MAXIFLEX Dual Hart NIM

Model M1589D Dual Hart Network Interface Module

DATASHEET

FEATURES

- **Connects to two HART loops, each with up to 15 devices**

- **Acts as Primary Master in each HART loop**

- **Facilitates real-time data acquisition to SCADA and DCS**

- **Fits any Maxiflex I/O Slot.**

- **Up to 15 HART NIM's in a Maxiflex system.**

- **Supports both Burst Mode and Polled mode operation.**

- **Configurable Poll Timers when in Polled Mode.**

- **Automatic or Manual Polling regime when in Polled Mode.**

- **Up To 64 Custom Query Blocks can be configured.**

- **500Vdc minimum loop isolation to each HART loop.**

- **Offloads communications task from the CPU**

- **CE approved**

The Maxiflex M1589D Dual Hart NIM is a Network Interface Module that acts as a permanent host interface device (primary master) on up to two Hart networks simultaneously and is used to acquire data from the HART loops and to make the data available for SCADA, data-logging etc. using the Maxiflex system.

The Hart NIM plugs into an I/O slot on a Maxiflex base and independently interrogates field devices on two Hart networks, making the data available to the Maxiflex system.

This data may be accessed by the entire range of Maxiflex CPU's. The NIM is designed to be self configuring for ease of use. Once powered up, the NIM searches for HART devices on each of its two HART

interfaces and builds an inventory of devices found. Various data elements are continuously and automatically read from the device and stored in the Data Interchange Table (DIT) in the device for access by the rest of the Maxiflex system.

The HART NIM handles all HART communications and exchanges data with the system by means of a 3000 register Data Interchange Table (DIT).

All system configuration data and dynamic data can be read and written through this convenient table interface.

This data is then accessible by the CPU, SCADA, DCS or PLC systems as regular data registers in the system. The link to the HART device is made transparent to the rest of the system.
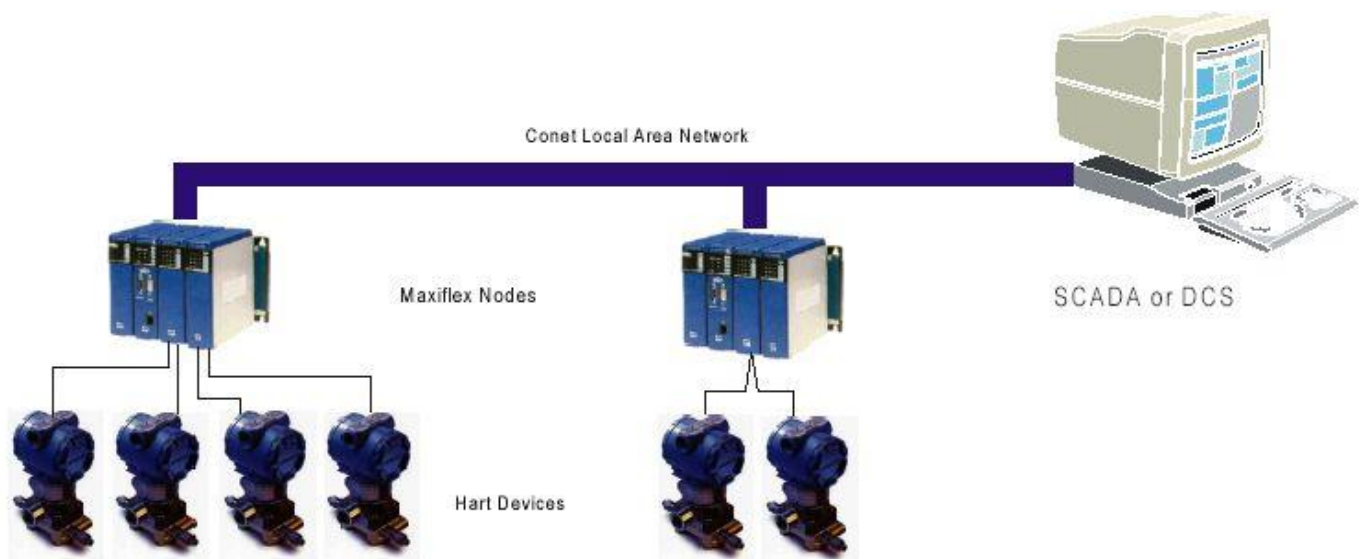
Advanced Features

- **Burst Mode** – When configured for use in this mode, there can only be One Slave device connected on each loop.

