F.3 Data Values Common to Fieldbus Networks

All six optional fieldbus networks report alarm, fault and concentration information.

F.3.1 Alarms and Faults

The alarm status of each point is reported as a single byte. The meaning of that byte is as listed in Table F-3. Similarly, the fault status of each analyzer is reported as a single byte. The meaning of the fault byte is listed in Table F-3.

Alarm/ Fault value	LonWorks SNVT_lev_ disc value	Alarm Interpretation	Fault Interpretation
0	ST_OFF	No Gas	No Fault
1	ST_LOW	Warning of non-zero concentration below Alarm Level 1	Maintenance Fault Present
2	ST_MED	Alarm Level 1 Exceeded	Instrument Fault Present
3	ST_HIGH	Alarm Level 2 Exceeded	Both Faults Present

Table F-3: Alarm and Fault Interpretations

F.3.2 Concentrations

Finally, the concentration information is reported as one 16-bit word for each point as shown in Table F-4.

Value	Description
0	Analyzer not present
3120	Instrument Fault exists (only if configured)
6241 to 31206	Normalized concentration from zero to the 20 mA full scale value as set in the point configuration.

Table F-4: Interpretation of Concentration Values

Fault status can be superimposed over the concentration information in a manner similar to legacy 4-20 mA analog outputs. -- the output will drop below nominal if an instrument fault exists. However, indication of faults via the concentration output is disabled by default. It can be turned on in the configuration profile as shown in Figure F-1 below. For details see Section 3.7 Configuration Utility.

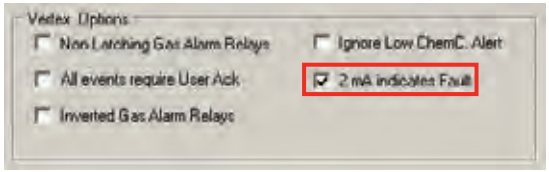

Figure F-1

If the concentration is non-zero and a fault exists, the concentration value will take priority and be reported. It is not possible to detect the existence of maintenance faults from the concentration outputs.

Unlike previous Honeywell Analytics products, the full-scale value of the concentration output is not equal to the full scale value of the gas table by default. Instead the full scale (31206 count) level defaults to twice the threshold limit value (TLV). Therefore an output of 12482 counts corresponds to a gas concentration of 0.5 TLV and 18723 counts corresponds to 1.0 TLV by default. This can be altered by editing the configuration profile as shown in Figure F-2.

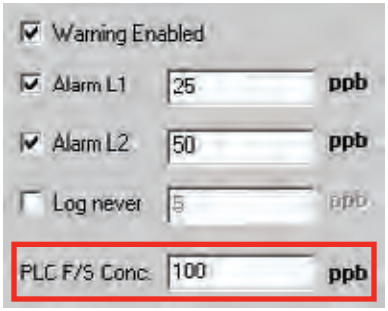

Figure F-2

For more information on the configuration profile see Section 3.7.4 Configure Point.

If the concentration data is to be used only for visualization and datalogging, it may be more convenient to capture this information through OPC (See F.2 OLE for Process Control (OPC) Interface). This avoids the requirement of scaling the value to get actual concentration. The concentration is available through the highly-reliable fieldbus for those customers who wish to make shutdown decisions based on concentrations instead of alarm levels.

F.3.3 Heartbeat

A heartbeat counter is provided with some of the fieldbusses in word 40. This increments every second to confirm that the internal PLC is running and that communications is working. External equipment communicating with the Vertex via Ethernet/CIP, LonWorks or Profibus must verify that this value is changing to be certain that the PLC is operating.

Each optional fieldbus interface is implemented using commercial communications modules connected to the internal PLC. In the Vertex the modules function as slaves only, although the hardware may be capable of acting as scanners or masters when installed elsewhere.

F.4 Data Map

Five of the optional fieldbusses (all except LonWorks) report the status of the Vertex in the same 122 word (244 byte) format which is listed in Table F-5. If concentration information is not needed, only the first 41 words must be read. This significantly reduces the consumption of scanner memory. For Ethernet/CIP, see Table F-8.

