Technical Bulletin 21-07

PART CHANGE – ENCODER UPDATE to ELATEC MODULE

Magicard Ultima and Ultima white-label Smart Variants

Reason for Bulletin

As a continuous improvement program Magicard Ltd has chosen to collaborate with Elatec to provide a wider range of encoding options for our customers.

We have chosen to switch from the Omnikey 5122 to Elatec TWN4 Multitech 2 device which offers greater flexibility and enhanced encoding features.

This update affects both Contact and Contactless encoding functions.

The Elatec encoder will be the default option for anyone ordering a "Smart" equipped printer and will bring this product in line with our direct to card printers.

(Omnikey models are still available under special order).

What's affected?

Magicard Ultima Smart:	**P/N's 3680-0003, 3680-0023, 3680-0004 & 3680-0024**
Authentys Retrax Smart:	**P/N's 3680-0003-AU, 3680-0023-AU, 3680-0004-AU & 3680-0024-AU**
Ultima Plus Smart:	**P/N's 3680-0003-PC, 3680-0023-PC, 3680-0004-PC & 3680-0024-PC**
Ultima NEO Smart:	**P/N's 3680-6003, 3680-6023, 3680-6004 & 3680-6024**

(Note: Prima 8 remains unaffected).

Required Action

No action required other than ensuring your card printing application supports the TWN4 Multitech 2 device.

Containment Action

There is no containment action.

Further details about the Elatec TWN4 Multitech 2 can be found on the last two pages of this document

Currently, it's difficult to predict which Ultima serial number will be the first built with an Elatec Module.

However, the last Omnikey Smart variant built under the standard part codes (i.e. 3680-0003, 3680-0023, 3680-0004 & 3680-0024) is likely to be S/N 74818301

Part Number Guide for Printers

	Elatec Enabled	Omnikey 5122 Enabled
Magicard Ultima	3680-0003 3680-0023 3680-0004 3680-0024	3680-0003H 3680-0023H 3680-0004H 3680-0024H
Authentys Retrax Smart	3680-0003-AU 3680-0023-AU 3680-0004-AU 3680-0024-AU	3680-0003H-AU 3680-0023H-AU 3680-0004H-AU 3680-0024H-AU
Ultima Plus Smart	3680-0003-PC 3680-0023-PC 3680-0004-PC 3680-0024-PC	3680-0003H-PC 3680-0023H-PC 3680-0004H-PC 3680-0024H-PC
Ultima NEO Smart	3680-6003 3680-6023 3680-6004 3680-6024	3680-6003H 3680-6023H 3680-6004H 3680-6024H

Part Number Guide for Upgrades

	Elatec Enabled	Omnikey 5122 Enabled
Smart Encoder Upgrade Kit	FG/3680-0117	FG/3663-0115
Mag / Smart Upgrade Kit	FG/3680-0118	FG/3663-0109

Note: FG/3663-0110 (Mag Encoder Upgrade Kit) remains unchanged

General FAQ's:

- Does this update affect how the Magicard SDK Application controls the card synchronisation?

No, the SDK operates independently of the encoder module.

- How does the new encoder fit in the printers?

Same as the Omnikey 5122

- How does this encoder compare to the Omnikey?

There is a much wider range of transponders available for the Elatec, especially in the ISO15693 category.

Also, there are some 125KHz LF transponders that can now be used. There is some limitation when it comes to HID proprietary technology (HID Prox, iCLASS) that might require an upgrade for the user (see attached datasheet). For example, the standard reader can only read the UID of an iCLASS card.

- Is there an SDK for it and do we have access?

No – the Elatec uses PC/SC and CCID standards (as did the Omnikey 5122). There is however a proprietary driver available.

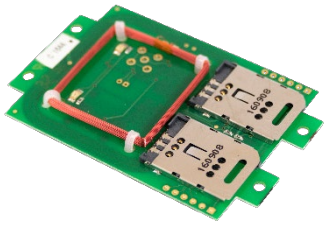
- Do certain features of the encoder require addition hardware / firmware updates?

Yes, there is a P and a PI upgrade that will be available separately. These mainly cover HID formatted card types. (P for HID Prox, I for HID iCLASS).

P is a firmware upgrade, but the PI is both firmware and a SAM PCB that will take up the spare SAM slot on the encoder.

