Product Brief

3.5” microLCD

3.5” DIABLO16 Intelligent Display Module

uLCD-35DT

4D SYSTEMS

MESSAGE FROM THE CEO

To our valued customers,

Thank you for your interest in 4D Systems and the products we have to offer.

We are constantly looking for ways to improve our customer experience and it is hoped that a Product Brief such as this, can instil confidence in choosing 4D Systems as your supplier of superior embedded electronic products.

We invite you to showcase our latest release and thank you again for your continued support.

Atilla Aknar
Founder & CEO

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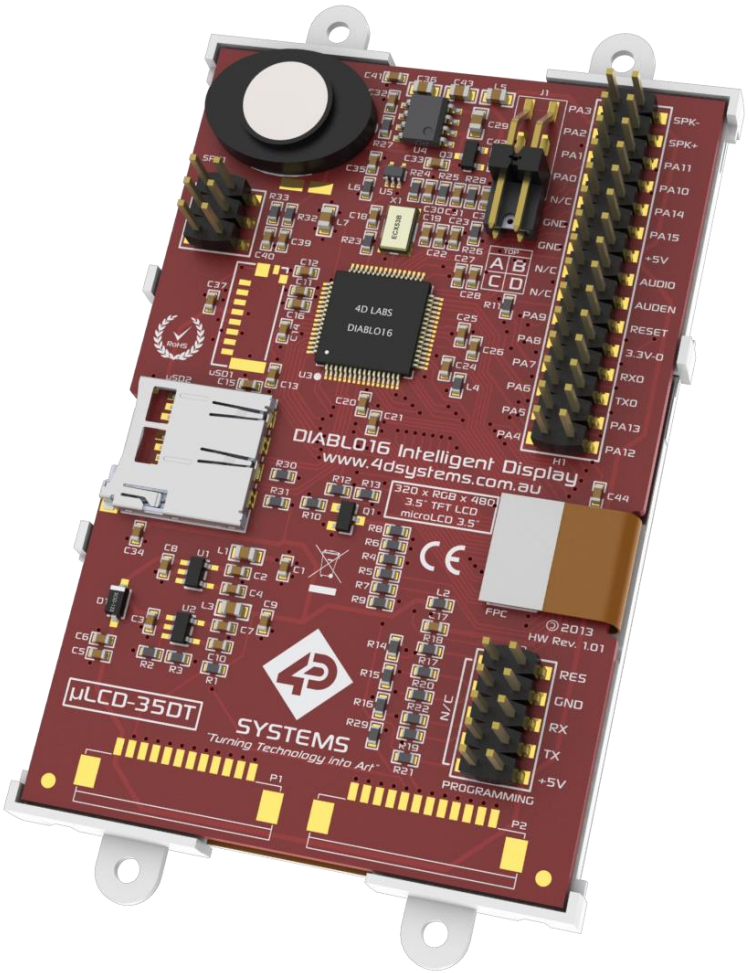
1. Overview

The uLCD-35DT is an amazing 3.5” Intelligent Display Module powered by the 4D Systems’ **DIABLO16** Graphics Processor.

The uLCD-35DT is designed for applications demanding a large intelligent display module, and is the largest size available from 4D Systems to date.

Driving the display and peripherals is the **DIABLO16** processor, a very capable and powerful chip which enables stand-alone functionality, programmed using the 4D Systems Workshop 4 IDE Software. The Workshop IDE enables graphic solutions to be constructed rapidly and with ease due to its design being solely for 4D’s graphics processors.

The **DIABLO16** Processor offers considerable FLASH and RAM upgrades over the PICASO processor, and also provides mappable functions such as I2C, SPI, Serial, PWM, Pulse Out, and Quadrature Input, to various GPIO, and also provide up to 4 Analog Input channels.



