Technical Bulletin 22-02

PART CHANGE – ENCODER UPDATE to ELATEC MODULE

Magicard Prima 8 (variants fitted with a Contactless Encoder)

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

This update affects the Contactless encoding function only.

The Contact encoding module remains unchanged.

It also applies to the 600 DPI equivalent variants

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

Omnikey models are still available under special order, however Magicard cannot guarantee lead-times on this device and there may be an excessive delay when ordering.

What’s affected?

Any Prima 8 or Prima 8 (600 DPI) variant listed as Contactless or Smart (e.g., PRIMA803 and PRIMA803-600DPI will change).

Additionally, the Contactless Upgrade (Prima423) will switch to Elatec.

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 Prima 8 serial number will be the first built with an Elatec Module as this is Sales driven

Part Number Guide for Printers Variants affected by the update

Prima Part Number	Elatec Enabled	Omnikey 5122 Enabled
Prima Uno Mag / Contactless	PRIMA803 PRIMA803-600DPI	PRIMA803H PRIMA803-600DPIH
Prima Uno Contactless	PRIMA805 PRIMA805-600DPI	PRIMA805H PRIMA805-600DPIH
Prima Uno Smart	PRIMA806 PRIMA806-600DPI	PRIMA806H PRIMA806-600DPIH
Prima Duo Contactless	PRIMA812 PRIMA812-600DPI	PRIMA812H PRIMA812-600DPIH
Prima Duo Smart	PRIMA815 PRIMA815-600DPI	PRIMA815H PRIMA815-600DPIH
Prima Duo Contactless / Bend Remedy	PRIMA818 PRIMA818-600DPI	PRIMA818H PRIMA818-600DPIH
Prima Duo Smart / Bend Remedy	PRIMA820 PRIMA820-600DPI	PRIMA820H PRIMA820-600DPIH
Prima Duo Mag / Smart	PRIMA825 PRIMA825-600DPI	PRIMA825H PRIMA825-600DPIH
Prima Duo Mag / Contactless / Bend Remedy	PRIMA827 PRIMA827-600DPI	PRIMA827H PRIMA827-600DPIH
Prima Duo / Mag / Smart / Bend Remedy	PRIMA828 PRIMA828-600DPI	PRIMA828H PRIMA828-600DPIH

Note:

"Smart" category = Prima 8 printers equipped with both Contact and Contactless encoding modules and is designed to simplify the product description.

Part Number Guide for upgrades and other useful items

	Elatec	Omnikey 5122
Contactless Encoder Upgrade	PRIMA423	PRMA423H
Encoder Mounting Plate	R0427	E9986
Elatec USB Cable	3680-0431	N/A

General FAQ's:

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

No, the SDK operates independently of the encoder module.

- How does the new encoder fit in the printers?

It fits in the same area with a modified adaptor plate.

- 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.

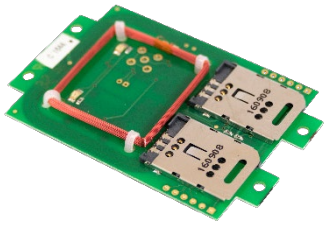
- Do certain features of the encoder require addition hardware / firmware updates?

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)



ELATEC
RFID Systems

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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ELATEC
RFID Systems

