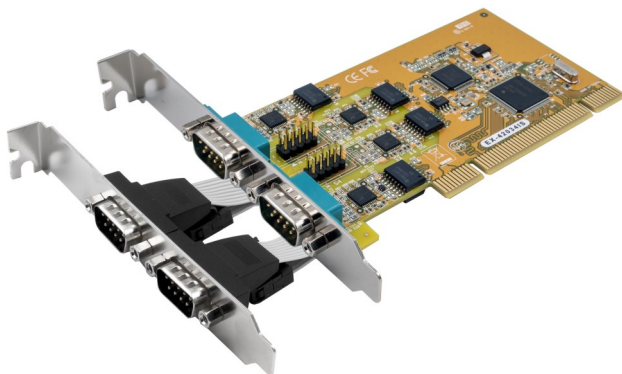


EX-42034IS

RS-232/422/485 PCI Karte
mit 4x 9 Pin Anschluss
Überspannungsschutz & Isolierung



RS-232/422/485 PCI Card
with 4x 9 Pin Connector
Surge Protection & Isolation

Deutschland:
EXSYS Vertriebs GmbH
Industriestraße 8
61449 Steinbach
www.exsys.de

Schweiz:
EXSYS Vertriebs GmbH
Dübendorfstrasse 17
8602 Wangen
www.exsys.ch

Italia:
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I-22100 Como
www.exsys.it



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1. Beschreibung

Die EX-42034IS PCI I/O Karte stellt vier serielle RS-232, 422 oder 485 High Performance UART 16C550 Ausgänge mit 15KV ESD Überspannungsschutz und 2.5KV Isolation zur Verfügung. Sie wurde entwickelt um vier weitere serielle Ports für PC, Workstation oder Server über den PCI- oder PCI-X Bus zu erweitern. Die Karte ist voll Plug-and-Play kompatibel. Sie unterstützt die Merkmale ATTA Auto RS-485 Transmitter. Für jeden Port kann die Übertragungsart RS-232, 422 oder 485 individuell eingestellt werden. POS (Power over System) ist nicht einstellbar.

Merkmale:

- PCI & PCI-X, 3.3Volt oder 5Volt
- 300 Baud bis 921.6 KBAud
- RS-232, RS-422, 2 Draht RS-485 und 4 Draht RS-485
- 15KV ESD Überspannungsschutz & 2.5KV Isolierung

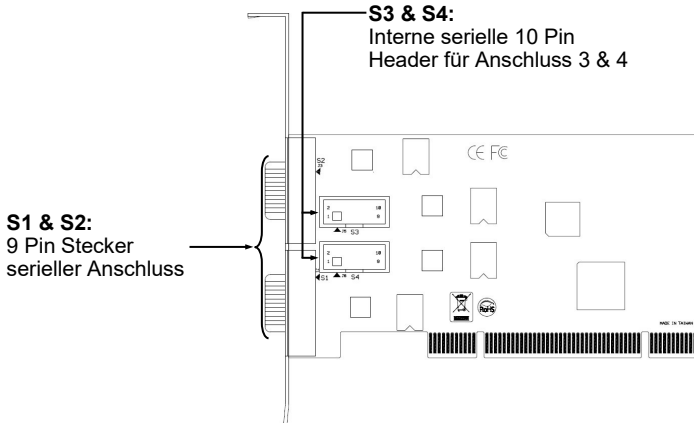
2. Lieferumfang

Bevor Sie die EX-42034IS in Ihren PC installieren, überprüfen Sie bitte zuerst den Inhalt der Lieferung:

- EX-42034IS
- Treiber CD
- Bedienungsanleitung
- Bügel mit 2x 9 Pin Kabel

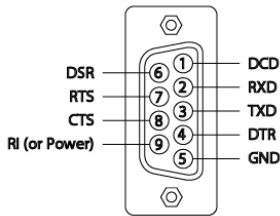
3. Aufbau und Anschlüsse

3.1 Aufbau

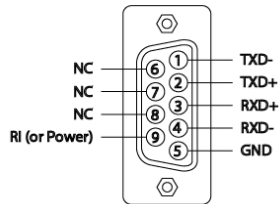


3.2 Anschlüsse

RS232 Pin Assignment

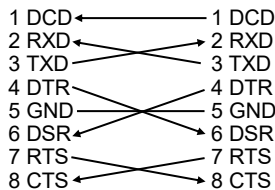


RS422 and RS485-4wire Pin Assignment



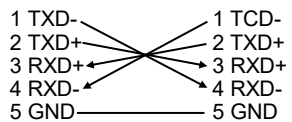
DB9 (EX-42034IS)