2. Module Features

01 **3.5”** TFT LCD Touch Screen w/ Resistive Touch

02 **320x480** Resolution with 65K True to Life Colours

03 **DIABLO16** Graphics Processor

04 5 Pin Serial Programming Interface

05 30 Pin Header for Expansion of GPIO and other signals

06 micro-SD Card Slot

07 DOS compatible file access (FAT16)

08 1 Dedicated and up to 3 mappable TTL Serial ports

09 Up to 3 mappable I2C Channels

10 Up to 3 mappable SPI Channels

11 Dedicated SPI Bus for uSD Storage

12 16 General Purpose IO with mappable features

13 PWM Audio with on board amplifier and speaker

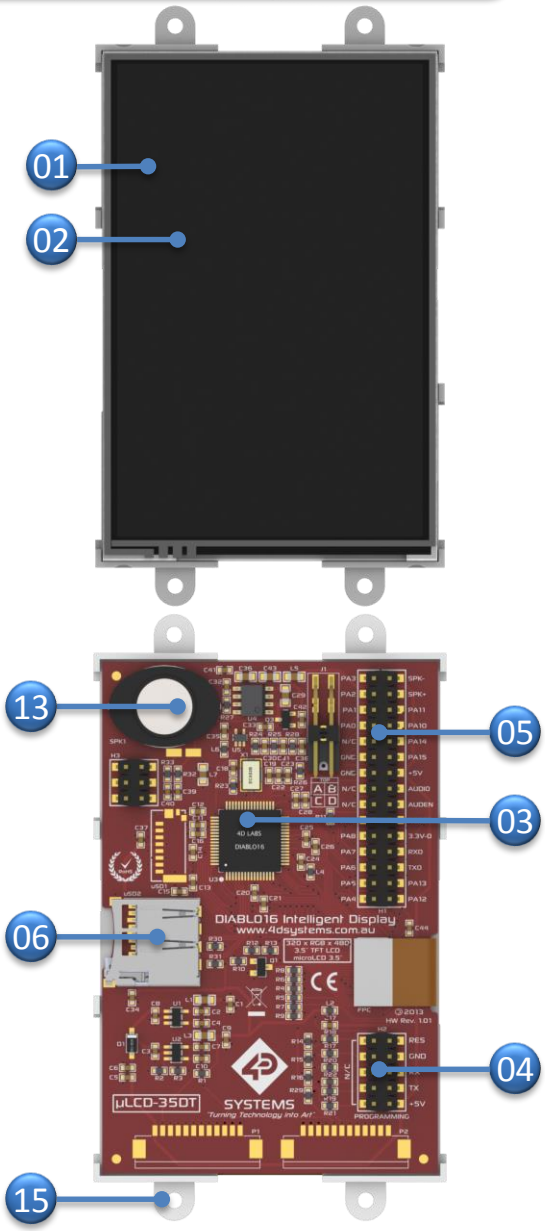
14 8 x 16 bit timers with 1ms resolution

15 4 x Mounting Holes with 3.5mm holes

16 Light Weight at only ~ **50gm**

17 Wire-Loom connectors available for special orders

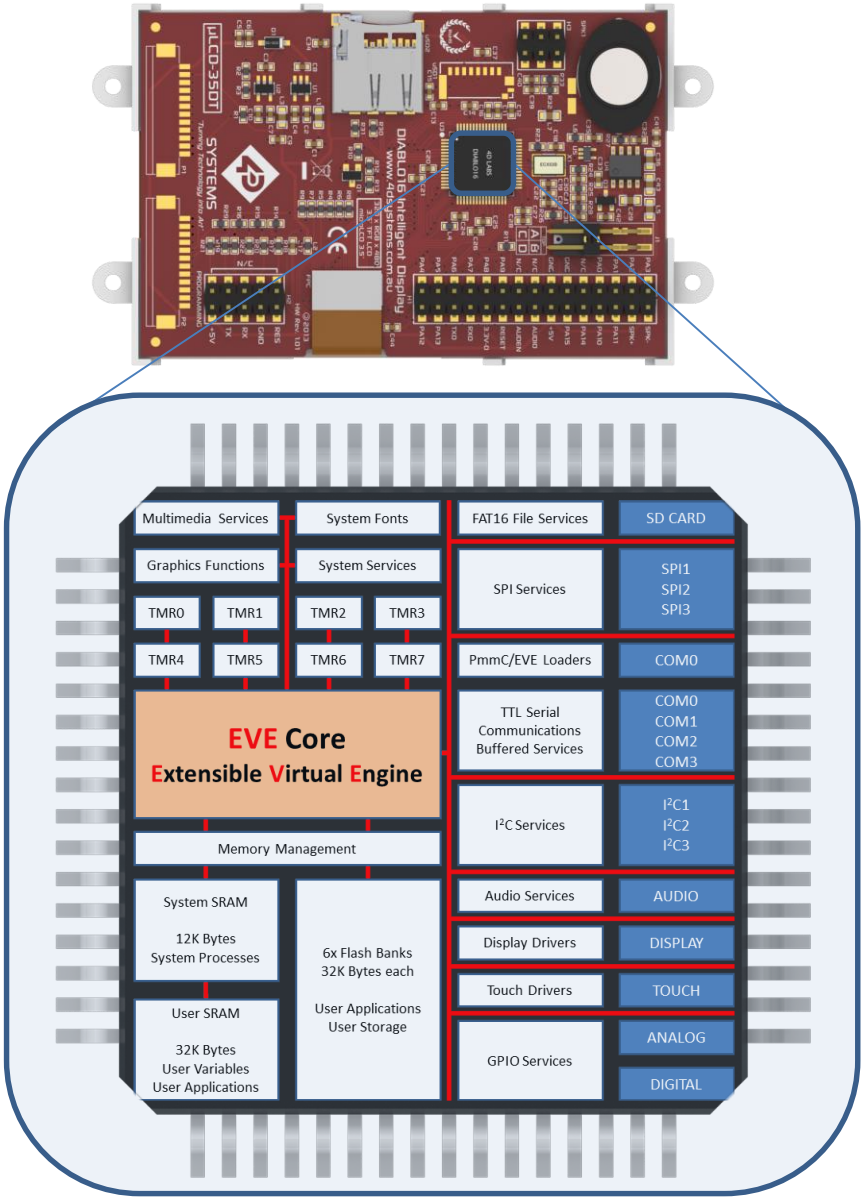
18 Alternate micro-SD connector available for special orders