ELATEC RFID readers			Multi-frequency readers (125 kHz + 134.2 kHz + 13.56 MHz + NFC + Bluetooth Low Energy)				
Options →			Option Standard	Option P	Option PI	Option Standard	Option P
with antenna →			MT LF+HF, SmartCard MT 2 BLE, MT 2 LF+HF MT 3 BLE, MT 3 LF+HF USB Front Reader Palon Compact M/Panel/Wall, Palon Square M Slim	MT LF+HF P, SmartCard P MT 2 BLE P, MT2 LF+HF P MT 3 BLE P, MT 3 LF+HF USB Front Reader P Option P Palon Compact M/Panel/Wall, Palon Square M Slim-P	MT LF+HF PI, Smart Card PI MT 2 BLE PI, MT 2 LF+HF PI MT 3 BLE PI, MT 3 LF+HF USB Front Reader PI Option PI Palon Compact M/Panel/Wall, Palon Square M Slim-PI	MT LEGIC LF+HF SmartCard LEGIC MT3 LEGIC BLE, MT3 LEGIC LF+HF, USB Front Reader LEGIC Palon Compact LEGIC M/Panel/Wall Slim LEGIC	MT LEGIC LF+HF P SmartCard LEGIC P MT3 LEGIC BLE P, MT3 LEGIC LF+HF P, USB Front Reader LEGIC P Option P Palon Compact LEGIC M/Panel/Wall Slim LEGIC P
without antenna →			Core Nano	Core P Nano P	Core PI Nano PI	Core LEGIC Nano LEGIC	Core LEGIC P Nano LEGIC P
13.56 MHz	ISO14443A	LEGIC Advant	✓1)	✓1)	✓1)	✓	✓
		MIFARE Classic, Mini	✓	✓	✓	✓	✓
		MIFARE Classic EV1	✓2)	✓2)	✓2)	✓2)	✓2)
		MIFARE DESFire Light	✓8)	✓8)	✓8)	✓8)	✓8)
		MIFARE DESFire EV1	✓	✓	✓	✓	✓
		MIFARE DESFire EV2/EV3	✓13)	✓13)	✓13)	✓13)	✓13)
		MIFARE Plus S, X	✓	✓	✓	✓	✓
		MIFARE Pro X	✓3)	✓3)	✓3)	✓3)	✓3)
		MIFARE Smart MX	✓3)	✓3)	✓3)	✓3)	✓3)
		MIFARE Ultralight	✓	✓	✓	✓	✓
		MIFARE Ultralight C	✓	✓	✓	✓	✓
		MIFARE Ultralight EV1	✓2)	✓2)	✓2)	✓2)	✓2)
		NTAG2xx	✓	✓	✓	✓	✓
		SLE44R35	✓3)	✓3)	✓3)	✓3)	✓3)
		SLE66Rxx (my-d move)	✓3)	✓3)	✓3)	✓3)	✓3)
		Topaz	✓	✓	✓		
		HID iCLASS SEOS	✓1)	✓1)	✓10)	✓1)	✓1)
	ISO14443B	Calypso	✓3)	✓3)	✓3)	✓3)	✓3)
		Calypso Innovatron protocol	✓3)	✓3)	✓3)		
		CEPAS	✓3)	✓3)	✓3)	✓3)	✓3)
