# MARKLAND

**MCR0110v5** 

13.56 MHz Contactless Smart Card Reader/Writer with SAM

Secure identification with contactless, NFC, and optional SAM in a single device.

MCR0110v5 is the ideal combination of contactless and near field communication (NFC) technologies protected by an optional Secure Access Module (SAM). This PC-linked dual interface reader works in end user environments where virtually all types of credentials are used, even in mixed populations.

With its all-in-one concept, MCR0110v5 enables a smooth transition from well-established traditional technologies into emerging NFC applications, pushing new business. It represents the perfect mix between modern, stylish design and the ergonomic use of any credential form factor, like ID-1 cards, tokens, or NFC-enabled smart phones. With its protected SAM socket, uTrust 4711 conveniently adds security to most contactless applications.

Experience convenience,

transactiontime efficiency, security, f lexibility, and full NFC capability for applications such as network logon, secure web based transactions, and even NFC based customer loyalty programs.

#### **User Convenience**

 Modern housing design optimized for easy and ergonomic operation, even in limited space environments

#### Convergent

 Features contactless, Lascom, and NFC technologies for use in mixed credential populations

#### Interoperable

• Supports major card ICs, standards, and technologies in just one device

#### Fast

• Transaction time optimized with support of 848 kpbs in ISO/IEC 14443 and 600 kpbs in ISO/IEC 7816

