

Overview:

This document describes the GPProducts Touch8 proximity interface. The interface unit is designed so those visitors to a public museum can interact with a computer controlled audio/visual exhibit. The interaction is to be achieved by a group of proximity sensors built into the exhibit. These proximity sensors need to interface to the control computer.

System Capabilities:

The GPProducts Touch8 proximity interface has many advantages and features, just some of which are detailed below:

- Support for up to 8 sensing electrode / proximity sensors modules
- Systems can be linked to provide further sensors.
- Serial RS422 or RS232 industry standard interface
- Simple ASCII based protocol

System Topology:

The GPProducts Touch8 proximity interface is illustrated in Figure 1, and can be split into the following sub parts:

- 1) The Sensing Electrode
- 2) The Interface Unit
- 3) The Protocol Converter

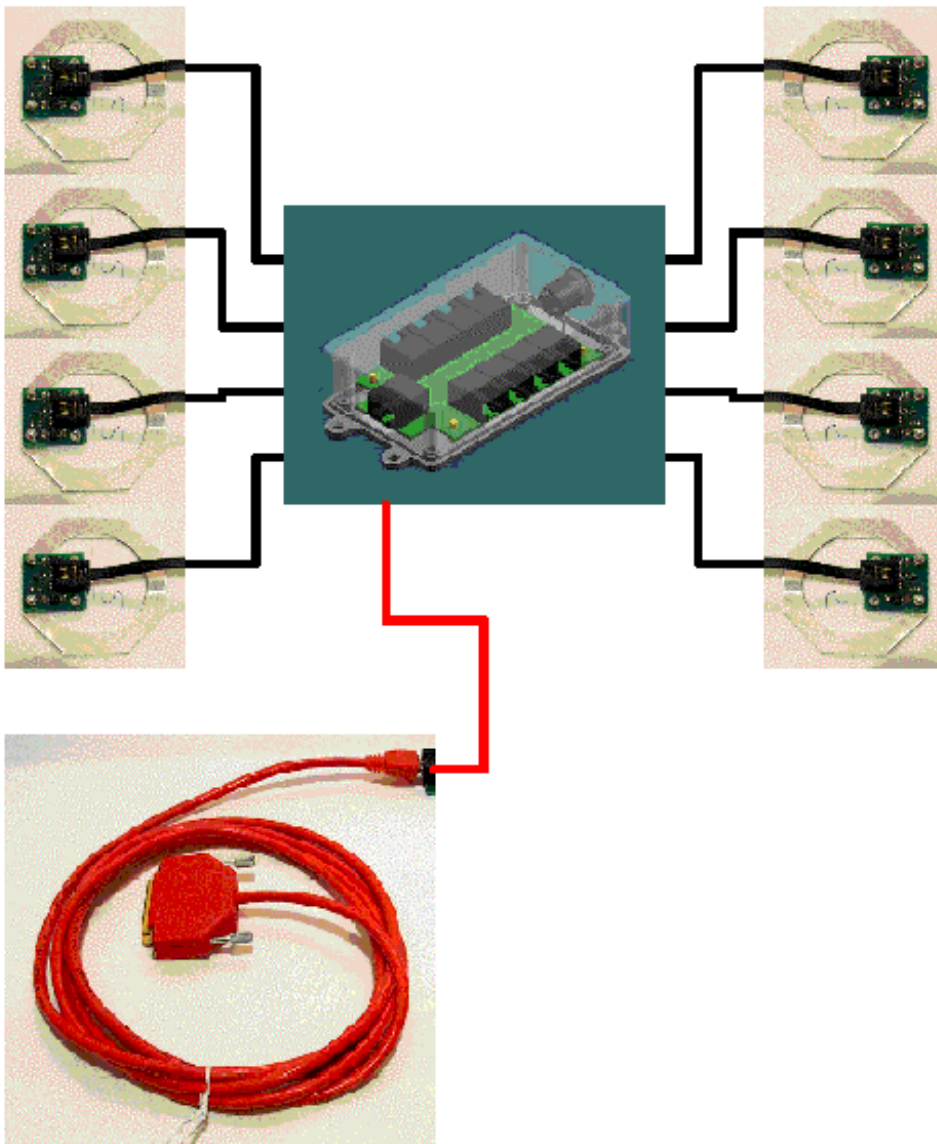


Figure 1: System Topology

Equipment Appearance and Specification

Size & mounting

- The interface module will take the form of a panel mounting plastic enclosure. It will be smaller than 150W x 100D x 30H (mm). The module will be mounted in the available space below the exhibit, close to the proximity sensor modules.
- The interface module box will have M3 lugs suitable for mounting the box below the exhibit.
- The proximity sensor circuits will be supplied enclosed within a black plastic enclosure of maximum size 75W x 40D x 23H (mm). The proximity sensor circuit enclosure will be mounted upon the sensing electrode (also supplied)
- The protocol converters will be supplied within the back-shell of a 'D' type connector.

Connectors

The interface module will have ten connectors, eight to connect to proximity sensor circuits, one for connection to the (remote) protocol converter and one for the power supply input

- The RS422 connection will be an 8 pin RJ45 PCB connector.

The protocol converter will have two connectors, one to connect to the interface module and the other to a serial port on a PC.

Each proximity sensor unit will have a single connector to connect it to the interface module by the cable provided. It will be connected to the sensing electrode by one of the mounting bolts.