DB9 (Endgerät)



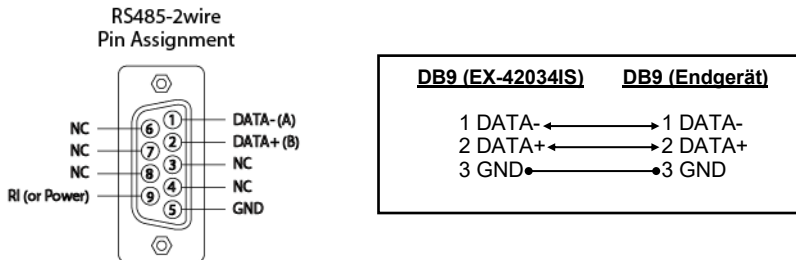
DB9 (EX-42034IS)

DB9 (Endgerät)



3. Aufbau und Anschlüsse

3.2 Anschlüsse



4. Switch Einstellungen

Es gibt vier 8-Pin DIP-Schalter auf der Rückseite der Platine der EX-42034IS. Für jeden Port gibt es einen separaten DIP-Schalter. Die 8-Pin DIP-Schalter sind für den Mode (RS-232, RS-422, RS-485 2-Draht oder RS-485 4-Draht) und die Terminierung der Signale RX+, RX-, TX+ und TX- zuständig (siehe Bild auf Seite 6). Die Einstellungen sind für jeden seriellen Port individuell einstellbar. Der DIP-Switch S1 ist für den Anschluss 1 zuständig, der zweite DIP-Switch S2 ist für den Anschluss 2 zuständig usw.. Aus den nachfolgenden Abbildungen auf Seite 6, 7 und 8 können Sie die Einstellung des Mode Switch und der Terminator Switches entnehmen. Zusätzlich sind auf der Rückseite der Platine die Einstellmöglichkeiten des Mode und Terminator Switches aufgedruckt.

4. Switch Einstellungen

Mode & Terminator Switch (S1-S4_Mode)

| Modes | RS-232 | RS-422 | RS-485 2-Draht | RS-485 4-Draht | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Port 1 | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ |
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| Port 2 | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ |
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| Port 4 | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ | <table border="1"> <tr><td>M0</td><td>1</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td></tr> <tr><td>M2</td><td>3</td><td>■</td></tr> <tr><td>TERM</td><td>4</td><td>■</td></tr> <tr><td>T+</td><td>5</td><td>■</td></tr> <tr><td>T-</td><td>6</td><td>■</td></tr> <tr><td>R+</td><td>7</td><td>■</td></tr> <tr><td>R-</td><td>8</td><td>■</td></tr> </table> | M0 | 1 | ON | M1 | 2 | ■ | M2 | 3 | ■ | TERM | 4 | ■ | T+ | 5 | ■ | T- | 6 | ■ | R+ | 7 | ■ | R- | 8 | ■ |
| M0 | 1 | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0 | 1 | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0 | 1 | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0 | 1 | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

4. Switch Einstellungen

Mode & Terminator Switch (S1-S4_Mode)

Resistoren Off

| | | |
|------|---|----|
| M0 | 1 | ON |
| M1 | 2 | |
| M2 | 3 | |
| TERM | 4 | |
| T+ | 5 | ■ |
| T- | 6 | ■ |
| R+ | 7 | ■ |
| R- | 8 | ■ |

Resistoren On

| | | |
|------|---|----|
| M0 | 1 | ON |
| M1 | 2 | |
| M2 | 3 | |
| TERM | 4 | |
| T+ | 5 | ■ |
| T- | 6 | ■ |
| R+ | 7 | ■ |
| R- | 8 | ■ |