TWN4 MULTITECH
TWN4 MULTITECH M

PROGRAMMABLE RFID READERS/WRITERS FOR LF, HF, NFC



TWN4 MultiTech M
PCB top view



TWN4 MultiTech
(inlay customizable)

ELATEC's TWN4 family of RFID readers and writers allows users to read and write to almost any 125 kHz, 134.2 kHz and 13.56 MHz tags and/or labels. It supports all major transponders from various suppliers like ATMEL, EM, ST, NXP, TI, HID, LEGIC, etc. and ISO standards like ISO 14443A/B (T=CL), ISO 15693, ISO 18092 / ECMA-340 (NFC).

The new generation is a direct enhancement to the successful TWN3 family as it comes in the same mechanical dimensions (OEM PCB and desktop housing). The reader supports host communication via USB or RS-232.

Special features:

+ Powerful SDK for writing apps which are executed directly on the reader
+ Firmware update in the field possible
+ On-board 18 kB flash storage, e.g. for storing user accessible non-volatile data
+ Direct chip-commands support
+ Two on-board SAM sockets (Secure Access Module)
+ CCID and PC/SC 2.01
+ Dedicated expansion bus for connection of LCD, mass storage, etc.
+ 2 GPIOs
+ Supports Apple VAS and ECP 2.0[8)]
+ Supports quick (re)configuration over network and over wireless interface with TWN4 CONFIG Card
+ TWN4 Upgrade Card for P and PI options available on request
+ 3D construction data (STEP) available on request
+ Available as desktop version or PCB module (OEM board)



TECHNICAL DATA

FREQUENCY	125 kHz/134.2 kHz (LF) / 13.56 MHz (HF)
ANTENNA(S)	Integrated
HOUSING	Material: ABS UL94-V0, color: black or white
DIMENSIONS (L X W X H)	TWN4 MultiTech: 88 mm x 56 mm x 18 mm / 3.5 inch x 2.2 inch x 0.7 inch TWN4 MultiTech M: 76 mm x 49 mm x 14 mm / 3.0 inch x 1.9 inch x 0.6 inch
POWER SUPPLY	4.3 V - 5.5 V via USB or RS-232; RS-232 requires 5 V external power supply; via connector CNB 3.3 V ± 5% Limited power source according to the safety norms listed in the respective declaration of conformity, short-circuit current < 8 A
CURRENT CONSUMPTION	RF field on: 120 mA typically / Sleep: 500 µA typ. / Cyclic Operation: TBD
TEMPERATURE RANGE	TWN4 MultiTech, Operating: -25 °C up to +70 °C (-13 °F up to +158 °F) TWN4 MultiTech, Storage: -45 °C up to +75 °C (-49 °F up to +167 °F) TWN4 MultiTech M, Operating: -25 °C up to +80 °C (-13 °F up to +176 °F) TWN4 MultiTech M, Storage: -45 °C up to +85 °C (-49 °F up to +185 °F)
RELATIVE HUMIDITY	5% to 95% non-condensing
READ- / WRITE DISTANCE	Up to 100 mm / 4 inch, depending on environment and transponder
OPERATING MODES (USB)	USB keyboard emulation – USB virtual COM port – CCID / PC/SC 2.01
MTBF	500,000 hours
WEIGHT	TWN4 MultiTech: approx. 117 g / 4.13 oz (with cable) TWN4 MultiTech M: approx. 12 g / 0.43 oz (no cable)
SUPPORTED TRANSPONDERS (STANDARD) 13.56 MHZ	ISO14443A: LEGIC Advant[1], MIFARE Classic EV1[2], MIFARE Classic, MIFARE Mini, MIFARE DESFire EV1, MIFARE DESFire EV2[3], MIFARE DESFire Light[4], MIFARE Plus S, X, MIFARE Pro X[5], MIFARE Smart MX[5], MIFARE Ultralight, MIFARE Ultralight C, MIFARE Ultralight EV1[2], NTAG2xx, SLE44R35[5], SLE66Rxx (my-d move)[5], Topaz ISO18092 ECMA-340: NFC Forum Tag 1-5, NFC Peer-to-Peer, Sony FeliCa[6], NFC Active and passive communication mode ISO14443B: Calypso[5], Calypso Innovatron protocol[5], CEPAS[5], HID iCLASS[1], Moneo[5], Pico Pass[7], SRI4K, SRIX4K, SRI512, SRT512 ISO15693: EM4x33[5], EM4x35[5], HID iCLASS[1], HID iCLASS SE/SR[1], ICODE SLI, LEGIC Advant[1], M24LR16/64, SRF55Vxx (my-d vicinity)[5], Tag-it, PicoPass[7] Mobile support: Apple VAS[8], ECP 2.0[8]
SUPPORTED TRANSPONDERS (STANDARD) 125 KHZ[9], 134.2 KHZ	AWID, Cardax, CASI-RUSCO, Deister[10], EM4100, 4102, 4200[11], EM4050, 4150, 4450, 4550, EM4305[12], FDX-B[13], EM4105[13], UltraProx[13], HITAG 1[14], HITAG 2[14], HITAG S[14], ICT[4], IDTECK, Isonas, Keri, Miro, Nedap[10], PAC[4], Pyramid, Q5, T5557, T5567, T5577, TIRIS/HDX[13], TITAN (EM4050), UNIQUE, ZODIAC
SUPPORTED TRANSPONDERS (OPTION P)	All Standard Transponders, Cotag, G-Prox[10], 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 Option P Transponders, HID iCLASS, HID iCLASS SE/SR/Elite, HID iCLASS SEOS (Facility Code/PAC)[15]
OS SUPPORT	Windows Embedded CE[4], 7 (32-/64-bit), 8, 8.1, 10, Linux, Android[4], iOS[4], MAC OS X[4]
PERIPHERAL INTERFACES	USB, RS-232, TTL serial (logic level 3.3 V, CMOS, 5 V tolerant), I²C, 2 GPIOs, Clock/Data, Wiegand
TRANSMISSION SPEED	Host: USB Full speed (12 Mbit/s), RS-232: up to 115,200 baud, Air: up to 848 kbit/s
CERTIFICATION NAME	TWN4 MultiTech TWN4 MultiTech M
CERTIFICATION(S)	TWN4 MultiTech: ACMA, CE/RED, FCC, IC, Apple VAS and ECP 2.0 certified, and many more

