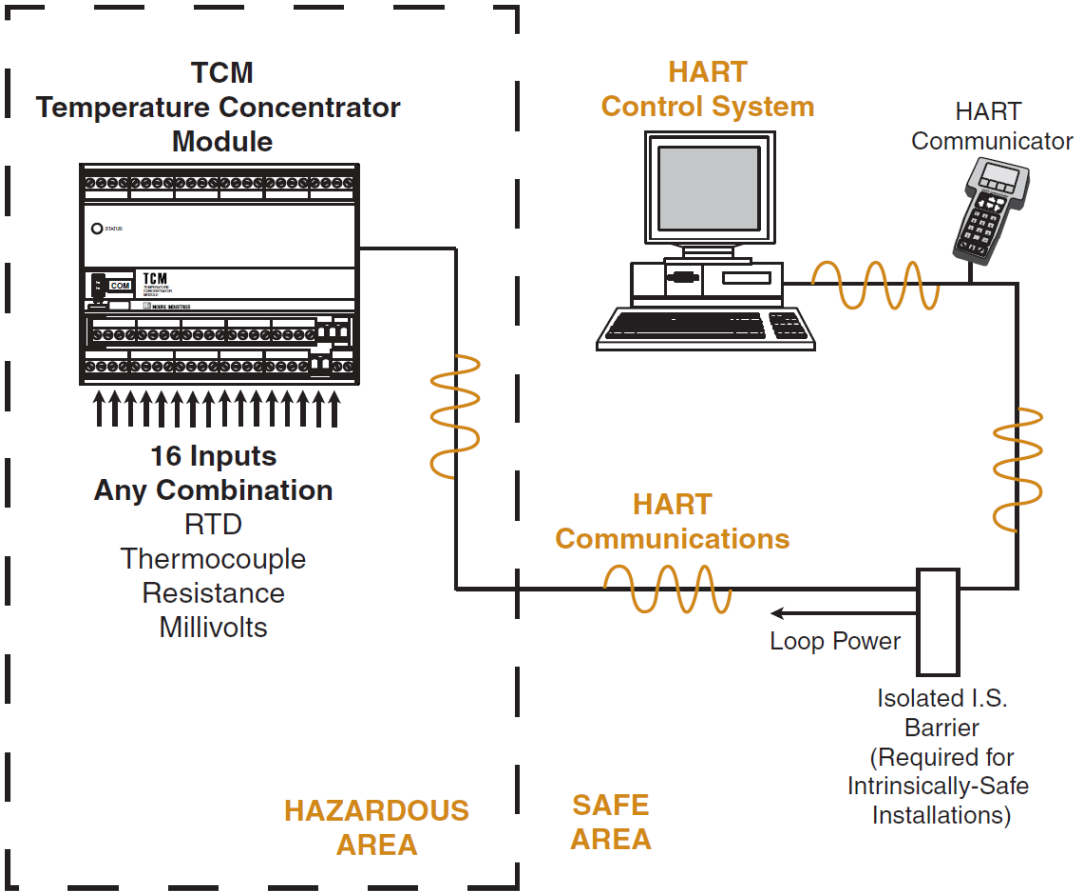
Intrinsically Safe Temperature Concentrator System