## MARKLAND DATA SHEET

### 13.56 MHz Contactless Smart Card Reader/Writer with SAM

| Hanterian         UB2.0CD (USB 1.1/3.0 campliant)           Communication Speed         12000 (USB 1.0 (USB 2.0 full geod)           Supported Stands         Slo/C.F2018 campliant Stand Cal Support           Supported Stands         Hamily SUP (USB 1.0  | Parameter                        | Details  |
|---|----------------------------------|--|
| Supported Standards         SO/IEC 7816 Part 1 to 4           Supported Card ICS         All major ISO/IEC 7816 compliant Smart Card IC Support           Contact Smart Card Protocols         T=0.7=1           Smart Card Interface Speed         Up to 600 kbps (depending on card)<br>TA.1=9           Smart Card Topes         ISO/IEC 7816 compliant up to 5 MHz; Operator up to 12 MHz           Supported Smart Card Topes         ISO/IEC 7816 voltage classes A/B/C (SV, 3.3 v, 1.8v)           Supported Smart Card Topes         ISO/IEC 7816 voltage classes A/B/C (SV, 3.3 v, 1.8v)           Supported Smart Card Topes         ISO/IEC 7816 voltage classes A/B/C (SV, 3.3 v, 1.8v)           Supported Standards         ISO/IEC 7448 A&B Part 1-4           Contacted Smart Card Proteo         ISO/IEC 74848 kbrs/s, depending on card IC           Supported Contactless Card (CS         InfraRet* (Classic, Ultralight, Ultralight C, MIFARE PLUS, DESFire, DESFire EV1 2/4/8k), FeliCa*, Calypso, CD21, MCC           Fort Targe Text         PC/SC Specification Verz, 20.1.44 for:<br>*Univa Z & A, as A, as A, s X, S (S2 and 64 bit), windows* Server 2008/2012/2016/2019, WindowsXP,<br>*Univa Z & A, and S & A, as X, S (S2 and 64 bit), *Unidows A, S (S2 and 64 bit), *Unidows A, S (S2 APIC -CAR+(Unreugh wrapper on top of PC/SC); MCCard API (Utrough Wrapper on top of PC/SC);   | Host Interface                   | USB 2.0 CCID (USB 1.1/3.0 compliant)   |
| Supported Card ICs         All major ISO/IEC 7816 compliant Smart Card IC support           Contact Smart Card Protocols         T-0, T-1           Smart Card Interface Speed         Up to 600 kbps (depending on card)<br>TA1=97           Smart Card Clock Frequency         ISO/IEC 7816 compliant up to 5 MHz; Operates up to 12 MHz           Supported Smart Card Topes         ISO/IEC 7816 compliant up to 5 MHz; Operates up to 12 MHz           Supported Smart Card Topes         ISO/IEC 7816 compliant up to 5 MHz; Operates up to 12 MHz           Supported Smart Card Topes         ISO/IEC 7816 compliant up to 5 MHz; Operates up to 12 MHz           Supported Smart Card Topes         ISO/IEC 7816 compliant up to 5 MHz; Operates up to 12 MHz           Supported Smart Card Topes         ISO/IEC 1443 A&B Part 1 - 4           Contactes Smart Card Protocols         T-CL           Supported Contactless Card ICS         "MIFARE" (Classic, Ultralight, Ultralight C, MIFARE PUS, DESFire, DESFire EV12/4/8k), FeliCa*, Calypso, CD21, NFC Forum Tag types 1/2/3/4           Data Transfer Rate         Io6/212/424/84 kbits, depending on card IC           Antenna         Integrated           PC/SC DRIVER         PC/SC Specification Ver. 2.01.14 for:<br>*Unidows* 7/8/10/11 (32 and 64 bit), *Unidows* Server 2008/2012/2016/2019, WindowsXP, *UnidowsXP, *Unidows 2.6 x, and 3.x, 4.x, 5.x (32 and 64 bit), *Unidows 4.0 X_1.           Software         PC/SC API; CT-API (through wrapper on top of PC/SC); M-Card API (through wrapper on top of  | Communication Speed              | 12 Mbps (USB 2.0 full speed)   |
| Contact Smart Card Protocols         T=0, T=1           Smart Card Interface Speed         Up to 600 kbps (depending on card)<br>TA1=97           Smart Card Clock Frequency         ISO/IEC 7816 compliant up to 5 MHz; Operates up to 12 MHz           Supported Smart Card Types         ISO/IEC 7816 compliant up to 5 MHz; Operates up to 12 MHz           Supported Smart Card Types         ISO/IEC 7816 contage classes A/8/C (5V, 3.3V, 1.8V)           Smart Card Detection         Card present switch, Automatic power on/off; Short circuit protectio           Contact Card Size         ID-000 (25 mm + 15mm)           Supported Standards         ISO/IEC 1443 A&B Part 1 - 4           ContactLess Smart Card Protocols         T=CL           Supported Contactless Card ICs         • INFARE™ (Classic, Ultralight, Ultralight C, MIFARE PLUS, DESFire, DESFire EV1 2/4/8k), FeliCa™, Calvpso, CD21, NFC Forum Tag types 12/3/4           Data Transfer Rate         106/212/424/848 kbits/s, depending on card IC           Antenna         Integrated           PC/SC Specification Ver. 2.01.14 for:         • Windows* 7/8/10/11 (32 and 64 bit), • .           • Nincols B. U.L.         • Nincols B. U.L.           Software         De/SC CAPI; CT-API (through wrapper on top of PC/SC)           Power Consumption         <120 mAexcluding SMM;<185 mA with SAM; <500 uA in standby mode  | Supported Standards              | ISO/IEC 7816 Part 1 to 4   |