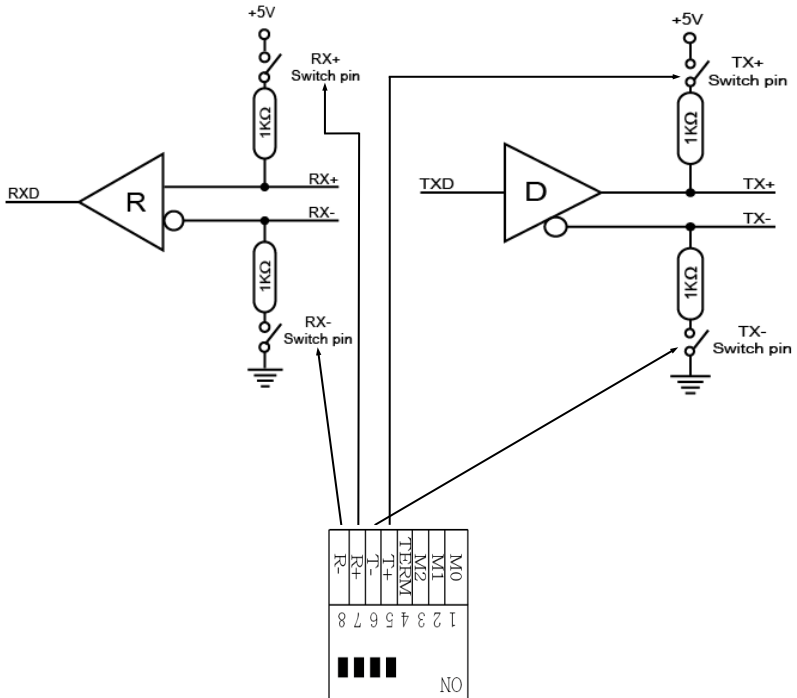
Terminator Off

| | | |
|------|---|----|
| M0 | 1 | ON |
| M1 | 2 | |
| M2 | 3 | |
| TERM | 4 | ■ |
| T+ | 5 | |
| T- | 6 | |
| R+ | 7 | |
| R- | 8 | |

Terminator On

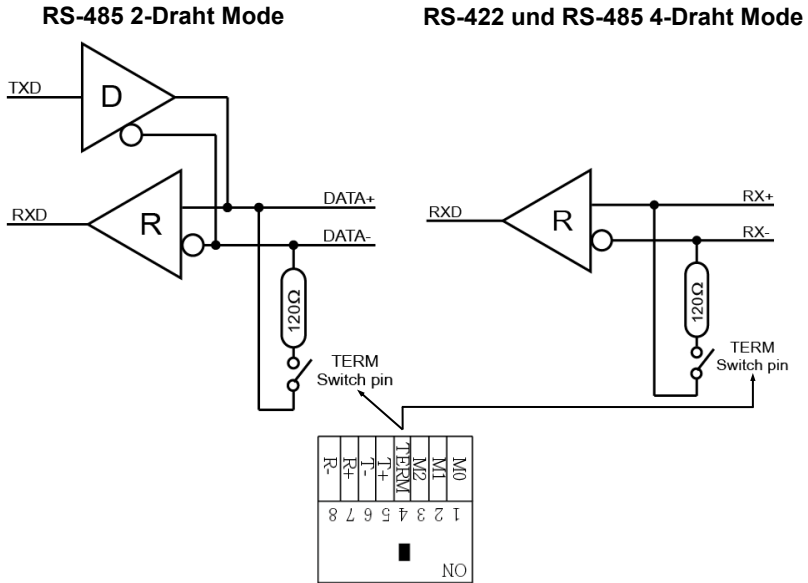
| | | |
|------|---|----|
| M0 | 1 | ON |
| M1 | 2 | |
| M2 | 3 | |
| TERM | 4 | ■ |
| T+ | 5 | |
| T- | 6 | |
| R+ | 7 | |
| R- | 8 | |

Resistoren für RS-422, RS-485 2-Draht und RS-485 4-Draht Mode:



4. Switch Einstellungen

Terminator für RS-422, RS-485 2-Draht und RS-485 4-Draht Mode:



5. Hardware Installation

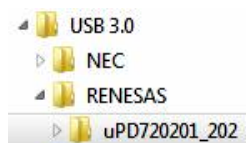
Wenn Sie die Karte installieren, beachten Sie bitte die folgenden Hinweise. Da es große Unterschiede zwischen PC's gibt, können wir Ihnen nur eine generelle Anleitung zum Einbau der EX-42034IS geben. Bei Unklarheiten halten Sie sich bitte an die Bedienungsanleitung Ihres Computersystems.