HART COMMUNICATION PROTOCOL

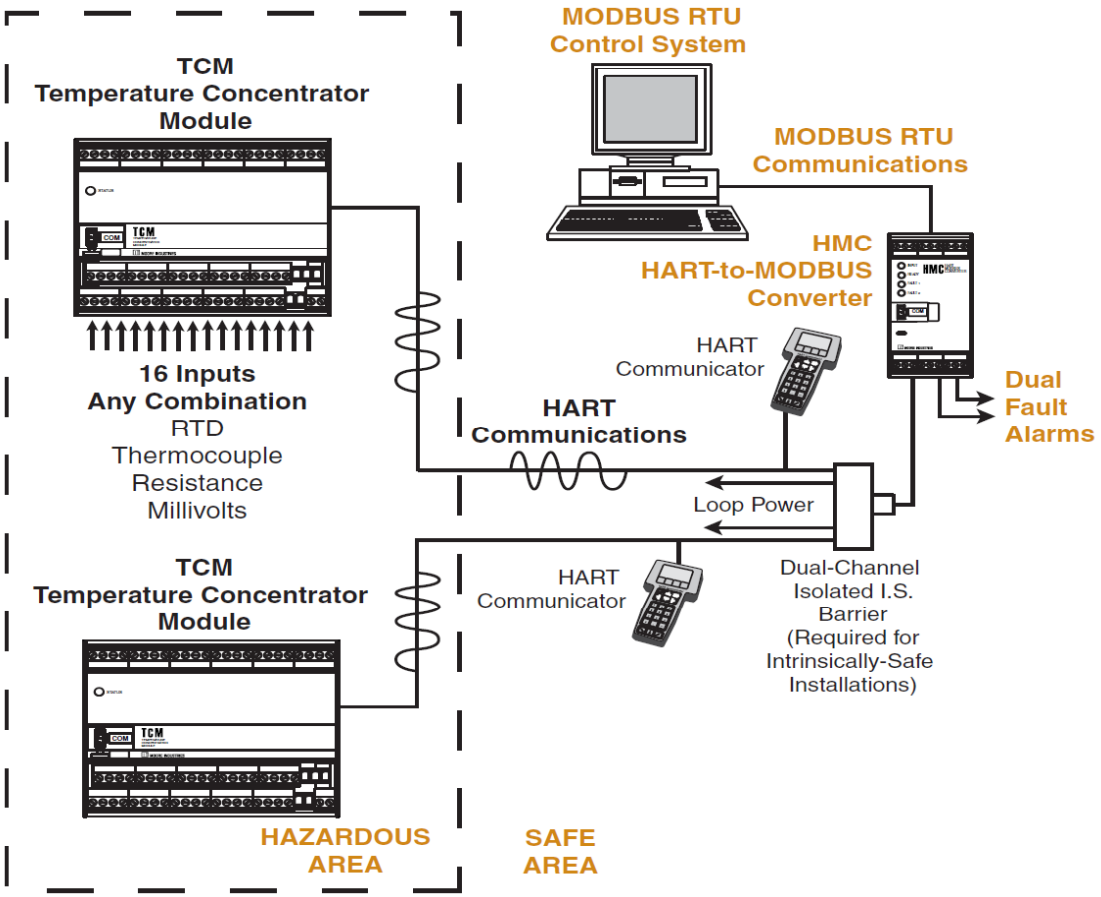
- Up to 32 Channels per Network
- HART and PC configurable
- 2, 3 & 4-wire RTD or Thermocouple
- Transmitter like Sensor Diagnostics and performance, RTD ±0.1°C Accuracy
- Two communication modes; HART or MODBUS RTU (RS485)

HART Communications Mode



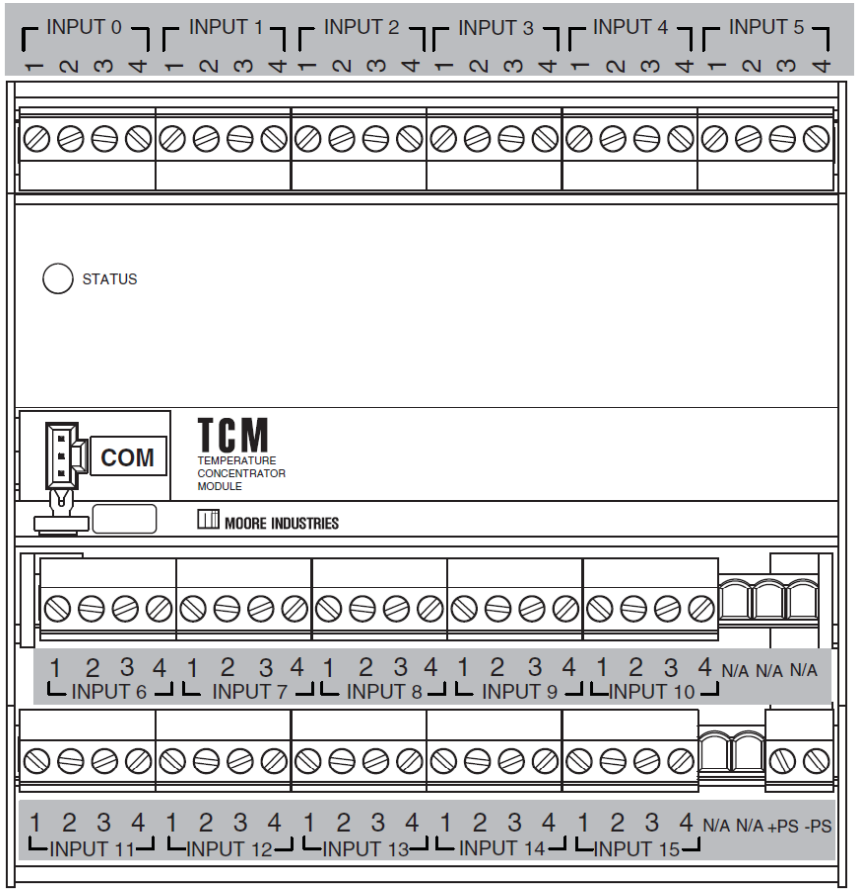
- 16 Channels
- TCM module is loop powered by I.S Barrier
- Each TCM channel is a HART slave, each channel has a unique HART address (0-15)
- Host system acts as HART master
- Each HART channel has to be individually polled by HART master

