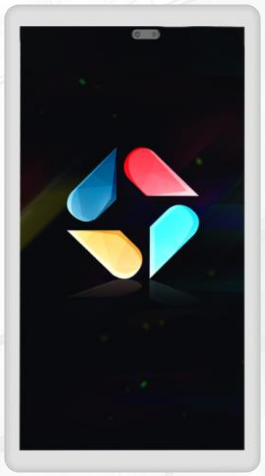
4D SYSTEMS
TURNING TECHNOLOGY INTO ART

4Discovery-50

HMI for Home- and Building Automation and Machine Control

October 2020



Content

- 4Discovery-50 Overview
- Configurations and Customisability
- Detailed Features
- What's in the box and pricing
- Typical Applications
- Fort Worth Sinclair Hotel Example
- Links to resources about Sinclair Hotel
- Links to Sinclair and other stuff
- Contact Details for additional information

4Discovery-50 Overview

- The 4Discovery-50 is a high resolution 480x854 pixel 5.0” Intelligent Wall Mounted Display solution featuring DIABLO16 processor and designed for building and home automation applications as well as for machine control applications.
- Features a IPS Display with Wide Viewing Angles and Capacitive Touch.
- Designed to be mounted directly onto a panel, wall or any drillable surface.
- Programmed using 4D Worshop4 IDE.
- Features 2 x RS485 Interfaces via RJ45 ports as external hardware interfaces.
- Onboard proximity sensor for activating display to wake from sleep state.
- Optional Wi-Fi and Bluetooth available.
- I/O Customizable for user requirements when needed

Configurations and Customisability

Daughter Boards

The 4Discovery-50 has been designed with multiple configurations and customizability in mind. The inside of the 4Discovery-50 includes a daughter board that is permanently attached during assembly at the factory. By default this daughter board comes in a few different variations, but it can also be customized to a user's specific requirements. For a custom configuration, please contact our sales team.

4Discovery-50

The default configuration of the 4Discovery-50 is with Daughter Board 1 (DB01). Unless otherwise stated, the 4Discovery-50 is assumed to be in this configuration and the part number is simply 4Discovery-50 (in some cases SKU can be communicated as 4Discovery-50-DB01).

In this configuration the 4Discovery-50 provides a looped dual port RS485 communications BUS. This default configuration enables RS485 communications using a 2-wire bus, and the dual RJ45 ports at the back enable daisy chaining multiple modules or other RS485 devices together on the BUS without the need for RS485 hubs or splitters. Please refer to the datasheet for additional details.

4Discovery-50W

The 4Discovery-50W includes the same features as described above as well as additional Wi-Fi and Bluetooth connectivity enabled by ESP32-PICO-D4 SoC with both an integrated ceramic antenna and a u.FL connector for an external antenna. Please refer to the datasheet for further information.

Starter Kits

Starter kits are available for all configurations. The starter kits include everything needed to get started with development with that particular configuration of the 4Discovery-50 and it is highly recommended to purchase a starter kit as a first-time user or if you are just starting your development project.

Please refer to the "What's in the box" section for the part number and content of the starter kit.

Detailed Features

- Powerful 5.0” Intelligent LCD-TFT display module powered by DIABLO16.
- 480x854 FWVGA Resolution (Full Wide Video Graphics Array), RGB 65K true to life colours, TFT Screen with integrated Capacitive Touch Panel.
- IPS Panel with wide viewing angles from all directions.
- Programmed over RS485 using a special programmer designed specifically for the 4Discovery.
- 6 banks of 32750 bytes of Flash memory for User Application Code and Data
- 32Kb of SRAM purely for the User.
- On-board micro-SD memory card connector for multimedia storage and data logging purposes. HC memory card support is also available for cards larger than 4GB.
- Optional Flash Memory can be ordered for internal storage of limited graphics, where microSD card storage is undesirable.
- On board proximity sensor found behind the top edge of the display glass, can be used for activation of the display, wake from sleep, or other functions as programmed by the User.
- Optional features:
    - On board WiFi and Bluetooth using the Espressif ESP32-PICO-D4 SoC, with both an integrated ceramic antenna and a u.FL connector for an external antenna.
- DOS compatible file access (FAT16 format) as well as low level access to microSD card memory.
- Display full colour images, animations, icons and video clips on chosen 4D Systems display.
- Supports all available Windows fonts.
- 5.0V or 7.0V-to-30V input voltage range operation (single supply).
- Module dimensions: 76.2 x 139.4 x 24.8mm
- Weight approximately 130g.
- Display Viewing Area: 62.56 x 110.53mm
- Easily mounted to the wall, enclosure, panel or virtually any flat drillable surface.
- RoHS and CE Compliant.
- Available configurations:
    - **4Discovery-50** - RS485 only
    - **4Discovery-50W** - RS485 with Wifi & Bluetooth Enabled
    - Starter Kits available
    - Contact Sales for custom configurations

What's in the box and Price

Modules and Starter Kits

4Discovery-50

- 4Discovery-50 with DB01
- RS485 Interface via RJ45 Jacks
- MSRP: US$ 179.00

4Discovery-50W

- 4Discovery-50W with DB01
- RS485 Interface via RJ45 Jacks
- Wi-Fi and Bluetooth Enabled
- MSRP: US$ 199.00

