

# TWN4 PALON COMPACT PCB

## COMPACT OEM RFID READER/WRITER SUPPORTING LF, HF, NFC AND BLE



TWN4 Palon Compact is a versatile OEM PCB for integration into third-party products and devices. It supports enhanced interfaces, especially RS-485. The new compact PCB module inherits all advantages and integrated tool support of the ELATEC TWN4 family. Although it is a general-purpose device, it is optimized for time attendance and access control.

TWN4 Palon is a multi-technology reader/writer family supporting almost all 125 kHz/134,2 kHz and 13,56 MHz contactless technologies, including NFC.

On-board antennas for HF and LF allow excellent contactless performance. An integrated Bluetooth® Low Energy (BLE) module supports a broad range of mobile ID and authentication solutions as well.

### Special features:

- + Optimized PCB design for OEM integration
- + On-board LF and HF antennas
- + One onboard SAM socket (Secure Access Module)
- + Interfaces: RS-485, RS-232 and Wiegand or Clock/Data. OSDP protocol optionally, USB
- + Supports quick (re)configuration over network and over wireless interface with TWN4 CONFIG Card
- + Direct chip-commands support
- + Integrated BLE module 2.4 GHz for data communication and authentication, Bluetooth® v4.2, upgradable
- + Firmware update in the field possible
- + Powerful SDK for writing apps which are executed directly on the reader
- + Onboard 18 kB flash storage, e.g. for storing user accessible non-volatile data
- + TWN4 Upgrade Card for P and PI options available on request
- + 3D construction data (STEP) available on request



Elevator



EV Chargers



Access



Shop POS



Fitness  
Equipment



Ticket POS



PC Log-on



Document  
Management



Driver ID



Vending



Parking



Gaming



Locker Locks



Time  
Attendance



Industrial  
PC

## TECHNICAL DATA

FREQUENCY	125 kHz/134,2 kHz (LF) / 13,56 MHz (HF) / 2,4 GHz (BLE)
ANTENNAS	Integrated
DIMENSIONS (L X W X H)	PCB board, twin stack: 40,7 mm x 43,9 mm x 29,4 mm (1,6 inch x 1,8 inch x 1,2 inch)
POWER SUPPLY	9.0 V - 30 V via connector X1; 4.3 V - 5.5 V via micro USB Limited power source according to IEC60950-1 or PS2 classified IEC62368-1, short-circuit current < 8 A
CURRENT CONSUMPTION	Operating: typ. 160 mA @12 V; Idle: typ. 50 mA @12 V; Peak typ. 250 mA @12 V
TEMPERATURE RANGE	Operating: -25 °C up to +80 °C (-13 °F up to +176 °F) Storage: -40 °C up to +85 °C (-40 °F up to +185 °F)
RELATIVE HUMIDITY	5% to 95% non-condensing
READ- / WRITE DISTANCE	Up to 100 mm (3,9 inch), depending on transponder and OEM environment
PERIPHERAL INTERFACES	RS-485; OSDP <sup>®</sup> protocol optionally; RS-232 (RX/TX) <sup>®</sup> , Output 5V: Wiegand (D0/D1), or Clock/Data; USB
BLUETOOTH <sup>®</sup> LOW ENERGY	Bluetooth <sup>®</sup> v4.2, upgradable; standards as GAP, SM, L2CAP, ATT; predefined GATT structure; AES128 supported
OPERATING MODES (USB)	USB keyboard emulation – USB virtual COM port – CCID / PC/SC 2.01
MTBF	500.000 hours
WEIGHT	25 g (0,88 oz)
WIRE CONNECTOR	PCB terminal block, 8 positions, push-in spring connection for wires 0.2 to 0.5 mm <sup>2</sup> / AWG 24 to 20, tool-free cable wiring
SABOTAGE DETECTION	Infrared tamper detector, front facing
DIP SWITCH	8 position DIP switch for RS-485: addressing, speed settings, line termination
SIGNALING	5 RGB LEDs, each individually programmable using the on-board Intelligent Peripheral Controller (IPE), for enhanced dynamic light concepts; acoustic loudspeaker
SUPPORTED TRANSPONDERS (STANDARD) 13,56 MHz	<p><u>ISO14443A:</u> LEGIC Advant<sup>1)</sup>, MIFARE Classic, MIFARE Classic EV1<sup>2)</sup>, MIFARE Mini, MIFARE DESFire EV1, MIFARE DESFire EV2<sup>2)</sup>, MIFARE Plus S, X, MIFARE Pro X<sup>3)</sup>, MIFARE Ultralight, MIFARE Ultralight C, MIFARE Ultralight EV1, NTAG2xx, SLE44R35, SLE66Rxx (my-d move)<sup>4)</sup>, Topaz, HID iClass SEOS<sup>1)</sup></p> <p><u>ISO14443B:</u> Calypso<sup>3)</sup>, Calypso Innovatron protocol<sup>3)</sup>, CEPAS<sup>3)</sup>, HID iCLASS<sup>1)</sup>, Moneo<sup>3)</sup>, PicoPass<sup>4)</sup>, SRI4K, SRIX4K, SRI512, SRT512</p> <p><u>ISO18092 ECMA-340:</u> NFC Forum Tag 1-5, NFC Peer-to-Peer, Sony FeliCa<sup>5)</sup>, NFC Active and passive communication mode</p> <p><u>ISO15693:</u> EM4x33<sup>8)</sup>, EM4x35<sup>3)</sup>, HID iCLASS<sup>1)</sup>, HID iCLASS SE/SR<sup>1)</sup>, ICODE SLI, LEGIC Advant<sup>1)</sup>, M24LR16/64, MB89R118/119, SRF55Vxx (my-d vicinity)<sup>3)</sup>, Tag-it, PicoPass<sup>4)</sup></p>
SUPPORTED TRANSPONDERS (STANDARD) 125 kHz <sup>12)</sup> , 134.2kHz <sup>12)</sup>	AWID, Cardax, CASI-RUSCO, Deister <sup>6)</sup> , EM4100, 4102, 4200 <sup>7)</sup> , EM4050, 4150, 4450, 4550, EM4305 <sup>8)</sup> , FDX-B, EM4105, HITAG 1 <sup>9)</sup> , HITAG 2 <sup>9)</sup> , HITAG S <sup>9)</sup> , ICT <sup>8)</sup> , IDTECK, Isonas, Keri, Miro, Nedap <sup>6)</sup> , PAC, Pyramid, Q5, T5557, T5567, T5577, TIRIS/HDX, TITAN (EM4050), UNIQUE, ZODIAC
SUPPORTED TRANSPONDERS (OPTION P)	All standard transponders, Cotag, G-Prox <sup>5)</sup> , HID DuoProx II, HID ISO Prox II, HID Micro Prox, HID ProxKey III, HID Prox, HID Prox II, Indala, ioProx, Nexwatch