1. Schalten Sie Ihren Rechner und alle angeschlossenen Peripheriegeräte aus und ziehen Sie bei allen Geräten den Netzstecker.
2. Lösen Sie die Schrauben des Gehäuses auf der Rückseite Ihres Computers und entfernen Sie vorsichtig das Gehäuse.
3. Suchen Sie einen freien PCI Steckplatz und stecken Sie die Karte vorsichtig in den ausgewählten PCI Steckplatz ein. Stellen Sie sicher das es sich um den richtigen Steckplatz handelt!
4. Beachten Sie das die Karte korrekt eingesteckt wird und das kein Kurzschluss entsteht. Wenden Sie bitte keine Gewalt an um die Karte einzustecken!
5. Installieren Sie als erstes die beiden 2x 9 Pin Bügel an den internen seriellen 10 Pin Header S3 & S4.
6. Danach befestigen Sie die Karte bitte mit einer Schraube am Gehäuse.
7. Jetzt können Sie das Computergehäuse mit den Schrauben wieder schließen.

6. Treiber Installation

Windows

Nach Abschluss der Hardwareinstallation erkennt das Betriebssystem automatisch die Karte und installiert diese! Falls die Treiber nicht automatisch installiert werden sollten, müssen Sie nun manuell zwei Treiber installieren. Zum einen den USB Host Treiber und zum anderen den USB zu seriell Treiber. Legen Sie hierfür die Treiber CD in Ihr CD-ROM Laufwerk (z.B. Laufwerk D:) ein und starten Sie das „**SETUP**“ welches sich im Ordner „uPD720201_202“ befindet (siehe Abbildung): Folgen Sie den Installationsanweisungen und schließen Sie die Installation ab. **Wichtig!** Starten Sie Ihren PC nach der Installation neu.



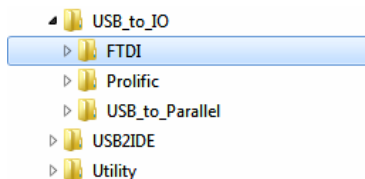
6. Treiber Installation

Windows

Als zweites installieren Sie jetzt den USB zu seriell Treiber. Nun öffnen Sie den Ordner „USB_to_IO/FTDI“. Nun wählen Sie den Ordner Ihres Betriebssystems aus und installieren Sie die Treiber (siehe Abbildung). Folgen Sie den Installationsanweisungen und schließen Sie die Installation ab. **Wichtig!** Starten Sie Ihren PC nach der Installation neu.

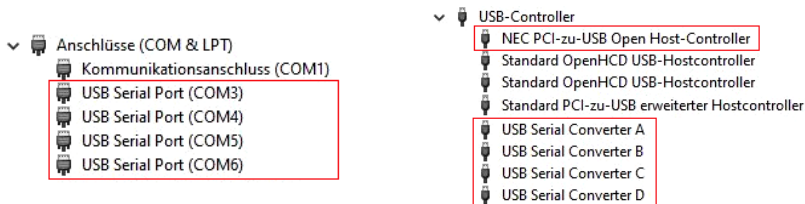
Es werden folgende Treiber für die Server Betriebssysteme installiert:

| | | |
|-----------------------|---|---------------------|
| Windows Server 2003 | = | XP Treiber |
| Windows Server 2008 | = | VISTA Treiber |
| Windows Server 2008R2 | = | Windows 7 Treiber |
| Windows Server 2012 | = | Windows 8.x Treiber |
| Windows Server 2012R2 | = | Windows 10 Treiber |



ÜBERPRÜFEN DES INSTALLIERTEN TREIBER

Öffnen Sie den >Geräte-Manager<. Jetzt müssten Sie unter „Anschlüsse (COM & LPT)“ und unter „USB-Controller“ folgende Einträge sehen:



Sind diese oder ähnliche Einträge vorhanden, ist die Karte richtig installiert.

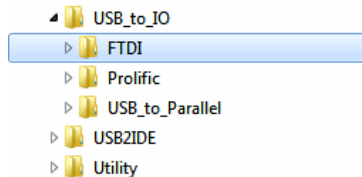
ÄNDERN DER PORT NUMMER

Sie können auch die Port Nummer ändern, indem Sie im Gerätemanager z.B. „COM3“ „Anschlusseinstellung“ und „Erweitert“ öffnen. Nun können Sie dann zwischen COM3 bis COM256 wählen!