		HID iCLASS	✓1)	✓1)	✓	✓1)	✓1)
		CTS	✓	✓	✓		
		Moneo	✓3)	✓3)	✓3)	✓3)	✓3)
		Pico Pass	✓4)	✓4)	✓4)	✓1)	✓1)
		SRI4K, SRIX4K	✓	✓	✓		
		SRI512, SRT512	✓	✓	✓		
	ISO18092/ ECMA-340	NFC Forum Tag Type 1-5	Type 1-5	Type 1-5	Type 1-5	Type 2-5	Type 2-5
		NFC Peer-to-Peer	✓	✓	✓		
		Sony FeliCa	✓5)	✓5)	✓5)	✓5)	✓5)
	ISO15693	EM4x33	✓3)	✓3)	✓3)	✓3)	✓3)
		EM4x35	✓3)	✓3)	✓3)	✓3)	✓3)
		HID iCLASS	✓1)	✓1)	✓	✓1)	✓1)
		HID iCLASS SE/SR/Elite	✓1)	✓1)	✓	✓1)	✓1)
		ICODE SLI	✓	✓	✓	✓	✓
		LEGIC Advant	✓1)	✓1)	✓1)	✓	✓
		M24LR16/64	✓	✓	✓	✓	✓
		MB89R118/119	MT2, MT3, Nano, Slim, Palon M / Panel / Wall / Square M	MT2, MT3, Nano, Slim, Palon M / Panel / Wall / Square M	MT2, MT3, Nano, Slim, Palon M / Panel / Wall / Square M		
		SRF55Vxx (my-d vicinity)	✓3)	✓3)	✓3)	✓3)	✓3)
		Tag-it	✓	✓	✓	✓	✓
		Pico Pass	✓4)	✓4)	✓4)	✓1)	✓1)
		LEGIC Prime				✓	✓
125 kHz / 134.2 kHz8)		AWID	✓	✓	✓	✓	✓
		Cardax	✓	✓	✓	✓	✓
		CASI-RUSCO	✓	✓	✓	✓	✓
		Cotag		✓	✓		✓
		Deister	✓6)	✓6)	✓6)	✓6)	✓6)
		EM4100, 4102, 4200[7]	✓	✓	✓	✓	✓
		EM4050, 4150, 4450, 4550	✓	✓	✓	✓	✓
		EM4305	✓14)	✓14)	✓14)	✓14)	✓14)
		FDX-B, EM4105	✓15)	✓15)	✓15)	✓15)	✓15)
		UltraProx	✓15)	✓15)	✓15)	✓15)	✓15)
		G-Prox		✓6)	✓6)		✓6)
		HID DuoProx II (1336)		✓	✓		✓
		HID ISO Prox II (1386)		✓	✓		✓
		HID Micro Prox (1391)		✓	✓		✓
		HID ProxKey III (1346)		✓	✓		✓
		HID Prox		✓	✓		✓
		HID Prox II (1326)		✓	✓		✓
		HITAG 1, 2, S	✓9)	✓9)	✓9)	✓9)	✓9)
		ICT	✓8)	✓8)	✓8)	✓8)	✓8)
		IDTECK	✓	✓	✓	✓	✓
		Indala		✓	✓		✓
		ioProx		✓	✓		✓
		ISONAS	✓	✓	✓	✓	✓
		Keri	✓	✓	✓	✓	✓
		Miro	✓	✓	✓	✓	✓
		Nedap	✓6)	✓6)	✓6)	✓6)	✓6)
		Nexwatch		✓	✓		✓
		PAC	✓8)	✓8)	✓8)	✓8)	✓8)
		Pyramid	✓	✓	✓	✓	✓
		Q5	✓	✓	✓	✓	✓
		T5557, T5567, T5577	✓	✓	✓	✓	✓
		TIRIS/HDX	✓15)	✓15)	✓15)	✓15)	✓15)
		TITAN (EM4050)	✓	✓	✓	✓	✓
		UNIQUE	✓	✓	✓	✓	✓
		ZODIAC	✓	✓	✓	✓	✓