SUPPORTED TRANSPONDERS (OPTION PI)	Requires TWN4 SIO Card, All Standard Transponders, All Version P Transponders, HID iCLASS, HID iCLASS SE/SR/Elite, HID iCLASS SEOS (CSN & Facility Code/PAC) <sup>10)</sup>
OS SUPPORT	Windows XP, Vista, Embedded CE <sup>8)</sup> , 7 (32-/64-bit), 8, 8.1, 10, Linux, Android <sup>9)</sup> , iOS <sup>9)</sup> , MAC OS X <sup>8)</sup>
TRANSMISSION SPEED	RS-485: up to 38.400 baud; RS-232 up to 115.200 baud; USB Full speed (12 Mbit/s); HF Air: up to 848 kbit/s, BT Air: up to 100 kbit/s
EXTENSION SLOT	One SAM socket for ID-000 cards or modules
CERTIFICATION NAME	TWN4 Palon Compact
CERTIFICATION(S)	CE, RoHS-II compliant, pending: FCC / IC
ORDER CODE(S)	T4W2-F01C7            OEM board T4W2-F01C7-P        OEM board Option P T4W2-F01C7-PI       OEM board Option PI

<sup>1)</sup> UID only <sup>2)</sup> r/w enhanced security features on request <sup>3)</sup> r/w in direct chip command mode <sup>4)</sup> UID only, read/write on request <sup>5)</sup> UID + r/w public area <sup>6)</sup> Hash value only

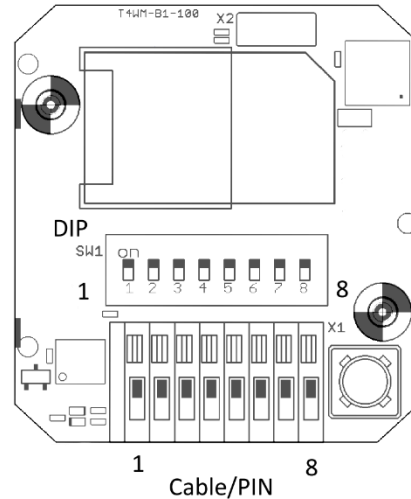
<sup>7)</sup> Only emulation of 4100, 4102 <sup>8)</sup> On request <sup>9)</sup> Without encryption <sup>10)</sup> UID + PAC (CSN & Facility Code), r/w on request <sup>11)</sup> In preparation

<sup>12)</sup> 125/134.2kHz technology requires a Russian local test and import license from the ministry of Trade and Industry (MINPROMTORC). This license has to be in place before Elatec can accept any order to be shipped to Russia

## CONNECTOR ASSIGNMENT

DIP	ASSIGNMENT
1	RS-485 address 0 LSB
2	RS-485 address 1
3	RS-485 address 2
4	RS-485 address 3 MSB
5	RS-485 BIAS on/off
6	RS-485 speed 0
7	RS-485 speed 1
8	RS-485 termination 120 Ohm on/off

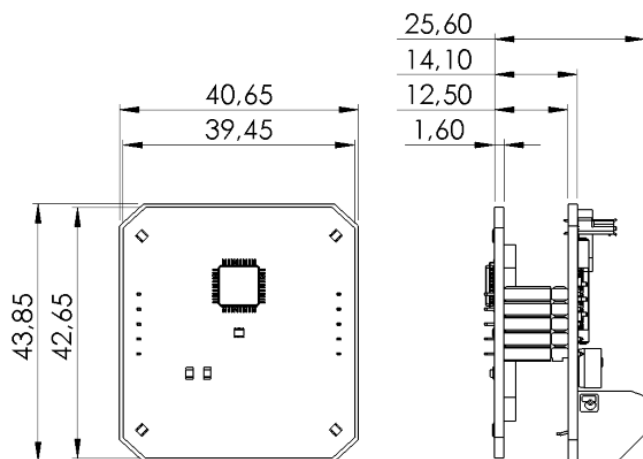
PIN	ASSIGNMENT
1	RS-232 RX
2	RS-232 TX
3	RS-485 A
4	RS-485 B
5	TTL Wiegand D0 or DATA
6	TTL Wiegand D1 or CLOCK
7	VIN 9 – 30 Volt
8	GND



Drawing / rear view PCB

Firmware may change the assignment of the DIP switch. Please refer to the TWN4 Palon manual.

For RS-232, Wiegand, Clock/Data the DIP switch is not used.



(All measures in mm)

Drawing / front view PCB

side view

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