3. DIABLO16 Processor

The **DIABLO16** is a custom embedded graphics Processor designed to interface with many popular OLED and LCD display panels. Powerful graphics, text, image, animation and countless more features are built right inside the chip. It offers a simple plug-n-play interface to many 16bit 80-Series colour LCD and OLED displays.

The **DIABLO16** processor offers a comprehensive set of I/O features and can interface to SPI, I2C, serial, digital, and analog devices, and provides a wealth of features such as PWM, Quadrature, PulseOut and Pin Counter functions. Provision is also made for a dedicated PWM audio output that supports audio WAV files and complex sound generation.



4. 3.5” TFT LCD Display

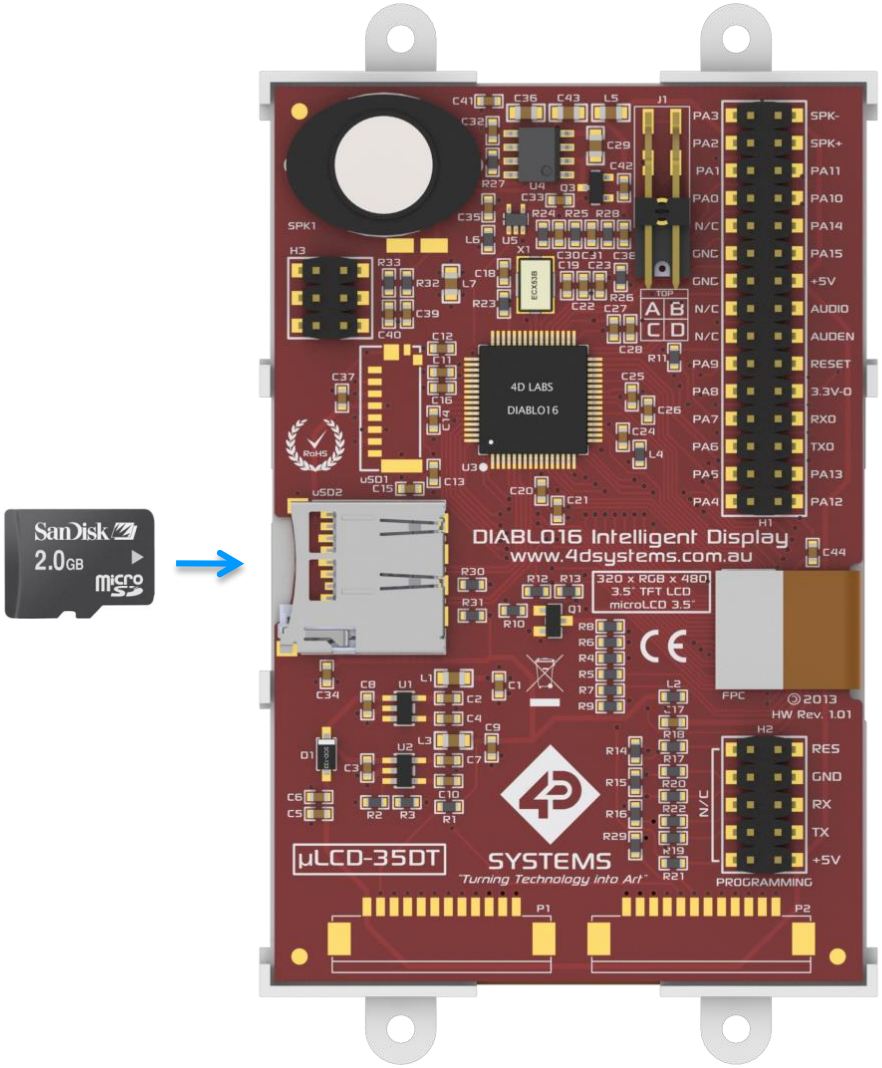
The **µLCD-35DT** has a **3.5’’** TFT LCD display at the forefront of the design that showcases the power and capabilities of the DIABLO16 processor. Combining a resolution of **320x480** pixels with **65K** True to Life colours, the **µLCD-35DT** delivers crisp colour perfect for animations, slideshows and a number of multimedia presentations.