1)UID only 2)r/w enhanced security features on request 3)r/w in direct chip command mode 4)UID only, read/write on request 5)UID + r/w public area 6)Hash value only 7)Only emulation of 4100, 4102 8)On request 9)Without encryption 10)UID + PAC (CSN & Facility Code), r/w on request 11)In preparation 12) 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 13)EV2/EV3 supported as part of the EV1 downward compatibility 14)From FW V4.05 15)134.2 kHz only

ELATEC
RFID Systems

ELATEC RFID readers			Single-frequency readers (125 kHz or 13.56 MHz + NFC + Bluetooth Low Energy)							
						Option Standard	Option I	Option I	Option Standard	Option P
		with antenna →	Mini Reader	TWN3 MIFARE	TWN3 LEGIC NFC	TWN4 Mini Reader MT 2 HF & MT 3 HF Slim JP	Slim JP I	TWN4 Mini Reader I MT 2 HF I & MT 3 HF I	MT2 LF MT 3 LF	MT 2 LF P MT 3 LF P
		without antenna →				Nano HF		Nano HF I	Nano LF	Nano LF P
13.56 MHz	ISO14443A	LEGIC Advant	✓1)	✓1)	✓	✓1)	✓1)	✓1)		
		MIFARE Classic, Mini	✓	✓	✓1)	✓	✓	✓		
		MIFARE Classic EV1	✓2)	✓2)	✓1)	✓2)	✓2)	✓2)		
		MIFARE DESFire Light	✓1)	✓1)	✓1)	✓8)	✓8)	✓8)		
		MIFARE DESFire EV1	✓1)	✓1)	✓	✓	✓	✓		
		MIFARE DESFire EV2/EV3	✓1)	✓1)	✓1)	✓13)	✓13)	✓13)		
		MIFARE Plus S, X	✓	✓1)	✓	✓	✓	✓		
		MIFARE Pro X	✓1)	✓1)	✓2)	✓3)	✓3)	✓3)		
		MIFARE Smart MX	✓1)	✓1)	✓2)	✓3)	✓3)	✓3)		
		MIFARE Ultralight	✓	✓	✓	✓	✓	✓		
		MIFARE Ultralight C	✓1)	✓1)	✓	✓	✓	✓		
		MIFARE Ultralight EV1	✓2)	✓2)	✓2)	✓2)	✓2)	✓2)		
		NTAG2xx	✓2)	✓2)	✓2)	✓	✓	✓		
		SLE44R35	✓1)	✓1)	✓3)	✓3)	✓3)	✓3)		
		SLE66Rxx (my-d move)	✓1)	✓1)	✓3)	✓3)	✓3)	✓3)		
		Topaz				✓	✓	✓		
		HID iCLASS SEOS	✓1)	✓1)	✓1)	✓1)	✓10)	✓10)		
	ISO14443B	Calypso	✓1)		✓2)	✓3)	✓3)	✓3)		
		Calypso Innovatron protocol				✓3)	✓3)	✓3)		
		CEPAS	✓1)		✓2)	✓3)	✓3)	✓3)		
		HID iCLASS	✓1)		✓1)	✓1)	✓	✓		
		CTS				✓	✓	✓		
		Moneo	✓1)		✓2)	✓3)	✓3)	✓3)		
		Pico Pass	✓1)		✓3)	✓4)	✓4)	✓4)		
		SRI4K, SRIX4K	✓			✓	✓	✓		
		SRI512, SRT512	✓			✓	✓	✓		
	ISO18092/ ECMA-340	NFC Forum Tag Type 1-5	Type 2-4	Type 2-4	Type 2-5	Type 1-5	Type 1-5	Type 1-5		
		NFC Peer-to-Peer				✓	✓	✓		
		Sony FeliCa	✓1)		✓3)	✓5)	✓5)	✓5)		
	ISO15693	EM4x33			✓3)	✓3)	✓3)	✓3)		
		EM4x35			✓3)	✓3)	✓3)	✓3)		
		HID iCLASS			✓1)	✓1)	✓	✓		
		HID iCLASS SE/SR/Elite			✓1)	✓1)	✓	✓		
		iCODE SLI			✓3)	✓	✓	✓		
		LEGIC Advant			✓	✓1)	✓1)	✓1)		
		M24LR16/64			✓3)	✓	✓	✓		
		MB89R118/119				MT2, MT3, Nano, Slim JP	Slim JP	MT2, MT3, Nano		
		SRF55Vxx (my-d vicinity)			✓3)	✓3)	✓3)	✓3)		
		Tag-it			✓3)	✓	✓	✓		
		Pico Pass			✓1)	✓4)	✓4)	✓4)		
		LEGIC Prime			✓					
125 kHz / 134.2 kHz[8)]		AWID							✓	✓
		Cardax							✓	✓
		CASI-RUSCO							✓	✓
		Cotag								✓
		Deister							✓6)	✓6)
		EM4100, 4102, 4200[7)]							✓	✓
		EM4050, 4150, 4450, 4550							✓	✓
		EM4305							✓14)	✓14)
		FDX-B, EM4105							✓15)	✓15)
		UltraProx							✓15)	✓15)
		G-Prox								✓6)
		HID DuoProx II (1336)								✓
		HID ISO Prox II (1386)								✓
		HID Micro Prox (1391)								✓
		HID ProxKey III (1346)								✓
		HID Prox								✓
		HID Prox II (1326)								✓
		HITAG 1, 2, S							✓9)	✓9)
		ICT							✓8)	✓8)
		IDTECK							✓	✓
		Indala								✓
		ioProx								✓
		ISONAS							✓	✓
		Keri							✓	✓
		Miro							✓	✓
		Nedap							✓6)	✓6)
		Nexwatch								✓
		PAC							✓8)	✓8)
		Pyramid							✓	✓
		Q5							✓	✓
		T5557, T5567, T5577							✓	✓
		TIRIS/HDX							✓15)	✓15)
		TITAN (EM4050)							✓	✓
		UNIQUE							✓	✓
		ZODIAC							✓	✓

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