MODBUS Communications Mode



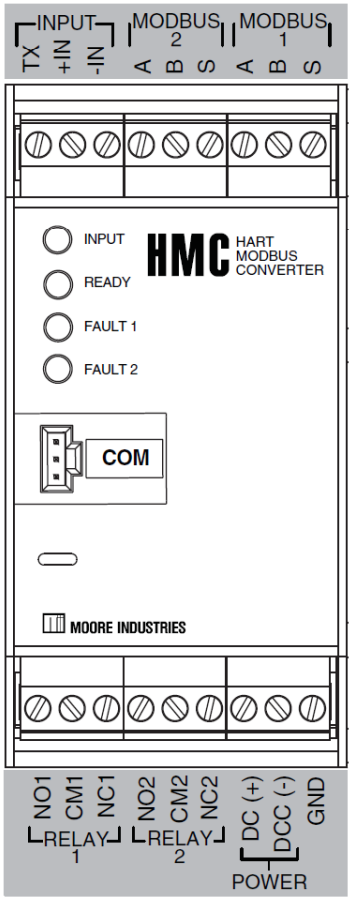
- 16 or 32 Channels
- TCM modules are loop powered by I.S Barrier
- Each TCM acts as a HART slave with 16 channels
- HMC acts as HART primary master
- Each TCM provides 16ch data in single HART response every 500ms
- HMC converts HART data to serial MODBUS RTU (RS485)

TCM: Temperature Concentrator Module



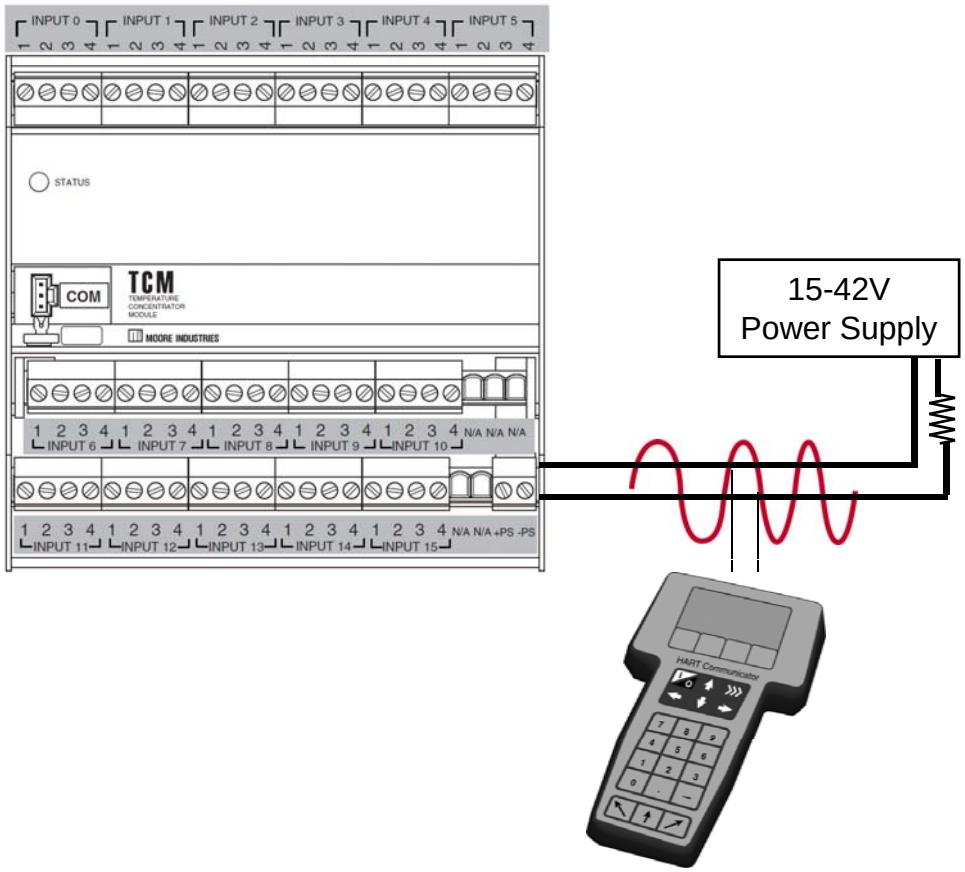
- 16 Channels
- RTD, ohms, potentiometer, T/C and mV Inputs
- Configure Inputs with HART Hand-Held communicator or free PC software
- Loop-powered from I.S Barrier, HART based host system or HMC module
- Installs in Hazardous Area; Zone 0 Exia (Class 1 Div 1), or Zone 2 Type N (Class 1 Div 2)