| Smart Card Interface Speed         Up to 600 kbps (depending on card)<br>TA1=97           Smart Card Clock Frequency         ISO/IEC 7816 compliant up to 5 MHz; Operates up to 12 MHz           Supported Smart Card Types         ISO/IEC 7816 voltage classes A/B/C (5V, 3.3V, 1.8V)           Smart Card Detection         Card present switch; Automatic power on/off; Short circuit protectio           Contact Card Size         ID-000 (25 mm × 15mm)           Supported Standards         ISO/IEC 14443 A&B Part 1-4           Contact Card Protocols         T=CL           Supported Contactless Card ICS         • MIFARE <sup>m</sup> (Classic, Ultralight, Ultralight, C, MIFARE PLUS, DESFire, DESFire EV1 2/4/8k), FeliCa <sup>m</sup> , Calvpso, CD21, NFC<br>Forum Tag types 1/2/3/4           Data Transfer Rate         106/212/424/848 kbits/, depending on card IC           Antenna         Integrated           PC/SC Specification Ver. 2.01.14 for:         • Windows*7/R8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,<br>• Warciol Sto 3.v. 2.2.2.,<br>• Iniux 2.6.s., and 3.4. 4.x. 5x (32 and 64 bit),<br>• Android 8.0 U.L.           Software         PC/SC Specification Ver. 2.01.14 for:           • Windows*7/R8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,<br>• Warciol Sto 3.v. 2.2.2.x,<br>• Iniux 2.6.s., and 3.4. 4.x. 5x (32 and 64 bit),<br>• Android 8.0 U.L.           Software         PC/SC SPECification Ver. 2.01.4 for:           Power Supply         Bus-powered USB           Power Supply  | Supported Card ICs               | All major ISO/IEC 7816 compliant Smart Card IC support   |
| Smart Card Interface Speed         FA1=97           Smart Card Clock Frequency         ISO/IEC 7816 compliant up to S MHz; Operates up to 12 MHz           Supported Stand Card Types         ISO/IEC 7816 voltage classes A/B/C (5V, 3.3V, 1.8V)           Smart Card Detection         Card present switch; Automatic power on/off; Short circuit protectio           Contact Card Size         ID-000 (25 mm × 15mm)           Supported Standards         ISO/IEC 1443 A8B Part 1 - 4           ContactLess Smart Card Protocols         T=CL           Supported Contactless Card IC         *INIFARE" (Classic, Ultralight, Ultralight C, MIFARE PLUS, DESFire, DESFire EV1 2/4/8k), FeliCa <sup>m</sup> , Calypso, CD21, NFC           Forum Tag types 1/2/3/4         Integrated         Integrated           Data Transfer Rate         106/212/42/42484 kbits/s, depending on card IC           Antenna         Integrated         Integrated           PC/SC Specification Ver: 201.14 for:<br>*Windows * 7/8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,<br>*Narcids 8.0 U.E.           Software         PC/SC Specification Ver: 201.14 for:<br>*Windows * 7/8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,<br>*Narcids 8.0 U.E.           Software         PC/SC Specification Ver: 201.14 for:<br>*Windows * 7/8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,<br>*Narcids 8.0 U.E.           Software         Ver: Software US           Power Consumption         <120   | Contact Smart Card Protocols     | T=0, T=1   |
| Supported Smart Card Types         ISO/IEC 7816 voltage classes A/B/C (SV, 3.3V, 1.8V)           Smart Card Detection         Card present switch; Automatic power on/off; Short circuit protectio           Contact Card Size         ID-000 (25 mm × 15 mm)           Supported Standards         ISO/IEC 14443 A&B Part 1 - 4           Contactiess Smart Card Protocols         T-CL           Supported Contactiess Card ICS         •MFARE™ (Classic, Ultralight, Ultralight, C, MIFARE PLUS, DESFire, DESFire EV1 2/4/Bk), FeliCa™, Calvpso, CD21, NFC Forum Tag types 1/2/3/4           Data Transfer Rate         106/212/42/B48 kbits/s, depending on card IC           Antenna         Integrated           PC/SC Specification Ver. 2.01.14 for:         •Windows* 7/B/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP, •Windows* 7/B/10/11 (32 and 64 bit), +Android 8.0 kJ.E           Software         PC/SC Specification Ver. 2.01.14 for:           •Windows* 7/B/10/11 (32 and 64 bit), +Android 8.0 kJ.E         Software           PC/SC DRIVER         PC/SC Specification Ver. 2.01.14 for:           •Windows* 7/B/10/11 (32 and 64 bit), +Android 8.0 kJ.E         Software           PC/SC DRIVER         PC/SC Specification Ver. 2.01.14 for:           •Windows 2.0 kJ.E         Software           Power Supply         Bus-powered USB           Power Supply         Bus-powered USB           Power Supply         B   | Smart Card Interface Speed       |  |