SK-4Discovery-50

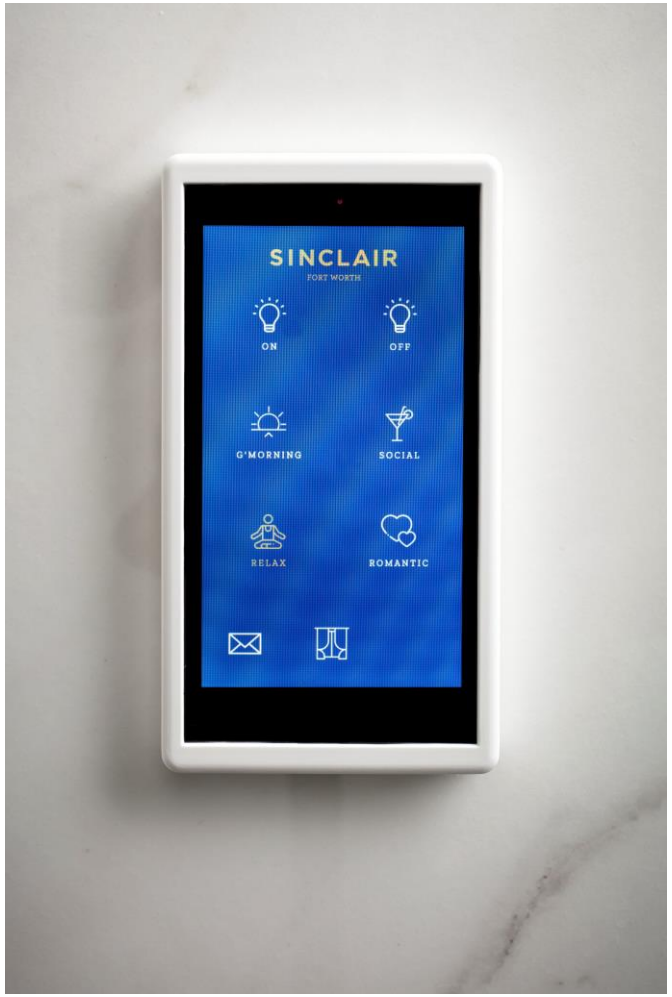
- 4Discovery-50 with DB01
- 4D RS485 Programmer
- 4GB Industrial microSD Card
- MSRP: US$ 199.00

SK-4Discovery-50W

- 4Discovery-50W with DB01
- 4D RS485 Programmer
- 4GB Industrial microSD Card
- MSRP: US$ 219.00

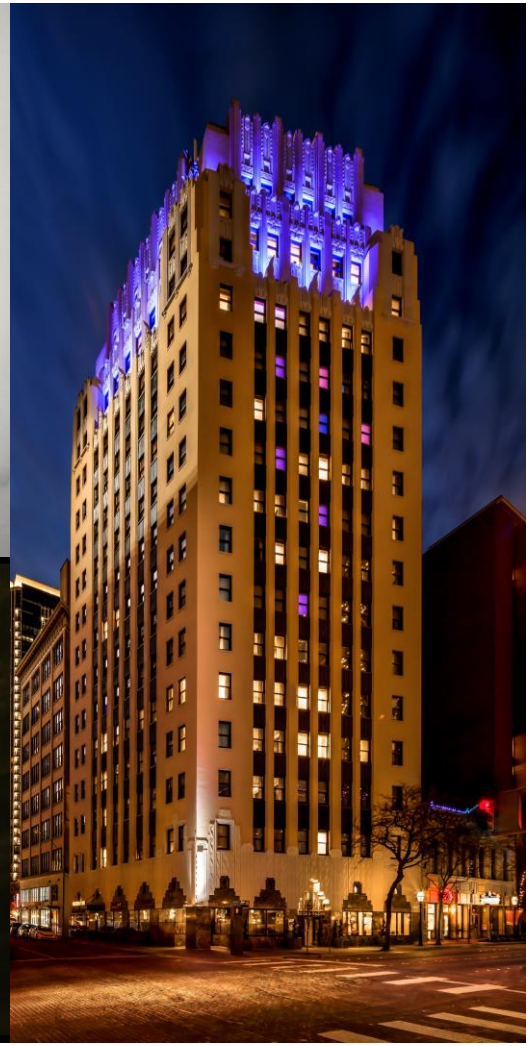
Typical Applications

- Building & Home Automation
- Elevator control systems
- Lighting Control
- HVAC Control
- Controlling Blinds
- Security and Access Control
- General Machine Control



Forth Worth – Sinclair Hotel

- Sinclair Hotel in Forth Worth uses the 4Discovery-50 for controlling lighting and rolling blinds in the guest rooms.



Forth Worth – Sinclair Hotel

- Additional resources and links about the Forth Worth Sinclair Hotel Project as a whole.
  - Intel Case Study Video:
    - https://f.io/puTA_ofH
  - Fortune Magazine:
    - https://fortune.com/videos/watch/c5d566e3-46e3-4b4e-9b6d-46771ed0aa25
  - NBC Today Show:
    - https://www.today.com/video/tour-the-high-tech-hotel-of-the-future-78010437658
  - LG Customer Spotlight Video:
    - https://vimeo.com/arlandcom/review/385363948/167e6186a6
  - Premiere Hospitality:
    - https://online.fliphtml5.com/xahs/llmg/#p=9

For additional information

- Links:
  - Product Page HERE
  - Datasheet HERE
- Contact:
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