HMC: HART to Modbus Converter



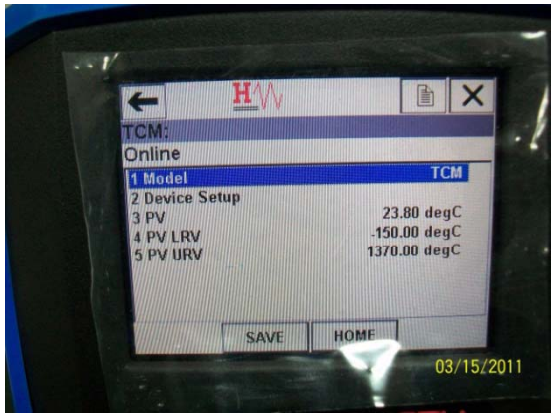
- Can supply power to one or two TCM's
- Acts as HART primary master
- Programs with PC software
- Two Fault Alarms: one for each TCM, alarm on loss of HART comms or sensor input
- Dual MODBUS RTU (RS485) comms
- Installs in Safe Area

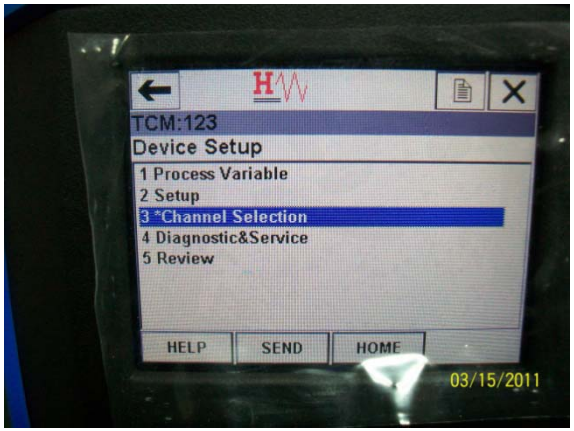
TCM Setup Using HART Hand Held Communicator

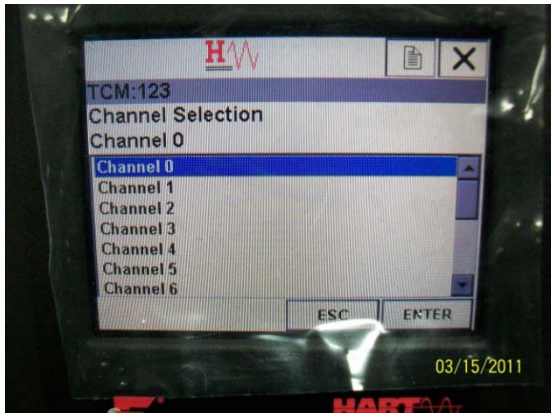


- HART HHC/Modem connects anywhere on the HART loop (downstream of HMC)
- HART based HOST system (AMS) can also configure and communicate with TCM
- Configure Sensor Type, Range, Eng Units, Tag, etc.
- Fault status with HHC: Sensor wire broken, Out of range error, perform self test, etc.
- Calibrate with HHC: Input Capture & Sensor Trimming
- Perform maintenance in Hazardous Areas