| Smart Card Detection         Card present switch; Automatic power on/off; Short circuit protectio           Contact Card Size         ID-000 (25 mm × 15mm)           Supported Standards         ISO/IEC 14443 A&B Part 1 - 4           Contact Card Size         ISO/IEC 14443 A&B Part 1 - 4           Contact Cless Smart Card Protocols         T=CL           Supported Contactless Card ICS         INIFARE" (Classic, Ultralight, Ultralight C, MIFARE PLUS, DESFire, DESFire EV1 2/4/8k), FeliCa <sup>m</sup> , Calypso, CD21, NFC           Data Transfer Rate         106/212/424/848 kbits/s, depending on card IC           Antenna         Integrated           PC/SC Specification Ver. 2.01.14 for:         •Windows* 7/8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,           • MacOS 10.9.x - 12.2.x,         •MacOS 10.9.x - 12.2.x,           • Unindows* 7/8/10/11 (32 and 64 bit),         •Android 8.0 以上           Software         PC/SC API; CFAPI (through wrapper on top of PC/SC); M-Card API (through wrapper on top of PC/SC)           Power Supply         Bus-powered USB           Power Consumption         <120 mAexcluding SAM;<185 mA with SAM; <500 uA in standby mode  | Smart Card Clock Frequency       | ISO/IEC 7816 compliant up to 5 MHz; Operates up to 12 MHz  |
| Contact Card Size         ID-000 (25 mm × 15mm)           Supported Standards         ISO/IEC 14443 A&B Part 1 - 4           Contactless Smart Card Protocols         T=CL           Supported Contactless Card ICs         MIFARE** (Classic, Ultralight, Ultralight C, MIFARE PLUS, DESFire, DESFire EV1 2/4/8k), FeliCa**, Calypso, CD21, NFC<br>Forum Tag types 1/2/3/4           Data Transfer Rate         106/212/42/4848 kbits/s, depending on card IC           Antenna         Integrated           DC/SC DRIVER         PC/SC Specification Ver. 2.01.14 for:<br>•Vinidows* 7/8/10/11 (2) and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,<br>•NacOS 10.9.x - 12.2.X,<br>•NacOS 10.9.x - 12.X NACH<br>•NacOS 10.9.X - 12.X NACH | Supported Smart Card Types       | ISO/IEC 7816 voltage classes A/B/C (5V, 3.3V, 1.8V)  |
| Supported Standards         ISO/IEC 14443 A&B Part 1 - 4           Contactless Smart Card Protocols         T=CL           Supported Contactless Card ICS         *MIFARE" (Classic, Ultralight, Ultralight C, MIFARE PLUS, DESFire, DESFire EV1 2/4/8k), FeliCa", Calypso, CD21, NFC<br>Forum Tag types 1/2/3/4           Data Transfer Rate         106/121/424/848 kbits/s, depending on card IC           Antenna         Integrated           Dreats Transfer Rate         106/212/424/848 kbits/s, depending on card IC           Antenna         Integrated           PC/SC Specification Ver. 2.0.1.14 for:<br>•Windows" 7/8/10/11 (32 and 64 bit), Windows" Server 2008/2012/2016/2019, WindowsXP,<br>•MacOS 10.9.x - 12.2.x,<br>•Linux 2.6.x, and 3.x, 4.x, 5.x (32 and 64 bit),<br>·Android 8.0 U.J.:<br>•Operating condition           Software         PC/SC CARI; CT-API (Ithrough wrapper on top of PC/SC); M-Card API (through wrapper on top of PC/SC)<br>·Android 8.0 U.J.:<br>•Android 8.0 U.J.:<br>•Android 8.0 U.S.           Power Consumption         <120 mAexcluding SAM:<135 mA with SAM; <500 uA in standby mode   | Smart Card Detection             | Card present switch; Automatic power on/off; Short circuit protectio   |
| Contactless Smart Card Protocols       T=CL         Supported Contactless Card ICs       • MIFARE" (Classic, Ultralight, Ultralight C, MIFARE PLUS, DESFire, DESFire EV1 2/4/8k), FeliCa", Calypso, CD21, NFC<br>Forum Tag types 1/2/3/4         Data Transfer Rate       106/212/424/8k kbits/s, depending on card IC         Antenna       Integrated         PC/SC Specification Ver. 2.01.14 for:<br>• Windows* 7/8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,<br>• MacOS 10/8/11 (32 and 64 bit), .<br>• Android 8.0 EL ±         Software       PC/SC API; CT-API (through wrapper on top of PC/SC); M-Card API (through wrapper on top of PC/SC)         Power Supply       Bus-powered USB         Power Consumption       4120 mAexcluding SAM;×185 mA with SAM; <500 uA in standby mode   | Contact Card Size                | ID-000 (25 mm × 15mm)  |
