



LMD1

# LF HDX RFID READER MODULE



**Silicon Craft's 134.2 kHz RFID reader/writer is a low-frequency (LF) HDX module designed for easy integration with an external antenna.**

The module supports both the ISO 11784/11785 standard and Silicon Craft's proprietary protocol, ensuring compatibility with our LF HDX transponders, including the SIC379, SIC479, SIC73F1, and SIC73WR.

By integrating LMD1 LF HDX RFID reader module into automation systems, manufacturers can achieve visibility and traceability of parts, pallets, tools, and especially wafer carrier system. The module easily connects with an antenna then communicates via USB and UART interface, with pins and protocols fully compatible with the de facto standard for HDX RFID reader module, allowing seamless transition from existing systems.

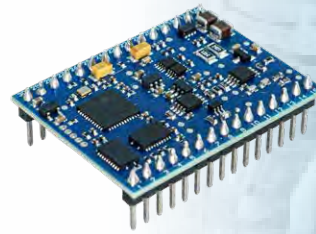
## HIGHLIGHT FEATURES

- Support Low-Frequency HDX RFID Reading
- Fully Compatible Pins and Protocols with Existing Module
- Support Reading and Programming to SEMI-E144 Transponder
- Support Silicon Craft's LF HDX Transponders :
  - SIC379 / SIC479
  - SIC73F1
  - SIC73WR

## APPLICATIONS

- Semiconductor Wafer Carrier
- Industrial Automation
- Automated Guide Vehicle (AGV)
- General-Purpose Reader/Writer

# LF HDX RFID READER MODULE



## SPECIFICATION TABLE

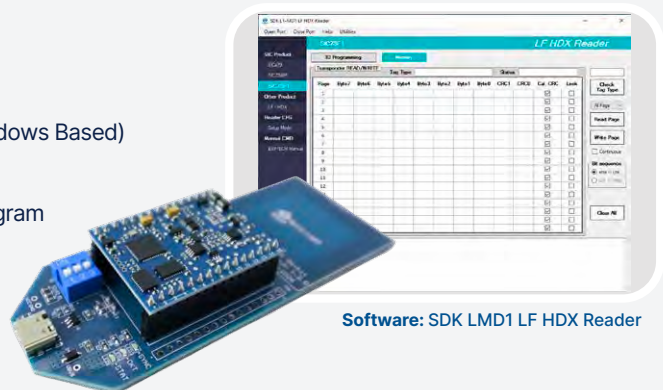
### SPECIFICATION

### LMD1

| Communication             |                                                                                                                                                                                                      |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Protocol                  | <ul style="list-style-type: none"> <li>SEMI E144-0312</li> <li>ISO 11784/11785 (HDX) FSK</li> </ul>                                                                                                  |
| Transponder Support       | <ul style="list-style-type: none"> <li>Read/Write and Read Only Transponders</li> <li>Multipage Transponder (SIC73F1)</li> <li>Silicon Craft HDX RFID Product (SIC379 / SIC479 / SIC73WR)</li> </ul> |
| Communication Interface   |                                                                                                                                                                                                      |
| Host Protocol             | <ul style="list-style-type: none"> <li>Compatibility Mode Protocol (CMP)</li> <li>Simplify Code Mode Protocol (SCP)</li> <li>User-Defined Bitstream Mode Protocol (UBP)</li> </ul>                   |
| Host Interface            | <ul style="list-style-type: none"> <li>UART (SCI, RS-232)</li> <li>USB (USB-CDC, Handshake)</li> </ul>                                                                                               |
| Development               |                                                                                                                                                                                                      |
| Host Programming          | High Level Command & Response Support                                                                                                                                                                |
| Power                     |                                                                                                                                                                                                      |
| Supply Voltage            | <ul style="list-style-type: none"> <li>Supply Voltage (VSP and VSL Pins) : 2.7 V – 5.5 V</li> <li>Supply Voltage (USB Circuit) : 4.0 V – 5.5 V</li> </ul>                                            |
| RF Performance            |                                                                                                                                                                                                      |
| Operating Frequency [kHz] | 134.2                                                                                                                                                                                                |
| Recommended Antenna       | Inductance 47 $\mu$ H with Q-factor 16                                                                                                                                                               |
| Others                    |                                                                                                                                                                                                      |
| Form Factor               | <ul style="list-style-type: none"> <li>30-Pin Dual In-line (DIL) Module</li> <li>Dimension : 38.9 mm x 29.7 mm x 12 mm</li> </ul>                                                                    |

## DEVELOPMENT KIT & SUPPORT MATERIALS

- LMD1 Development Kit
- Demonstration PC Software and Source Code (Windows Based)
- Module Protocol Document
- Reference Antenna PCB Design and Schematic Diagram



Software: SDK LMD1 LF HDX Reader