Word Address	Hi Byte	Lo Byte
0	Pt 1-1-1 Alm	Pt 1-1-2 Alm
1	Pt 1-1-3 Alm	Pt 1-1-4 Alm
2	Pt 1-1-5 Alm	Pt 1-1-6 Alm
3	Pt 1-1-7 Alm	Pt 1-1-8 Alm
4	Pt 1-2-1 Alm	Pt 1-2-2 Alm
5	Pt 1-2-3 Alm	Pt 1-2-4 Alm
6	Pt 1-2-5 Alm	Pt 1-2-6 Alm
7	Pt 1-2-7 Alm	Pt 1-2-8 Alm
8	Pt 1-3-1 Alm	Pt 1-3-2 Alm
9	Pt 1-3-3 Alm	Pt 1-3-4 Alm
10	Pt 1-3-5 Alm	Pt 1-3-6 Alm
11	Pt 1-3-7 Alm	Pt 1-3-8 Alm
12	Pt 2-1-1 Alm	Pt 2-1-2 Alm
13	Pt 2-1-3 Alm	Pt 2-1-4 Alm
14	Pt 2-1-5 Alm	Pt 2-1-6 Alm
15	Pt 2-1-7 Alm	Pt 2-1-8 Alm
16	Pt 2-2-1 Alm	Pt 2-2-2 Alm
17	Pt 2-2-3 Alm	Pt 2-2-4 Alm
18	Pt 2-2-5 Alm	Pt 2-2-6 Alm
19	Pt 2-2-7 Alm	Pt 2-2-8 Alm
20	Pt 2-3-1 Alm	Pt 2-3-2 Alm
21	Pt 2-3-3 Alm	Pt 2-3-4 Alm
22	Pt 2-3-5 Alm	Pt 2-3-6 Alm
23	Pt 2-3-7 Alm	Pt 2-3-8 Alm
24	Pt 3-1-1 Alm	Pt 3-1-2 Alm
25	Pt 3-1-3 Alm	Pt 3-1-4 Alm
26	Pt 3-1-5 Alm	Pt 3-1-6 Alm
27	Pt 3-1-7 Alm	Pt 3-1-8 Alm
28	Pt 3-2-1 Alm	Pt 3-2-2 Alm
29	Pt 3-2-3 Alm	Pt 3-2-4 Alm
30	Pt 3-2-5 Alm	Pt 3-2-6 Alm
31	Pt 3-2-7 Alm	Pt 3-2-8 Alm
32	Pt 3-3-1 Alm	Pt 3-3-2 Alm
33	Pt 3-3-3 Alm	Pt 3-3-4 Alm
34	Pt 3-3-5 Alm	Pt 3-3-6 Alm
35	Pt 3-3-7 Alm	Pt 3-3-8 Alm
36	Az 1-1 Flt	Az 1-2 Flt
37	Az 1-3 Flt	Az 2-1 Flt
38	Az 2-2 Flt	Az 2-3 Flt
39	Az 3-1 Flt	Az 3-2 Flt
40	Az 3-3 Flt	HeartBeat

Table F-5: Fieldbus Data Addresses (Except LonWorks)

Table F-5: Fieldbus Data Addresses (Except LonWorks) (cont'd)

Word	Address	Word	Address	Word	Address
41	undefined	68	Pt 1-3-3 Conc	95	Pt 2-3-6 Conc
42	undefined	69	Pt 1-3-4 Conc	96	Pt 2-3-7 Conc
43	undefined	70	Pt 1-3-5 Conc	97	Pt 2-3-8 Conc
44	undefined	71	Pt 1-3-6 Conc	98	Pt 3-1-1 Conc
45	undefined	72	Pt 1-3-7 Conc	99	Pt 3-1-2 Conc
46	undefined	73	Pt 1-3-8 Conc	100	Pt 3-1-3 Conc
47	undefined	74	Pt 2-1-1 Conc	101	Pt 3-1-4 Conc
48	undefined	75	Pt 2-1-2 Conc	102	Pt 3-1-5 Conc
49	undefined	76	Pt 2-1-3 Conc	103	Pt 3-1-6 Conc
50	Pt 1-1-1 Conc	77	Pt 2-1-4 Conc	104	Pt 3-1-7 Conc
51	Pt 1-1-2 Conc	78	Pt 2-1-5 Conc	105	Pt 3-1-8 Conc
52	Pt 1-1-3 Conc	79	Pt 2-1-6 Conc	106	Pt 3-2-1 Conc
53	Pt 1-1-4 Conc	80	Pt 2-1-7 Conc	107	Pt 3-2-2 Conc
54	Pt 1-1-5 Conc	81	Pt 2-1-8 Conc	108	Pt 3-2-3 Conc
55	Pt 1-1-6 Conc	82	Pt 2-2-1 Conc	109	Pt 3-2-4 Conc
56	Pt 1-1-7 Conc	83	Pt 2-2-2 Conc	110	Pt 3-2-5 Conc
57	Pt 1-1-8 Conc	84	Pt 2-2-3 Conc	111	Pt 3-2-6 Conc
58	Pt 1-2-1 Conc	85	Pt 2-2-4 Conc	112	Pt 3-2-7 Conc
59	Pt 1-2-2 Conc	86	Pt 2-2-5 Conc	113	Pt 3-2-8 Conc
60	Pt 1-2-3 Conc	87	Pt 2-2-6 Conc	114	Pt 3-3-1 Conc
61	Pt 1-2-4 Conc	88	Pt 2-2-7 Conc	115	Pt 3-3-2 Conc
62	Pt 1-2-5 Conc	89	Pt 2-2-8 Conc	116	Pt 3-3-3 Conc
63	Pt 1-2-6 Conc	90	Pt 2-3-1 Conc	117	Pt 3-3-4 Conc
64	Pt 1-2-7 Conc	91	Pt 2-3-2 Conc	118	Pt 3-3-5 Conc
65	Pt 1-2-8 Conc	92	Pt 2-3-3 Conc	119	Pt 3-3-6 Conc
66	Pt 1-3-1 Conc	93	Pt 2-3-4 Conc	120	Pt 3-3-7 Conc
67	Pt 1-3-2 Conc	94	Pt 2-3-5 Conc	121	Pt 3-3-8 Conc

