

Use picture 4 to locate different connectors. Each connector's functions are described separately in the following chapters.

6.2.1. Power supply
Input voltage: 15...30 VDC
Power requirements / average current consumptions:
500 mA @ 15 VDC, (max 650mA)
350 mA @ 24 VDC, (max 400mA)

Choose a power supply that meets the above power requirements.

Connect wires to power supply connector. See picture 5.

6.2.2. Connector 1
Connector 1 is for external RFID-reader connection and includes following signals:
-WA0, wiegand port A signal 0
-WA1, wiegand port A signal 1
-WB0, wiegand port B signal 0
-WB1, wiegand port B signal 1
-INA, input port A
-INB, input port B
+-12V
-GND

Data from wiegand hubs is routed through the Access Touch 4.0 application controller. Consult the separate Access Touch 4.0 Protocol Description for wiegand output / input controls.

Port data is read through the /dev/ttyS0 port in Embedded Linux operating system. Consult the Access Touch 4.0 Embedded Linux OS Description for further information.

Win EC7 default port settings: COM3 is connected to carrier board embedded software and baud rate is 9600 by default.

6.2.3. Connector 2
Connector 2 includes following signals:
Communication signals are connected to Computer on Module.

6.2.4. Connector 3
Connector 3 includes following signals:

-NC1, relay normally connected 1
-NO1, relay normally open 1
-CO1, relay change over 1
-SPKG, speaker ground
-SPKR, speaker right
-SPKL, speaker left
-OUTD, FET output port D (see picture 8 for circuit diagram)
-GND

An output command can be sent to the application controller to drive the relay and FET output.
See Access Touch 4.0 Protocol Description for control commands.
6.2.5. Connector 4

This connector is for debugging the Computer on Module. It has serial line signals with RS232 voltage levels. It has following signals:

- RX, receive data
- TX, send data
- G, ground

See document Access Touch 4.0 Open Embedded Build System for entering Access Touch debug interface.
6.2.6. Ethernet Connection

Access Touch 4.0 is equipped with one Ethernet connection. This device supports the 10 / 100 Mbit Ethernet protocol.

6.2.7. PoE

PoE (Power over Ethernet) of this device is designed to extract power from a conventional twisted pair Category 5 Ethernet cable, conforming to the IEEE 802.3af standard.

6.2.7.1. Input/Power sourcing

This device’s PoE input is compatible with equipment that uses different power options, see picture 10: System Diagram. However to fully power all functions of this device it is recommended to provide IEEE 802.3af compliant power to input.

See Access Touch 4.0 Protocol Description for backlight LED commands.

It is specified that the PSE does not apply power to both outputs at the same time (Refer to IEEE802.3af for more information).

Picture 11 System diagram

6.2.7.2. PD Signature

When the device is connected to the Cat 5e cable, it will automatically present a Powered Device (PD) signature to the Power Sourcing Equipment (PSE) or Mid-span Equipment, when requested. This device provides a Class 0 signature. The equipment will then recognize that a powered device is connected to that line and supply power.
6.2.7.3. Isolation
To meet the safety isolation requirements of IEEE802.3af section 33.4.1 a Powered Device (PD) must pass the electrical strength test of IEC 60950 sub clause 6.2. This calls for either a) 1500Vac test or b) 1500V impulse test. This device is specified to meet the 1500Vdc impulse test.

NOTE! For safety reasons, don’t install any cables on top of POE-module!

6.2.7.4. Power Classification
This device is fixed for Class 0 (0.44 Watts to 12.95 Watts) operation.

6.2.8. SD card connector
Access Touch 4.0 has on SD card connector. Card type is micro SD. It can be used to read and write data from Computer on Module.

See document Access Touch 4.0 Open Embedded Build System for booting OS from micro SD card or for updating Computer on Module from micro SD card.

6.2.9. USB Ports
Access Touch 4.0 has two USB ports for external USB device connections. These ports are fully compliant with the USB 2.0 Specification.

See picture 4 to locate the USB connectors.

6.2.10. Reset button
Access Touch 4.0 has one reset button. It can be used for power-off. Device will automatically then restart. Before you do that, make sure the device is not performing any read/write operations.

This isn’t a preferable way to turn power off.

6.2.11. Boot
To boot from SD-card, use Debug-connector and command prompt. See See Access Touch 4.0 Protocol Description for more information.

6.2.12. Mic
Microphone can be connected via the MIC connection. Contact Idesco for more information.

6.2.13. Line
This connector is for audio input. Contact Idesco for more information.
6.3. Mounting
After all connections have been completed, mount electronics and front plate on the back cover. Use four nuts in the corners. See picture 1.