5. micro-SD Card Socket

The **µLCD-35DT** supports **micro-SD** memory cards via the on-board micro-SD connector. This provides the user with expandable memory space suitable for all multimedia file retrieval, such as images, animations and video clips, as well as data logging applications.

Supports to 2GB micro-SD as well as micro-SDHC memory cards starting from 4GB and above. Cards must be SPI compatible

Pictured to the right shows a full sized SD memory card socket. This is not normally populated on the PCB, however can be on special request from the customer. Please contact sales for more information.

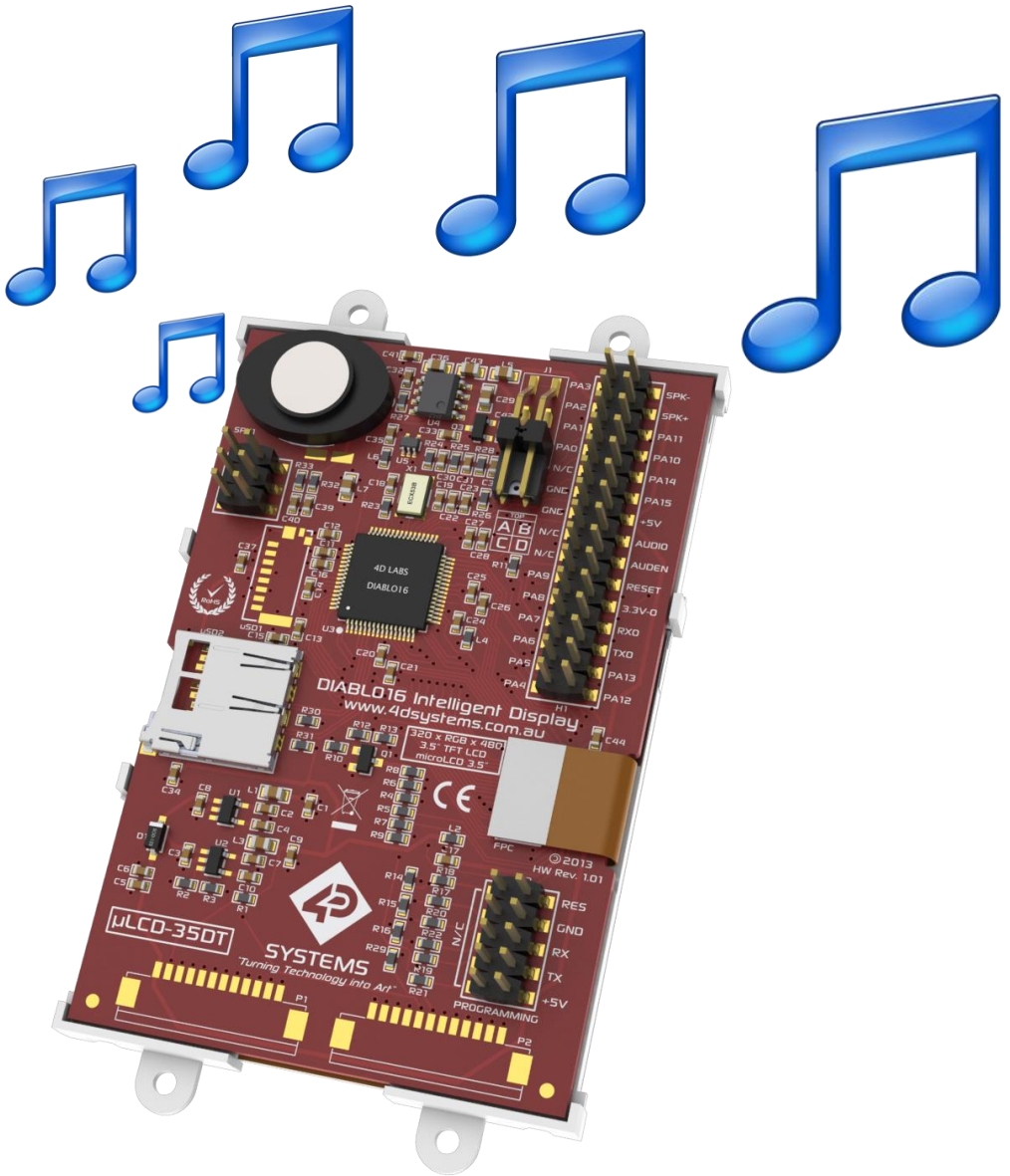


6. Audio

Audio playback support in the DIABLO16 Processor enables the **µLCD-35DT** module to play audio WAV files stored in the micro-SD memory card.

The **µLCD-35DT** module features an on board Audio Amplifer which is fed from a filtered PWM signal from the **DIABLO16** Processor, allowing audio playback.

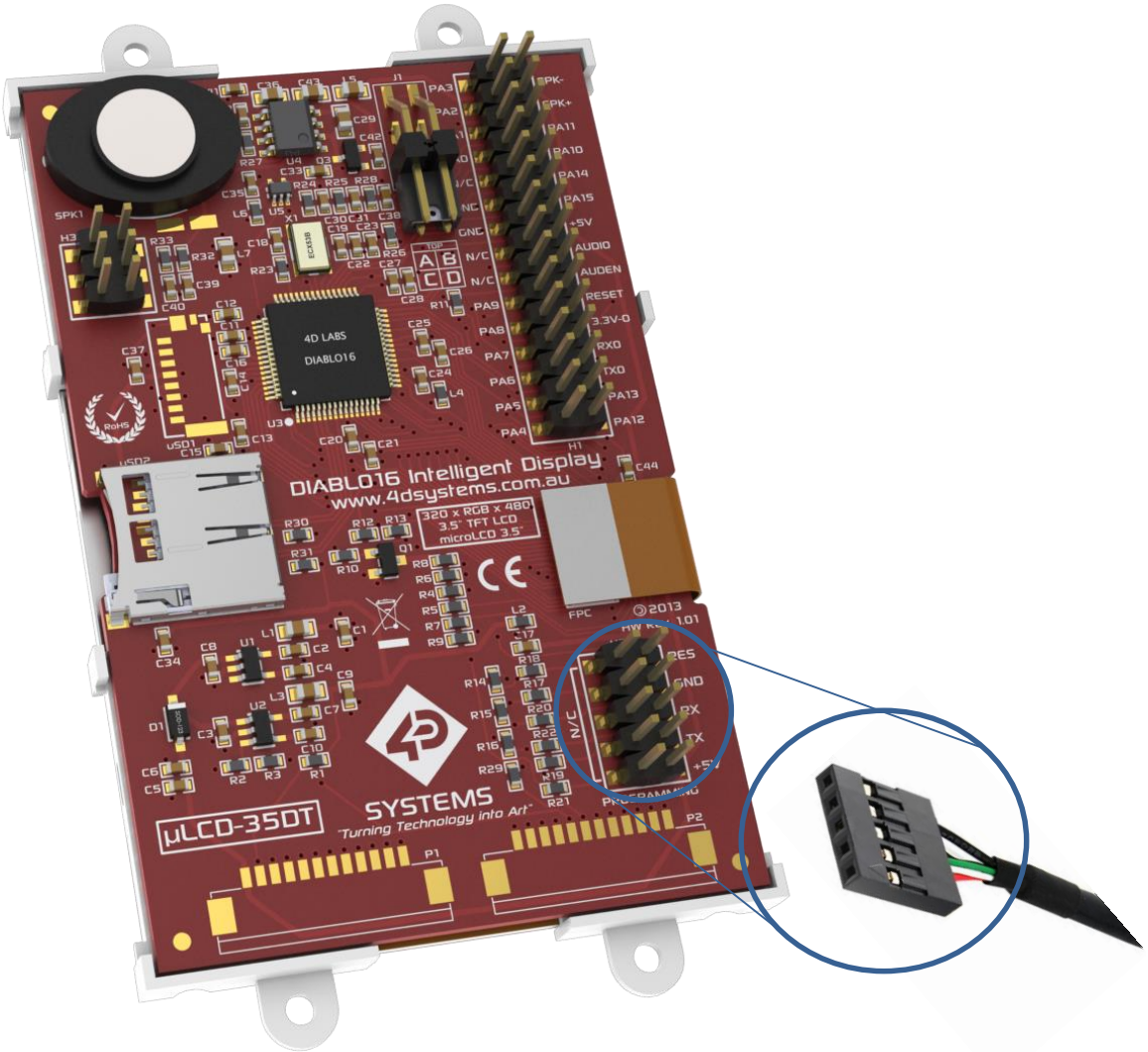
A simple instruction enables the user to play/pause/stop audio files while continuing the execution of the users code, such as display updates, touch recognition, communications, etc. The audio system also allows real time pitch change of audio samples.