	TWN4 MultiTech M: CE/RED, FCC, IC, and many more Both readers are REACH and RoHS-III compliant.	
ORDER CODE(S)	**TWN4 MultiTech:**	
	T4DT-FB2BEL	USB Black
	T4DT-FB2WEL	USB White
	T4DT-FR2BEL	RS-232 Black
	T4DT-FR2WEL	RS-232 White
	T4DT-FB2BEL-P	USB Option P Black
	T4DT-FB2WEL-P	USB Option P White
	T4DT-FR2BEL-P	RS-232 Option P Black
	T4DT-FR2WEL-P	RS-232 Option P White
	T4DT-FB2BEL-PI	USB Option PI Black
	T4DT-FB2WEL-PI	USB Option PI White
	T4DT-FR2BEL-PI	RS-232 Option PI Black
	T4DT-FR2WEL-PI	RS-232 Option PI White
	TWN4 MultiTech M:	
	T4DO-F	OEM Board
	T4DO-F-P	OEM Board Option P
	T4DO-F-PI	OEM Board Option PI

[1]UID only [2]r/w enhanced security features on request [3]EV2/EV3 supported as part of the EV1 downward compatibility [4]On request [5]r/w in direct chip command mode [6]UID + r/w public area [7]UID only, read/write on request [8]For Apple licensees only and eligible implementers. Please contact ELATEC for details. [9]125 kHz 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 [10]Hash value only [11]Only emulation of 4100, 4102 [12]From FW V4.05 [13]134.2 kHz only [14]Without encryption [15]UID + PAC (Facility Code), r/w on request

ACCESSORIES

HOLDER(S)	HKSI-B	Snap-In Holder black
	HKSI-W	Snap-In Holder white
	HKBR-B	Bracket Holder black
	HKBR-W	Bracket Holder white
CABLES	CAB-B2	USB cable type A 200 cm / 78.74 inch
	CAB-B3	USB cable type A 12 cm / 4.72 inch
	CAB-B4	USB cable type A 45 cm / 17.72 inch
	CAB-B7	USB cable type A 120 cm / 47.24 inch
	CAB-M1	USB cable mini 12 cm / 4.72 inch
	CAB-M2	USB cable mini 25 cm / 9.84 inch
	CAB-R2	RS-232 cable 200 cm / 78.74 inch

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