6. Treiber Installation

Linux & Mac OS

Die Treiber für Linux & Mac OS Systeme befinden sich ebenfalls im Ordner „USB_to_IO/FTDI“. Nun wählen Sie den Ordner Ihres Betriebssystems aus und installieren Sie die Treiber (siehe Abbildung).



Da sich die einzelnen Distributionen und Kernelversionen sehr voneinander unterscheiden, können wir Ihnen leider keine Installationsanweisung zu Verfügung stellen. Bitte halten Sie sich an die Installationsanweisung für Standard I/O Ports Ihrer Linux/Unix oder Mac OS Version. In einigen neueren Versionen, wird die Karte sogar automatisch beim Start installiert.

7. Technische Daten

| | |
|-------------------------------|--|
| Chip-Set: | FTDI |
| Datentransfer-Rate: | 300 Baud bis 921.6 KBAud |
| Anschlüsse: | 4x 9 Pin seriell RS-232 Stecker |
| Hardwaresystem: | PCI oder PCI-X, 3.3Volt oder 5Volt |
| Betriebssystem: | Windows 200x/ XP/ Vista/ 7/ 8.x/ 10/ Server 200xx Linux/ Mac OS |
| Betriebstemperatur: | 0° bis 55° Celsius |
| Lagertemperatur: | -40° bis 75° Celsius |
| Rel. Luftfeuchtigkeit: | 5% bis 95% |
| Stromversorgung: | 5V über PCI Slot |
| Abmessung: | 132,30 x 120,00 mm |
| Gewicht: | 200g |

1. Description

The EX-42034IS PCI I/O card provides four serial RS-232, 422 or 485 high performance UART 16C550 outputs with 15KV ESD Surge Protection and 2.5KV Isolation. It is designed to expand four additional serial ports for PC, small workstation or server via PCI- oder PCI-X Bus. The card is fully plug-and-play compatible. It supports the ATTA Auto RS-485 transmitter features. Each port can be individually set to RS-232, 422 or 485. POS (Power over System) is not selectable.

Features:

- PCI & PCI-X, 3.3Volt or 5Volt
- 300 Baud up to 921.6 KBaud
- RS-232, RS-422, RS-485 2-wire and RS-485 4-wire
- 15KV ESD Surge Protection & 2.5KV Isolation

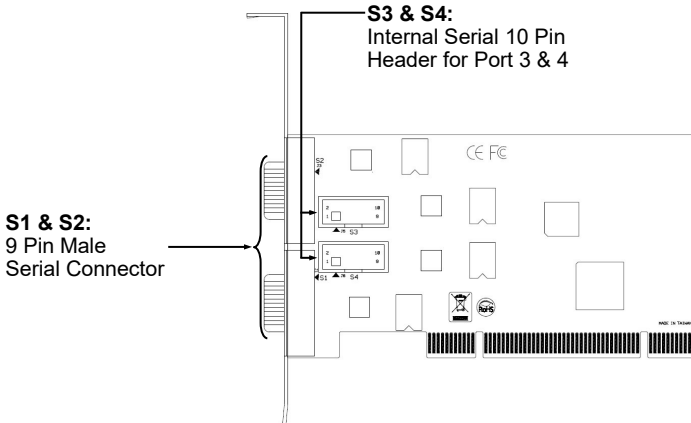
2. Extent of Delivery

Before you install the EX-42034IS in your PC, you should first check the contents of the delivery:

- EX-42034IS
- Driver CD
- Manual
- Bracket with 2x 9 pin cable

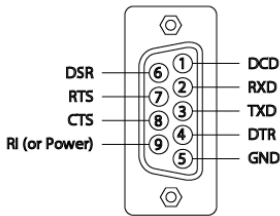
3. Layout and Connections

3.1 Layout

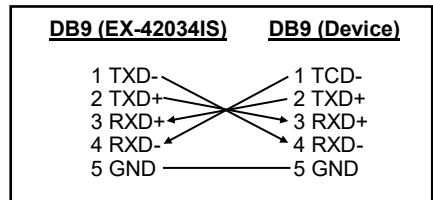
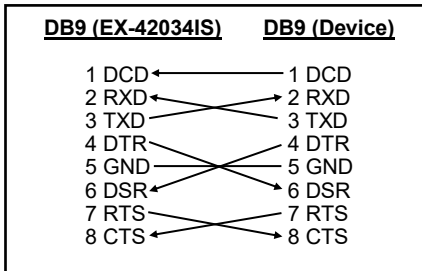
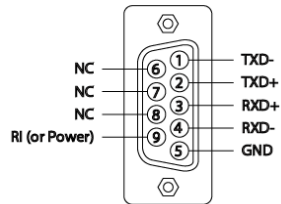