7. Powering Your Device

Powering the **µLCD-35DT** is as simple as connecting to a PC via a 4D Programming Cable or uUSB-PA5 Programming Adaptor.

Power can also be supplied by a regulated 5V DC source into one of the 5V pins present on the headers.



8. What You Need

Essential items

4D Programming Cable or
4D Programming Adaptor

Windows Based PC

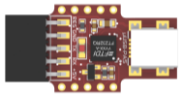
4D Workshop4 IDE Software Tool

Optional Items

micro-SD Card & SD Adaptor

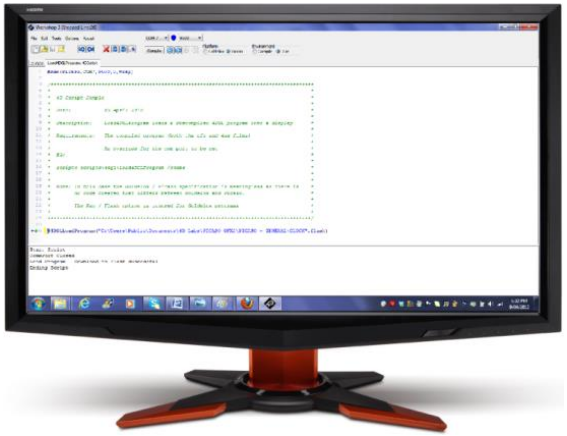
Note: If using ViSi-Genie or ViSi Environments Then a micro-SD card is an Essential Item.

9. Getting Started



4D Programming Adaptor

4D Programming Cable



Getting started with a **DIABLO16** Display Module is as simple as connecting the 4D Programming Cable or adaptor to the Display Module, and choosing your Product and Development Environment in the 4D Workshop4 IDE.

4D Workshop4 IDE guides you through the relevant Aid Tools to get your Application up and running in no time.

10. Development Environment

Workshop4 is a comprehensive software IDE tool suite that provides an integrated software development platform for all of the 4D family of processors and modules. The Workshop4 IDE supports four different **Development Environments** for the user using a DIABLO16, to cater for different requirements and skill level.

Designer: The Designer environment enables the user to write 4DGL code in its natural form to program the µLCD-35DT.

ViSi: A visual programming experience, suitably called ViSi, enables drag-and-drop type placement of objects to assist with 4DGL code generation and allows the user to visualise how the display will look while being developed.

ViSi-Genie: An advanced environment called ViSi-Genie doesn't require any 4DGL coding at all, it is all done automatically for you. Simply lay the display out with the objects you want, set the events to drive them and the code is written for you automatically. ViSi-Genie provides the latest rapid development experience from 4D Systems.

Serial: A Serial environment is also provided to transform the µLCD-35DT into a slave serial module, allowing the user to control the display from any host microcontroller or device with a serial port.

11. Display Modules in DIABLO16 Range

4D Systems offers two different display modules in the microLCD range, and an OEM Development Module, driven by the **DIABLO16** Processor. Details on individual modules could be found from their Product Brief, Datasheet or from the 4D Systems website.