Operation

- When the visitor moves their hand over one of the sensing electrodes the proximity sensor unit will detect this movement.
- The interface unit will then generate an RS422 data stream.

Computer Interface Specifications

Serial Settings:

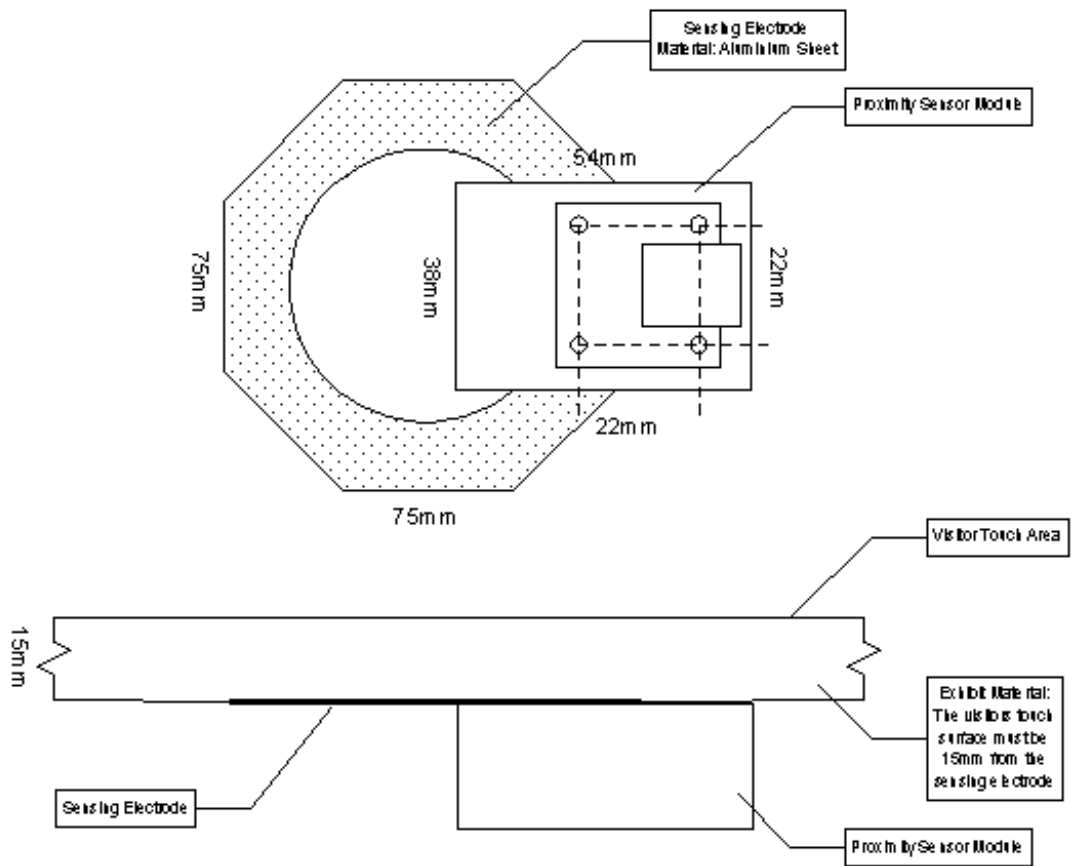
Standard	RS232
Data Rate	19200
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	None

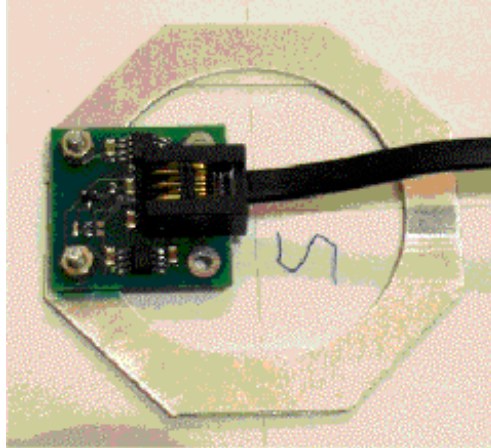


- The data coming from the interface unit is a byte stream detailing which proximity sensor has been triggered. For example if sensor 1 has been triggered an ASCII '1' (0x31) will be transmitted, and if sensor 8 has been triggered then an ASCII '8' (0x38) will be transmitted.

Sensing Electrode

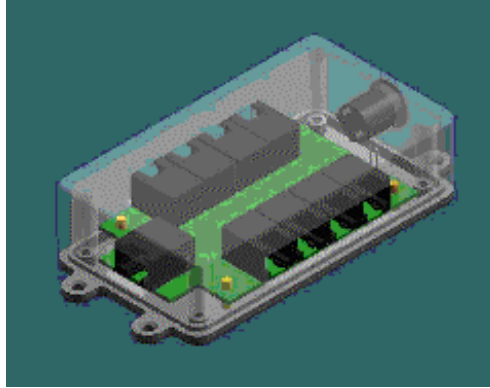
The proximity sensor units will be mounted on the back of the sensing electrodes. For optimum operation, the sensing electrode must be built to the following diagram





Interface Unit

The interface unit connects to sensing electrodes, the power supply and provides the RS422 serial data stream for connection to the PC to be controlled.



Protocol Converter

The protocol converter converts the long distance RS422 data stream back to RS232 for direct connection to the computer.