6.4. Booting
After all mechanical and electronic installations have been completed switch the power supply on. The computer will automatically initiate its boot routine.

Note that the power-up routine may differ depending upon whatever features may have been configured in the device. The device will initiate booting of the installed operating system if no such configurations have been made.

After the power-up routine completes your Access Touch 4.0 is ready for use.

7. System shutdown

Do not suddenly remove power from the device!

On Linux device use shell command “halt.” After halt procedure is finished (screen is black and device is not drawing any current) you can unplug your power source from the device.

On Windows device select shutdown from Start menu.

8. Dimensions

8.1. Front panel measures

![Diagram of Front panel dimensions: 152 mm height, 257 mm width]

Picture 12 Front panel
8.2. Side measures

Picture 13 Side measures
### 9. Technical data

<table>
<thead>
<tr>
<th>Operating frequency for RFID / Wireless</th>
<th>125 KHz or 13.56 MHz.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>15 ... 30 VDC.</td>
</tr>
<tr>
<td></td>
<td>Internal back-up capacitors for short power breaks and safe power down</td>
</tr>
<tr>
<td>Current consumption</td>
<td>500 mA @ 15 VDC, (max 880mA)</td>
</tr>
<tr>
<td></td>
<td>350 mA @ 24 VDC, (max 550mA)</td>
</tr>
<tr>
<td>CPU</td>
<td>Freescale® Vybrid™ ARM Cortex™-A5, Cortex™-M4</td>
</tr>
<tr>
<td>Memory</td>
<td>Integrated on-board flash drive</td>
</tr>
<tr>
<td></td>
<td>512MB NAND (8 Bit)</td>
</tr>
<tr>
<td></td>
<td>Memory RAM 256MB DDR3 (16 Bit)</td>
</tr>
<tr>
<td></td>
<td>Optional SSD memory can be used for data storage</td>
</tr>
<tr>
<td>Display and Touch Panel</td>
<td>7” display and capacitive touch panel</td>
</tr>
<tr>
<td></td>
<td><em>Vertical orientation on request!</em></td>
</tr>
<tr>
<td>Dimensions</td>
<td>257 x 152 x 96 mm</td>
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<tr>
<td>Material of housing</td>
<td>Plastic with glass front plate</td>
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<tr>
<td>Installation method</td>
<td>Screws with separate installation plate or with VESA connector</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP20</td>
</tr>
<tr>
<td>Operational temperature range</td>
<td>-0 ... +45 °C</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>-10 ... +50 °C</td>
</tr>
<tr>
<td>Interfaces</td>
<td>2 x USB 2.0, 2 x Wiegand, Ethernet 10/100 Mbit LAN, RS232, RS485</td>
</tr>
<tr>
<td></td>
<td>Optional additionally: 1 x RS232, 1 x RS485</td>
</tr>
<tr>
<td>Inputs</td>
<td>2 general purpose inputs</td>
</tr>
<tr>
<td>Outputs</td>
<td>One software controlled output (open collector)</td>
</tr>
<tr>
<td></td>
<td>One software controlled relay</td>
</tr>
<tr>
<td></td>
<td>Optional: Two additional software controlled outputs</td>
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<tr>
<td>Standards used for CE conformity</td>
<td><strong>Directive 1999/5/EC for R&amp;TTE</strong></td>
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<tr>
<td></td>
<td>• Harmonised standard for RF: EN300330-1 V1.7.1 EN300330-1 V1.5.1</td>
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<tr>
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<td><strong>Directive 2004/108/EC for EMC</strong></td>
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<td></td>
<td>• Harmonised standard for EMC: EN301489-1 V1.9.2 EN301489-3 V1.6.1</td>
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<tr>
<td></td>
<td>• Harmonised standard for RF and EMC in alarm systems: EN50130- 4:2011 EN50581:2012</td>
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<tr>
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<td><strong>Directive 2011/65/EU for RoHS</strong></td>
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<tr>
<td>LED (for the RFID reader)</td>
<td>Red / Yellow LED.</td>
</tr>
<tr>
<td>Backlighting</td>
<td>LEDs with colors green, blue and red. Can be turned on separately</td>
</tr>
<tr>
<td>Ethernet</td>
<td>10 / 100 Mbit LAN</td>
</tr>
<tr>
<td>PoE (Power over Ethernet)</td>
<td>IEEE 802.3af compliant (12 Watt)</td>
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