OGM Range

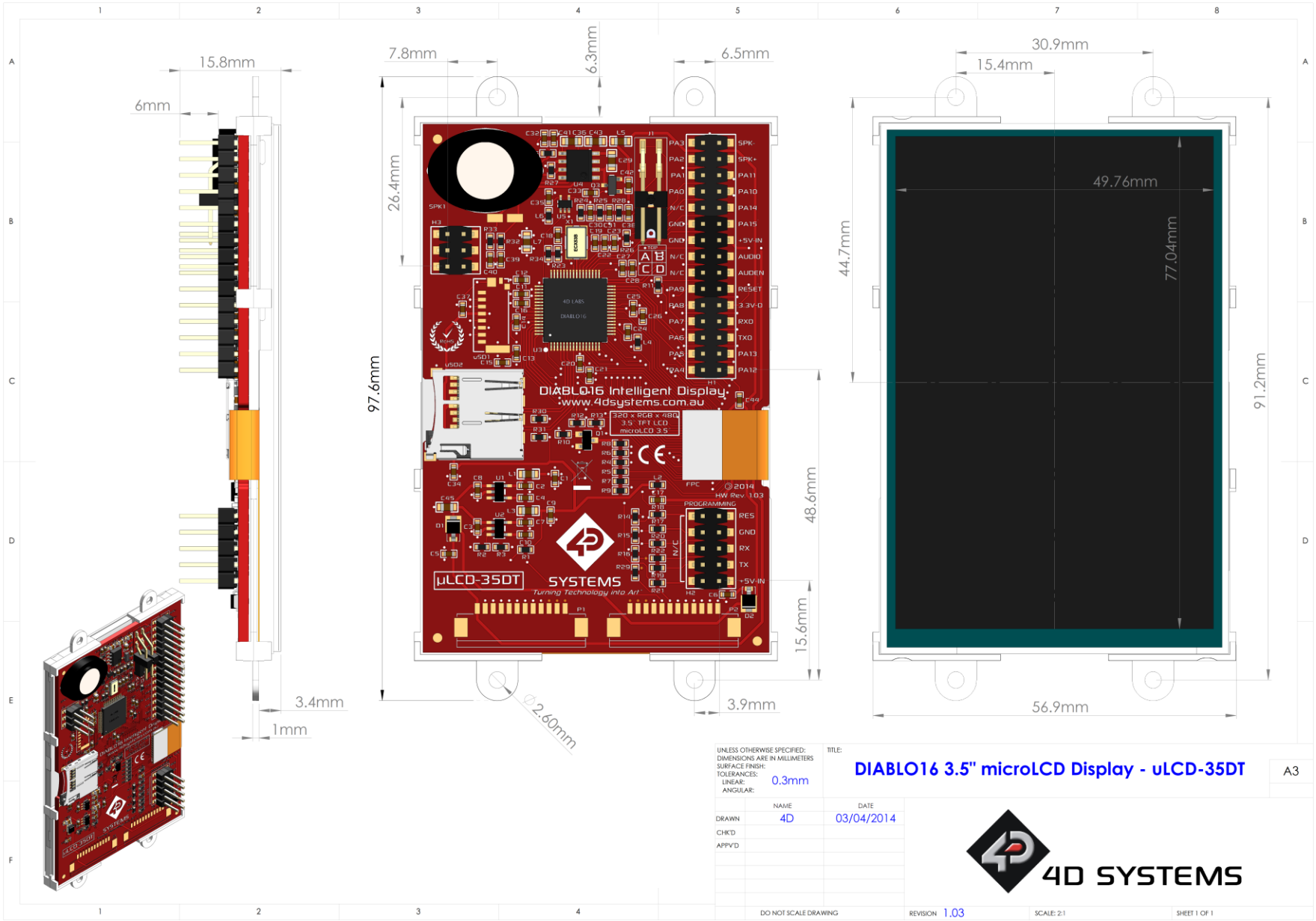
DIABLO16-OGM

microLCD Range

µLCD-35DT

µLCD-70DT

12. Mechanical Dimensions



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For additional information on the uLCD-70DT, please refer to the uLCD-70DT Datasheet or visit 4D Systems website at www.4dsystems.com.au

If you require specific help with a 4D Systems product, information can be sourced from the FAQ and relevant forum threads on the website, or by contacting a direct member of our Tech Support team at 4D Systems at support@4dsystems.com.au

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