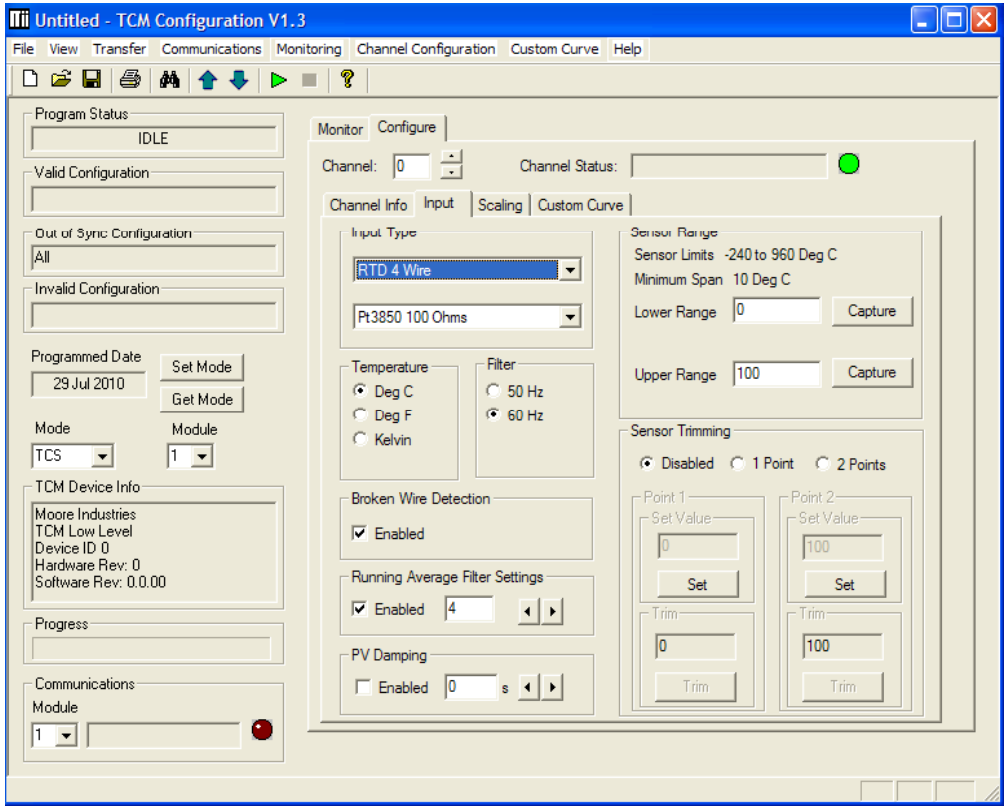
TCM Setup Using HART Hand Held Communicator