3.2 Connections

RS232 Pin Assignment

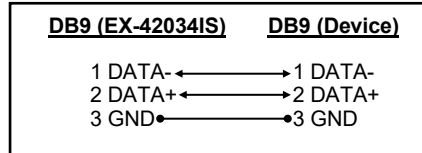
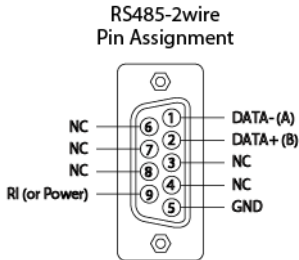


RS422 and RS485-4-wire
Pin Assignment



3. Layout and Connections

3.2 Connections



4. Switch Settings

There are four 8-pin DIP-switches on the backside of the board at the EX-42034IS. For each port there is a separate DIP-switch. The 8-pin DIP-switches are for the modes (RS-232, RS-422, RS-485 2-wire or RS-485 4-wire) and for the signal termination for RX+, RX-, TX+ and TX- (see picture on page 15). The settings can be set individually for each serial port. The DIP-switch are responsible for the port 1 (S1), the second DIP-switch are responsible for the port 2 (S2) etc.. The following images on page 15, 16 and 17 you can see the setting of the mode switch and terminator switch. Additionally the setting of the mode switch are printed on the back of the board.

4. Switch Settings

Mode & Terminator Switch (S1-S4_Mode)

| Modes | RS-232 | RS-422 | RS-485 2-wire | RS-485 4-wire | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|---|--------|---------------|---------------|----|----|---|---|--|----|---|---|--|------|---|---|--|----|---|---|--|----|---|---|--|----|---|---|--|----|---|---|--|---|----|---|---|----|----|---|---|--|----|---|---|--|------|---|---|--|----|---|---|--|----|---|---|--|----|---|---|--|----|---|---|--|---|----|---|---|----|----|---|---|--|----|---|---|--|------|---|---|--|----|---|---|--|----|---|---|--|----|---|---|--|----|---|---|--|---|----|---|---|----|----|---|---|--|----|---|---|--|------|---|---|--|----|---|---|--|----|---|---|--|----|---|---|--|----|---|---|--|
| Port 1 | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Port 2 | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Port 3 | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Port 4 | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | | <table border="1"> <tr><td>M0</td><td>1</td><td>■</td><td>ON</td></tr> <tr><td>M1</td><td>2</td><td>■</td><td></td></tr> <tr><td>M2</td><td>3</td><td>■</td><td></td></tr> <tr><td>TERM</td><td>4</td><td>■</td><td></td></tr> <tr><td>T+</td><td>5</td><td>■</td><td></td></tr> <tr><td>T-</td><td>6</td><td>■</td><td></td></tr> <tr><td>R+</td><td>7</td><td>■</td><td></td></tr> <tr><td>R-</td><td>8</td><td>■</td><td></td></tr> </table> | M0 | 1 | ■ | ON | M1 | 2 | ■ | | M2 | 3 | ■ | | TERM | 4 | ■ | | T+ | 5 | ■ | | T- | 6 | ■ | | R+ | 7 | ■ | | R- | 8 | ■ | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M0 | 1 | ■ | ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | 2 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M2 | 3 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TERM | 4 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T+ | 5 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T- | 6 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R+ | 7 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R- | 8 | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

4. Switch Settings

Mode & Terminator Switch (S1-S4_Mode)

Resistor Off

| | | |
|------|---------|----|
| M0 | | ON |
| M1 | 1 2 3 4 | |
| M2 | 5 6 7 8 | |
| TERM | | |
| T+ | ■ | |
| T- | ■ | |
| R+ | ■ | |
| R- | ■ | |

Resistor On

| | | |
|------|---------|----|
| M0 | | ON |
| M1 | 1 2 3 4 | |
| M2 | 5 6 7 8 | |
| TERM | | |
| T+ | ■ | |
| T- | ■ | |
| R+ | ■ | |
| R- | ■ | |