| Supported Contactless Card ICs         • MIFARE™ (classic, Ultralight, Ultralight C, MIFARE PLUS, DESFire, DESFire EV1 2/4/8k), FeliCa™, Calypso, CD21, NFC<br>Forum Tag types 1/2/3/4           Data Transfer Rate         106/212/424/848 kbits/s, depending on card IC           Antenna         Integrated           DRIVER           PC/SC Specification Ver. 2.01.14 for:<br>• Windows* 7/8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,<br>• MacOS 10.9.x - 12.2.x,<br>• Linux 2.6.x, and 3.x, 4.x, 5.x (32 and 64 bit),<br>• Android 8.0 bl.1:           Software         PC/SC API; CTAPI (through wrapper on top of PC/SC); M-Card API (through wrapper on top of PC/SC)           Power Supply         Bus-powered USB           Power Consumption         <120 mAexcluding SAM;<185 mA with SAM; <500 uA in standby mode  | Supported Standards              | ISO/IEC 14443 A&B Part 1 - 4   |
| Supported Contactiess Card ICs         Forum Tag types 1/2/3/4           Data Transfer Rate         106/212/424/848 kbits/s, depending on card IC           Antenna         Integrated           DRIVER           PC/SC Specification Ver. 2.01.14 for:<br>• Windows* 7/8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,<br>• MacOS 10.9.x - 12.2.x,<br>• Linux 2.6.x, and 3.x, 4.x, 5.x (32 and 64 bit),<br>• Android 8.0 以上:<br>• Android 8.0 以上:<br>• Android 8.0 以上:<br>• Android 8.0 以上:           Software         PC/SC API; CT-API (through wrapper on top of PC/SC); M-Card API (through wrapper on top of PC/SC)           Power Supply         Bus-powered USB           Power Consumption         <120 mAexcluding SAM,<185 mA with SAM; <500 uA in standby mode  | Contactless Smart Card Protocols | T=CL   |
| Antenna         Integrated           DRIVER           PC/SC Specification Ver. 2.01.14 for:<br>• Windows* 7/8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,<br>• MacOS 10.9.x - 12.2.x,<br>• MacOS 10.9.x - 12.2.x,<br>• Linux 2.6.x, and 3.x, 4.x, 5.x (32 and 64 bit),<br>• Android 8.0 B/L!:           Software         PC/SC API; CT-API (through wrapper on top of PC/SC); M-Card API (through wrapper on top of PC/SC)           Power Supply         Bus-powered USB           Power Consumption         <120 mAexcluding SAM;<185 mA with SAM; <500 uA in standby mode   | Supported Contactless Card ICs   |  |
| DRIVER           PC/SC Specification Ver. 2.01.14 for:<br>• Windows® 7/8/10/11 (32 and 64 bit), Windows® Server 2008/2012/2016/2019, WindowsXP,<br>• MacOS 10.9.x - 12.2.x,<br>• Linux 2.6.x, and 3.x, 4.x, 5.x (32 and 64 bit),<br>• Android 8.0 以上           Software         PC/SC API; CT-API (through wrapper on top of PC/SC); M-Card API (through wrapper on top of PC/SC)           Operating condition         Operating condition           Power Supply         Bus-powered USB           Power Consumption         <120 mAexcluding SAM;<185 mA with SAM; <500 uA in standby mode   | Data Transfer Rate               | 106/212/424/848 kbits/s, depending on card IC  |
| PC/SC DRIVERPC/SC Specification Ver. 2.01.14 for:<br>• Windows* 7/8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,<br>• MacOS 10.9.x - 12.2.x,<br>• Linux 2.6.x, and 3.x, 4.x, 5.x (32 and 64 bit),<br>• Android 8.0 以上:SoftwarePC/SC API; CT-API (through wrapper on top of PC/SC); M-Card API (through wrapper on top of PC/SC)Power SupplyBus-powered USBPower Consumption<120 mAexcluding SAM;<185 mA with SAM; <500 uA in standby modeDimensions(L x W x H)112 x 80x21mmWeight117 g ± 5%Operating Temperature Range0° to 50° C (32° to 122° F)Storage Temperature Range0° to 50° C (13° to 185° F)Operating Humidity RangeUp to 95% RH non-condensingConnectorUSB Type A ConnectorStatus IndicatorLEDFirmwareSmartOS™FirmwareSmartOS™FirmwareSoratOS™Systems/StandardsISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft* WHQL   | Antenna                          | Integrated   |
| PC/SC DRIVER       •Windows* 7/8/10/11 (32 and 64 bit), Windows* Server 2008/2012/2016/2019, WindowsXP,         •MacOS 10.9.x - 12.2.x,       •Linux 2.6.x, and 3.x, 4.x, 5.x (32 and 64 bit),         •Android 8.0 UL:       •Android 8.0 UL:         Software       PC/SC API; CT-API (through wrapper on top of PC/SC); M-Card API (through wrapper on top of PC/SC)         Power Supply       Bus-powered USB         Power Consumption       <120 mAexcluding SAM;<185 mA with SAM; <500 uA in standby mode   | DRIVER                           |  |
| Operating condition           Power Supply         Bus-powered USB           Power Consumption         <120 mAexcluding SAM;<185 mA with SAM; <500 uA in standby mode   | PC/SC DRIVER                     | <ul> <li>Windows<sup>®</sup> 7/8/10/11 (32 and 64 bit), Windows<sup>®</sup> Server 2008/2012/2016/2019, WindowsXP,</li> <li>MacOS 10.9.x - 12.2.x,</li> <li>Linux 2.6.x, and 3.x, 4.x, 5.x (32 and 64 bit),</li> </ul> |