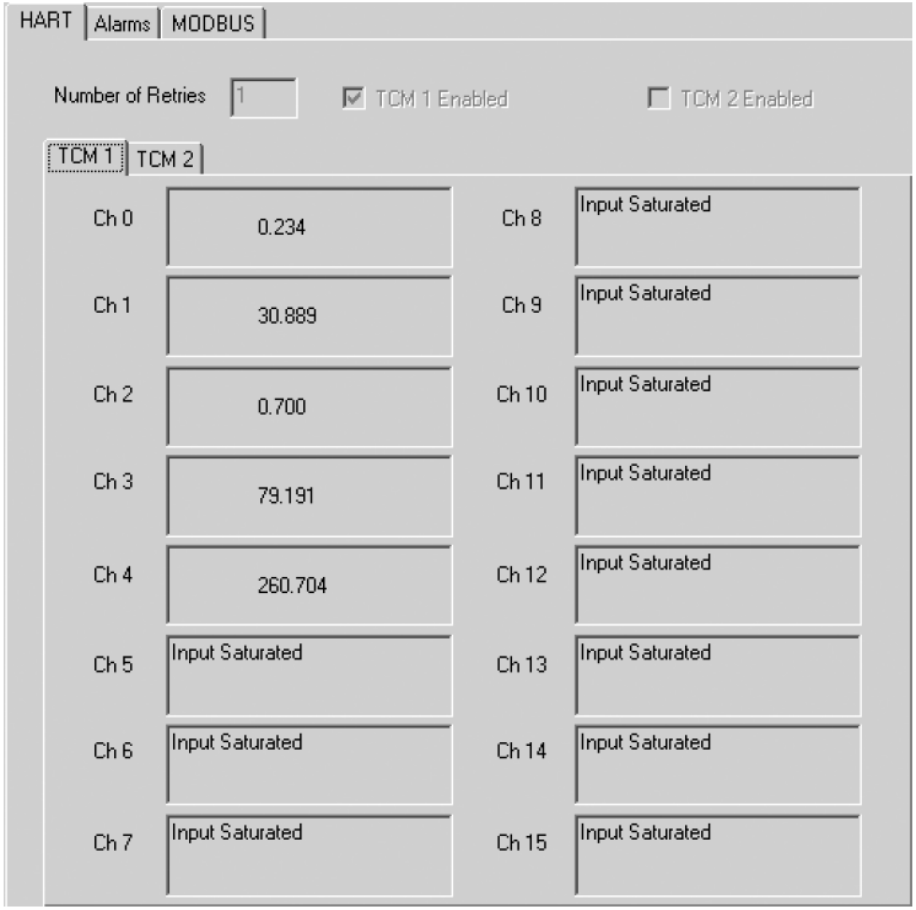


TCM Setup Using PC Software



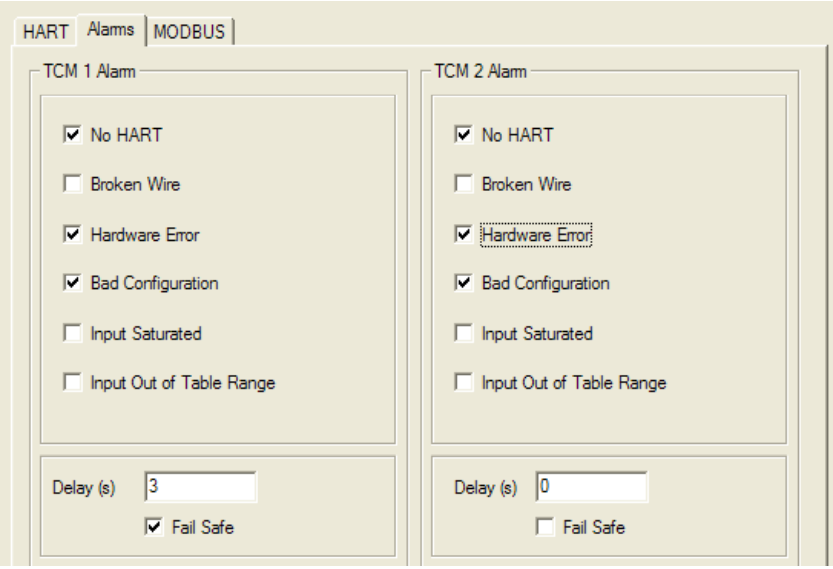
- Free PC software supplied
- Simple intuitive programming
- Front panel connection via Serial or USB cable
- Configure Sensor Type, Range, Eng units, Tag, etc.
- Calibration functions: Input Capture & Sensor Trimming

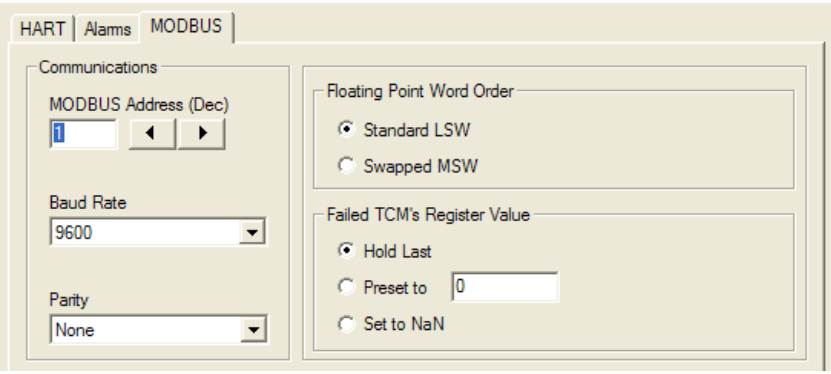
HMC Setup Using PC Software



- Monitor TCM 1 / TCM 2: Displays the PV & Channel Status of each connected TCM
- Number of Retries can be set between 1-9 which determines how many times the HMC attempts to communicate with the TMC (without success) before triggering HMC Fault Alarm
- Fault Alarm is non-latching