F.5 Profibus Option (P/N 1295-0275)

Profibus is a vendor-independent, open fieldbus standard for a wide range of applications in manufacturing and process automation. Vendor independence and openness are ensured by the international standards EN 50170, EN 50254 and IEC 61158. Profibus allows communication between devices of different manufacturers without any special interface adjustment. Profibus can be used for both high-speed time critical applications and complex communication tasks. Use of special Profibus media is required.

For more information about Profibus, see www.profibus.com. Technical information on the Woodhead Connectivity / SST model

SST-PFB-SLC module which is used in the Vertex is available from

http://www.woodhead.com/products/automation/networkinterface/PLCBackplaneModules/.

The data map used by the Profibus interface is shown in Table F-5. The interpretation of the data is in Tables F-3 and F-4. The network management tool will need a .GSE file to describe every slave on the network. The vertex.gse file can be copied from any Vertex at c:\hmi\Profibus\vertex.gse.

F.5.1 Termination

The Profibus adapter PCB assembly shown in Figure F-3 facilitates using standard large Profibus connectors without creating mechanical interferences with the back panel of the Vertex rack. Additionally, this functions as a Profibus terminator if JP1 through JP3 are shorted. If termination is not desired then JP1 through JP3 should be cut as shown. This is Honeywell Analytics part number 1295A0372.

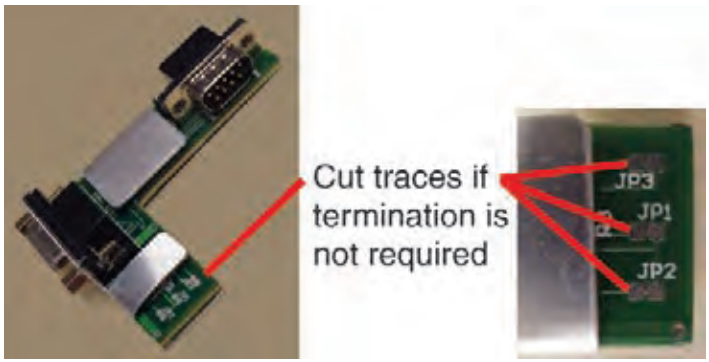

Figure F-3

F.5.2 Profibus Module Configuration

The Profibus interface is shipped from the factory with the address set to 3, the speed set to 19200 baud, and the memory length set to 122 words. The memory length to can be reduced to 41 words if only alarms and fault are needed. Changing any of these parameters requires Procedure 1.

F.1.1.	Obtain a computer with free RS232 serial port.
F.1.2.	Start a terminal emulator program such as HyperTerminal
F.1.3.	Configure the terminal emulator for 115200,N,8,1
F.1.4.	Connect the provided DB9 cable from the selected port on the computer to the top DB9 connector on the Profibus card.
F.1.5.	Take the SLC 5/03 PLC CPU out of run mode by turning the key briefly to “PROG” then back to “REM”. Verify that the RUN light is off. The Profibus card will not enter terminal mode if the PLC is running.
F.1.6.	Type asterisk (“ * ”)(Shift + 8) up to 5 times until the following message is displayed: Profibus Module (DP, FDL) Note: if pressing the asterisk (“ * ”) does not display the “terminal mode” prompt, first try a different baud rate (step 1.3), i.e. 38400. If it still is not displayed, carefully remove and reinsert the Profibus module on the PLC.
F.1.7.	Type “locstn xx” where xx is the desired Profibus address.
F.1.8.	Type “baud yyy” where yyy is the desired baud rate from the set {9k6,19k2,93k75,187k5,500 k,750k,1m5,3m,6m or 12m}.
F.1.9.	Type “shownet” and verify that the communications parameters are as desired.
F.1.10.	Type “slvtxlen 0 0 zzz” where zzz is the desired memory size in words, usually 41 or 122.
F.1.11.	Type “showslv” and verify that the communication parameters are as desired
F.1.12.	If additional information is desired type “help” and follow the instructions.
F.1.13.	Type “exit” to save the changes
F.1.14.	Put the SLC 5/03 PLC CPU into run mode by turning the key briefly to “RUN” then back to “REM”. Verify that the RUN light stays on.