| Operating condition           Power Supply         Bus-powered USB           Power Consumption         <120 mAexcluding SAM;<185 mA with SAM; <500 uA in standby mode   | Software                         | PC/SC API; CT-API (through wrapper on top of PC/SC); M-Card API (through wrapper on top of PC/SC)  |
| Power Supply     Bus-powered USB       Power Consumption     <120 mAexcluding SAM;<185 mA with SAM; <500 uA in standby mode   |                                  |  |
| Power Consumption<120 mAexcluding SAM;<185 mA with SAM; <500 uA in standby modeDimensions(L x W x H)112 x 80x21mmWeight117 g ± 5%Operating Temperature Range0° to 50° C (32° to 122° F)Storage Temperature Range-25° to 85° C (-13° to 185° F)Operating Humidity RangeUp to 95% RH non-condensingConnectorUSB Type A ConnectorStatus IndicatorLEDFirmwareSmartOS <sup>™</sup> Firmware In-Field UpgradeableYesCertifications / ComplianceSystems/StandardsISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft* WHQL  | Power Supply                     |  |
| Weight117 g ± 5%Operating Temperature Range0° to 50° C (32° to 122° F)Storage Temperature Range-25° to 85° C (-13° to 185° F)Operating Humidity RangeUp to 95% RH non-condensingConnectorUSB Type A ConnectorStatus IndicatorLEDFirmwareSmartOS™Firmware In-Field UpgradeableYesCertifications / ComplianceSystems/StandardsISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft® WHQL  |                                  | <120 mAexcluding SAM;<185 mA with SAM; <500 uA in standby mode   |
| Operating Temperature Range0° to 50° C (32° to 122° F)Storage Temperature Range-25° to 85° C (-13° to 185° F)Operating Humidity RangeUp to 95% RH non-condensingConnectorUSB Type A ConnectorStatus IndicatorLEDFirmwareSmartOS <sup>™</sup> Firmware In-Field UpgradeableYesCertifications / ComplianceSystems/StandardsISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft* WHQL   | Dimensions(L x W x H)            | 112 x 80x21mm  |
| Operating Temperature Range0° to 50° C (32° to 122° F)Storage Temperature Range-25° to 85° C (-13° to 185° F)Operating Humidity RangeUp to 95% RH non-condensingConnectorUSB Type A ConnectorStatus IndicatorLEDFirmwareSmartOS <sup>™</sup> Firmware In-Field UpgradeableYesCertifications / ComplianceSystems/StandardsISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft* WHQL   | Weight                           | 117 g ± 5%   |
| Storage Temperature Range-25° to 85° C (-13° to 185° F)Operating Humidity RangeUp to 95% RH non-condensingConnectorUSB Type A ConnectorStatus IndicatorLEDFirmwareSmartOS™Firmware In-Field UpgradeableYesCertifications / ComplianceSystems/StandardsISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft® WHQL  | Operating Temperature Range      |  |
| Operating Humidity Range       Up to 95% RH non-condensing         Connector       USB Type A Connector         Status Indicator       LED         Firmware       SmartOS™         Firmware In-Field Upgradeable       Yes         Certifications / Compliance         Systems/Standards       ISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft® WHQL   |                                  |  |
| ConnectorUSB Type A ConnectorStatus IndicatorLEDFirmwareSmartOS™Firmware In-Field UpgradeableYesCertifications / ComplianceSystems/StandardsISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft® WHQL  | Operating Humidity Range         | Up to 95% RH non-condensing  |
| Firmware     SmartOS™       Firmware In-Field Upgradeable     Yes       Certifications / Compliance       Systems/Standards       ISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft® WHQL  |                                  | USB Type A Connector   |
| Firmware In-Field Upgradeable     Yes       Certifications / Compliance       Systems/Standards     ISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft® WHQL  | Status Indicator                 | LED  |
| Certifications / Compliance           Systems/Standards         ISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft® WHQL  | Firmware                         | SmartOS™   |
| Systems/Standards ISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft® WHQL  | Firmware In-Field Upgradeable    | Yes  |
| Systems/Standards ISO7816,ISO/IEC 14443, USB 2.0 Full Speed, CCID, Microsoft® WHQL  |                                  |  |
|   | Systems/Standards                |  |
|   | Regulatory/Environmental         | RoHS   |