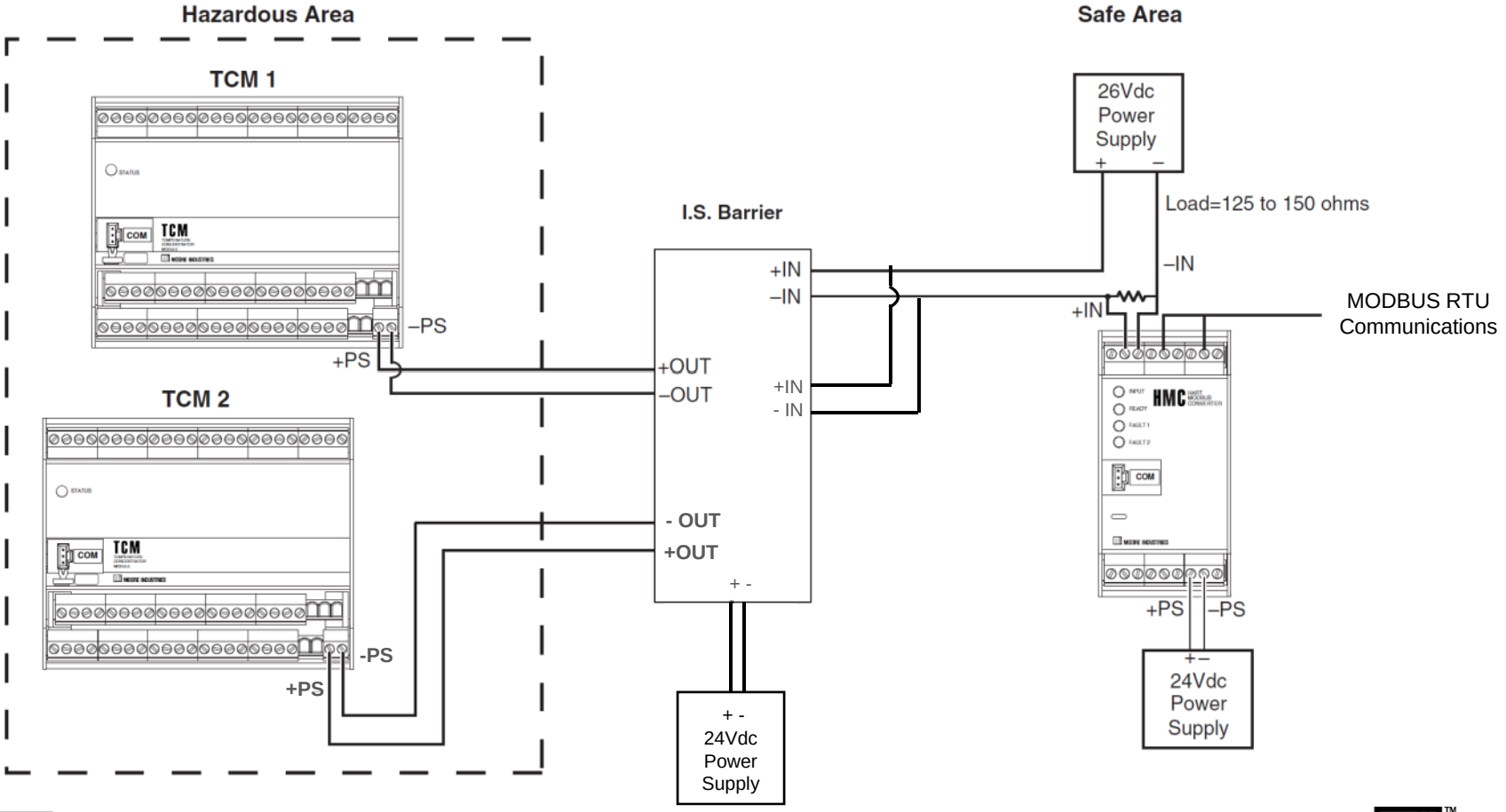
HMC Setup Using PC Software



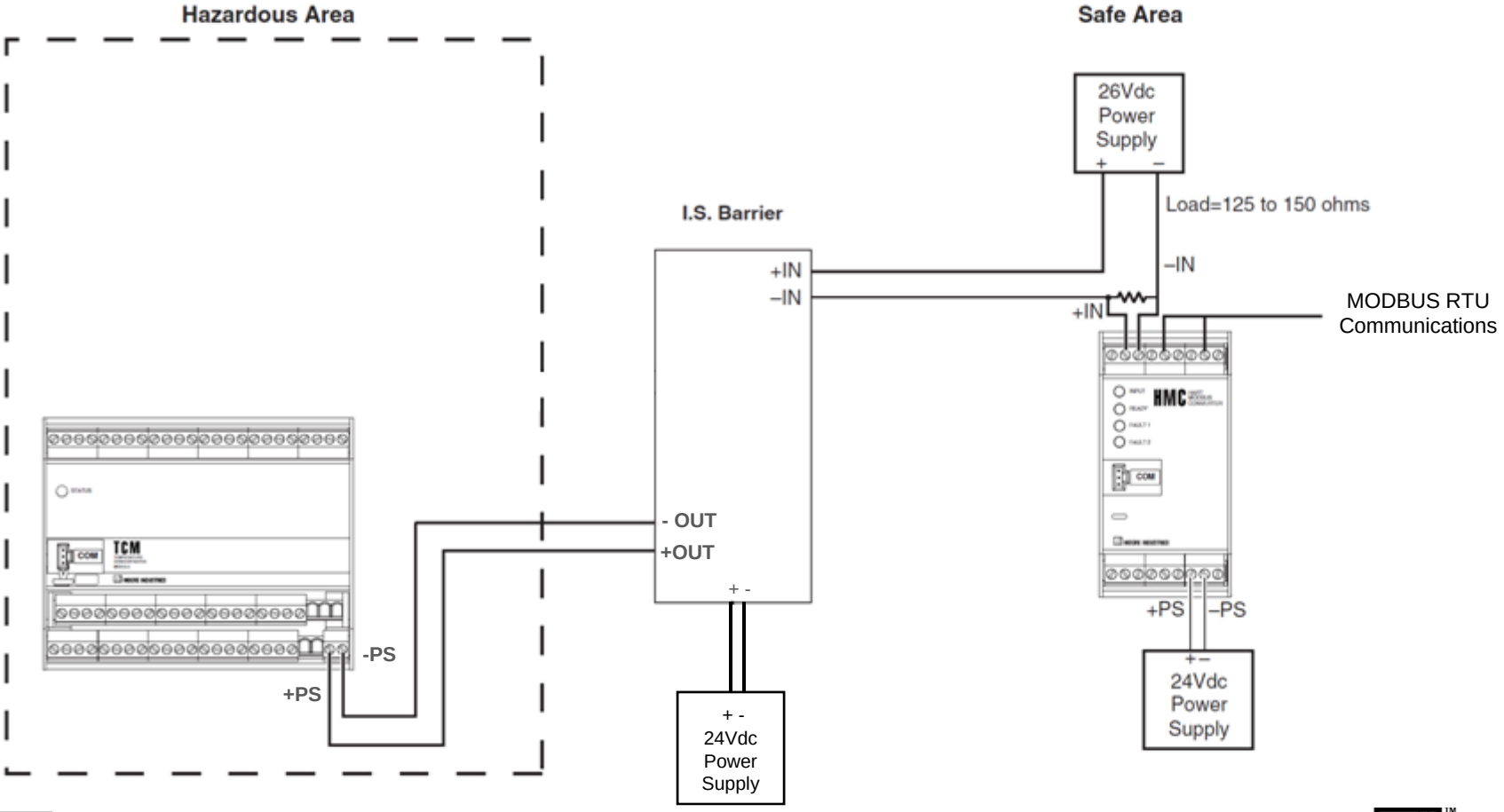


- Fault Alarms: two SPDT 2A, 250Vac non-inductive relays
- Alarms can be set for loss of HART comm, sensor failures, config errors, hardware errors and PV out of range
- Alarms are non-latching and can be set for Fail Safe or Non Fail Safe
- MODBUS RTU settings:
  - Address
  - Baud Rate
  - Parity
  - Float word order
  - PV register values on loss of communication with TCM

TCS Intrinsically Safe Wiring – Dual Channel Barrier



TCS Intrinsically Safe Wiring – Single Channel Barrier



Intrinsically Safe Temperature Concentrator System

HART COMMUNICATION PROTOCOL

- Transmitter Like performance with; 20 bit input resolution & 5 year stability specification
- Eliminates the need for dedicated transmitters or expensive cable installations
- 500Vrms Input to Output Isolation
- Robust design allows -45 to +85°C operation
- Enclosures available for field mounting