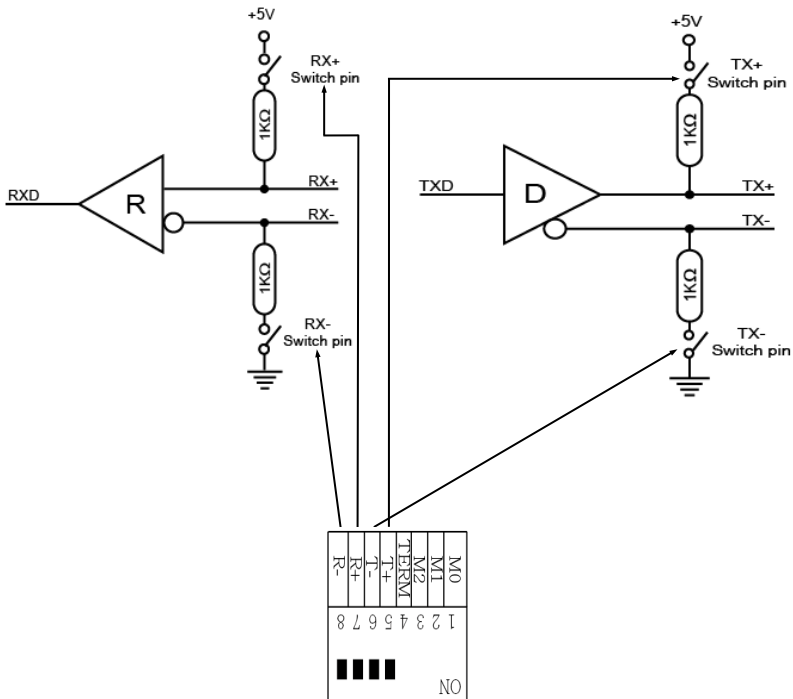
Terminator Off

| | | |
|------|---------|----|
| M0 | | ON |
| M1 | 1 2 3 4 | ■ |
| M2 | 5 6 7 8 | |
| TERM | | |
| T+ | | |
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Terminator On

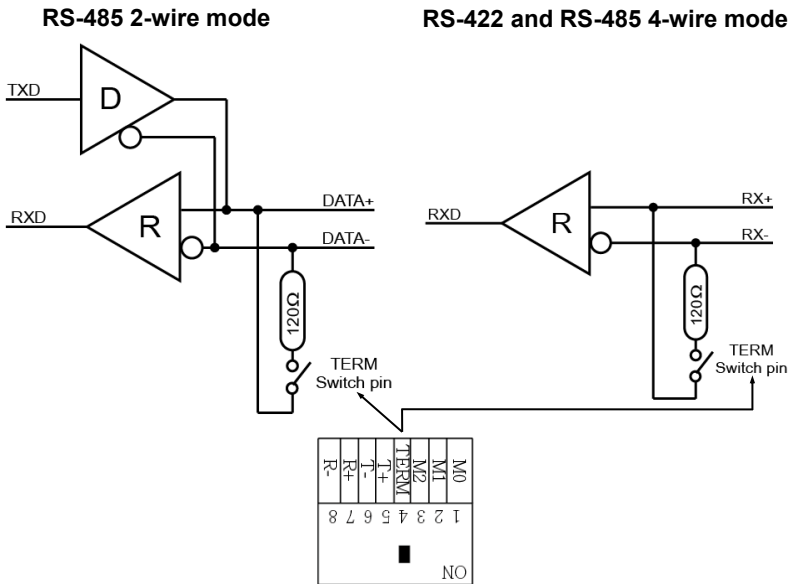
| | | |
|------|---------|----|
| M0 | | ON |
| M1 | 1 2 3 4 | ■ |
| M2 | 5 6 7 8 | |
| TERM | | |
| T+ | | |
| T- | | |
| R+ | | |
| R- | | |

Resistors for RS-422, RS-485 2-wire and RS-485 4-wire mode:



4. Switch Settings

Termination for RS-422, RS-485 2-wire and RS-485 4-wire mode:



5. Hardware Installation

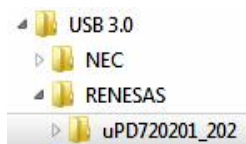
If you are ready with the jumper settings, please proceed with the following installation instructions. Because there are large differences between PC's, we can give you only a general installation guide for the EX-42034IS. Please refer to your computer's reference manual whenever in doubt.