- **Polled Mode(Automatic Polling)** – When configured for automatic polling the Master(M1589D) will poll all transmitters up to 15 connected to each loop at the same rate. After seven seconds the Master will search for a device which is NOT online. If the device is found then it will be switched to online. *Note: When Automatic polling is selected the Programmable Poll Timers for each loop are ignored.

- **Polled Mode(Manual Polling)** - When Manual polling is selected for the loop, all transmitters connected to the loops are polled according to the Poll Timer setting. The User can select from a range of polling rates which range from As fast as Possible up to a maximum of 5 seconds per device. The polling engine will only search for Offline devices that have their poll timers configured.

- **Custom Query Block Configuration** - The user can configure up to 64 Custom Query Blocks in the NIM. Each query block can contain any valid HART command and can address any device on either of the HART loops. Each Query Block can be configured as a "one-shot" query that is triggered by the user, or can be configured as a cyclic query where the Query is triggered on a regular basis by the NIM. The status of each Query is presented in the Query Status DIT registers. These registers indicate the success or failure of each query last time it was sent.

APPLICATION EXAMPLE

Specifications

HART Loops

Quantity	Two independent loops
HART operating mode	Primary Master
Baud Rate	300 – 38,400 baud.
Isolation	500Vdc loop to loop and loop to logic
Maximum Loop Voltage	40Vdc
Minimum Loop Resistance	230 ohms
Maximum Loop Resistance	1100 ohms
Transmitted signal level	400mV pk-pk minimum 600mV pk-pk maximum
Receiver Sensitivity	120mV pk-pk minimum 2000mV pk-pk maximum
Receiver Threshold	Ignores < 80mV pk-pk
DC Load Impedance	2 microAmps Max @ 60°C and 40V
AC Load Impedance	22 MicroFarads Typical

Communications Mode

Polled Mode	Up to 15 devices per loop
Burst Mode	Only one device per loop

Memory

Data Interchange Table	3000 16 bit Registers

Front Panel Indicators

NIM OK (Green)	On = Healthy Flashing or Off = CPU faulty
Tx (Red)	On =Data being transmitted.
Rx (Amber)	On = Data is being received.

Environmental

Operating Temperature	-25°C to +50°C (-13°F to +140°F)
Storage Temperature	-40°C to +70°C (-40°F to +158°F)
Humidity	95% max. at 40°C (104°F) non-condensing.
Protection	Electronics conformal coated

Logic Power Consumption

From Logic Power Supply	250mA from 5Vdc max.

Mass

Excluding Packaging	390g (13.8oz)
Including Packaging	480g (16.9oz)

Ordering Information

Description	Order Code
Dual HART NIM	M1589D

HART Connection Details

Note: The LED indicators can only be seen when illuminated.
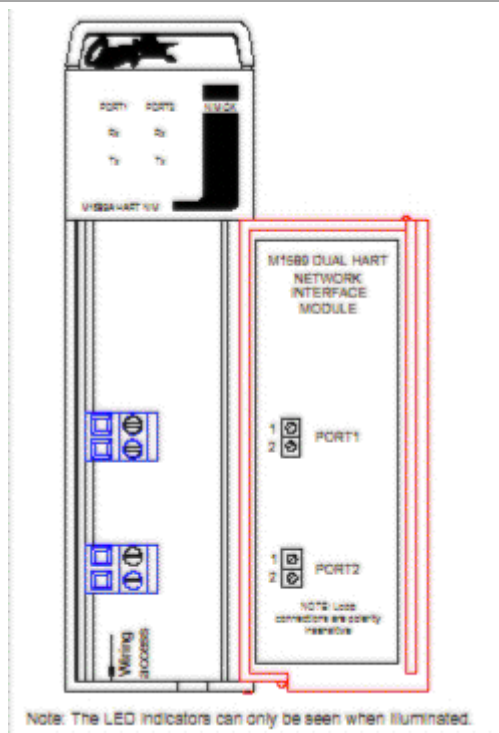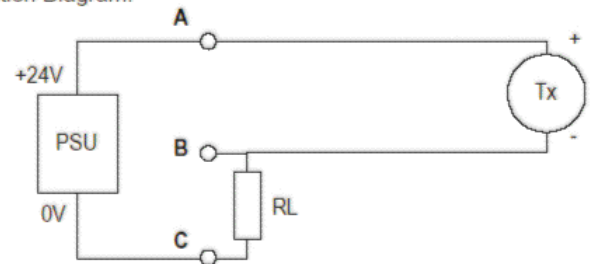
Two-wire transmitter connection

Four-wire transmitter connection