1. Turn off the power to your computer and any other connected peripherals.
2. Remove the mounting screws located at the rear and/or sides panels of your Computer and gently slide the cover off.
3. Locate an available expansion slot and remove its covers from the rear panel of your computer. Make sure it is the right expansion slot for the card (see card description)
4. Align the card with the PCI slot and then gently but firmly, insert the card. Make sure the card is seated and oriented correctly. Never insert the card by force!
5. First install the two 2x 9 pin brackets to the internal serial 10 pin headers S3 & S4.
6. Then connect the card with a screw to the rear panel of the computer case.
7. Gently replace your computer's cover and the mounting screws.

6. Driver Installation

Windows

After completing the hardware installation, the operating system will automatically the card and install this! If the driver should not be installed automatically, you must manually install two drivers. One ist the USB host driver and the other is the USB to serial driver. for this insert the driver CD into you CD-ROM drive (eg drive D:) and then start the „**SETUP**“ which is located in folder „uPD720201_202“ (see picture): Follow the hardware assistant and finish the installation. **Important!** Restart your PC in any case after installing the drivers.



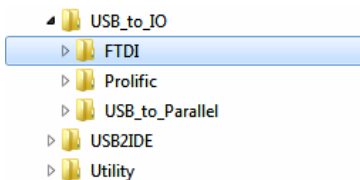
6. Driver Installation

Windows

Second, please install now the USB to serial driver. Open the folder „USB_to_IO/FTDI“. Please select the folder with your operating system and install the driver (see Picture). Follow the hardware assistant and finish the installation. **Important!** Restart your PC in any case after installing the drivers.

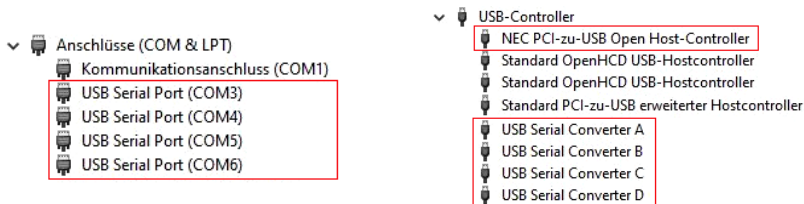
Use the following driver for the following Windows Server Version:

| | | |
|-----------------------|---|--------------------|
| Windows Server 2003 | = | XP Driver |
| Windows Server 2008 | = | VISTA Driver |
| Windows Server 2008R2 | = | Windows 7 Driver |
| Windows Server 2012 | = | Windows 8.x Driver |
| Windows Server 2012R2 | = | Windows 10 Driver |



CHECK INSTALLED DRIVER

Open the **>Device manager<**. Now you should see at „**Ports (COM & LPT)**“ and at „**USB-Controller**“ the following new entry's:



If you see this or a similar information the device is installed correctly.

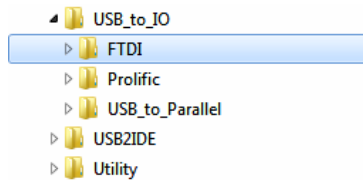
CHANGE PORT NUMBER

If you like to change the port number for example COM3 to COM5, open the „**Device Manager**“ click at „**COM3**“, „**Settings**“ and then „**Advance**“. There you can change between COM3 till COM256.

6. Driver Installation

Linux & Mac OS

The drivers for Linux & Mac OS systems are also in the same folder „USB_to_IO/FTDI“. Please select the folder with your operating system and install the driver (see Picture).



Because each individual distribution and kernel version of Linux is different, sadly we can't provide a installation instruction. Please refer to the installation manual for standard I/O ports from your Linux/Unix version! In some newer versions of Linux the card will even be installed automatically after starting Linux.

7. Technical Information

| | |
|-------------------------------|--|
| Chip-Set: | FTDI |
| Data Transfer Rate: | 300 Baud up to 921.6 KBAud |
| Connectors: | 4x 9 Pin serial RS-232 Connector |
| Hardware System: | PCI or PCI-X, 3.3Volt or 5Volt |
| Operating System: | Windows 200x/ XP/ Vista/ 7/ 8.x/ 10/ Server 200xx Linux/ Mac OS |
| Operating Temperature: | 32°F to 55°Fahrenheit |
| Storage Temperature: | -40°F to 167°Fahrenheit |
| Rel. Humidity: | 5% to 95% |
| Power: | 5V via PCI Slot |
| Size: | 132,30 x 120,00 mm |
| Weight: | 200g |