Procedure 1 - Changing Profibus Configuration

F.6 DeviceNet Interface (P/N 1295-0329)

The DeviceNet network is a low-level network that provides connections between simple industrial devices and higher-level devices (such as PLC controllers and computers). DeviceNet network uses a combination of taps and shielded, twisted pair media for device connection.

For more information about DeviceNet, see www.odva.org.

Furthermore, the Allen Bradley DeviceNet Cable System Planning and Installation Manual is useful.

This can be downloaded from:

http://literature.rockwellautomation.com/idc/groups/literature/documents/um/dnet-um072_-en-p.pdf.

Technical Information on the Allen-Bradley 1747-SDN DeviceNet interface which is used in the Vertex is available at:

http://literature.rockwellautomation.com/idc/groups/public/documents/webassets/browse_category.hcst

The data map used by the DeviceNet interface is shown in Table F-5. The interpretation of the data is in Tables F-3 and F-4.

Successful commissioning of a DeviceNet Networks requires the use of a network management tool.

Such a tool can be constructed using a PC, an interface card and RSNetWorx or similar software. Use of special DeviceNet media is required. DeviceNet requires that each network segment include a power supply.

F.7 ControlNet Interface

ControlNet a real-time, control-layer network providing for high-speed transport of both time-critical I/O data and messaging data, including upload/download of programming and configuration data and peer-to-peer messaging, on a single physical media link. Deterministic and repeatable, ControlNet offers high-speed, media redundancy and intrinsically safe options.

For more information about ControlNet, see www.controlnet.org. Technical Information on the Allen-Bradley 1747-SCNR ControlNet interface which is used in the Vertex is available at:

http://literature.rockwellautomation.com/idc/groups/public/documents/webassets/browse_category.hcst

The data map used by the ControlNet interface is shown in Table F-5. The interpretation of the data is in Tables F-3 and F-4.

Successful commissioning of a ControlNet Networks requires the use of a network management tool. Such a tool can be constructed using a PC, an interface card and RSNetWorx or similar software.

F.8 DF1 Interface (P/N1295-0343)

This module emulates the DF1 slave functionality of an Allen-Bradley SLC 5/03 DF1 port. It responds to queries for data from the N14 integer file by sending alarm, fault, and concentration data.

The DF1 protocol is defined by the Allen-Bradley DF1 Protocol and Command Set Reference Manual which can be downloaded from:

http://literature.rockwellautomation.com/idc/groups/literature/documents/rm/1770-rm516_-en-p.pdf

Technical information on the ProSoft Technology MVI46-DFCM interface which is used in the Vertex can be found at

http://www.prosoft-technology.com

The baud rate and address of the DF1 interface are set using the configuration profile utility as described in See Section 3.7, Configuration Utility. Supported speeds range from 1200 to 57,600 baud with a default of 19,200. The DF1 address can be set from 2 to 127.

The data map used by the DF1 interface is shown in Table F-5. This appears as the N14 file. The interpretation of the data is in Tables F-3 and F-4.

Figure F-4

The pinout of the DF1 port is as follows:

RJ45 Pin	DB-9 Pin	RS-232 mode pin function	RS-422 mode pin function	RS-485 mode pin function
1	1		TxD+	TxD/RxD+
2	2	RxD	RxD+	
3	3	TxD		
4	4			
5	5	GND	GND	GND
6	6		RxD-	
7	7	RTS		
8	8	CTS	TxD-	TxD/RxD-
	9			

F.9 Modbus Plus Interface (P/N1295-0330)

For more information on Modbus Plus, see

http://eclipse.modicon.com. Technical information on the ProSoft Technology MVI46-MBP interface which is used in the Vertex can be found at

http://www.prosoft-technology.com

The address of the Modbus Plus interface are set using the configuration profile utility as described in See Section 3.7, Configuration Utility. Valid address values are from 1 to 64.

The ProSoft website contains the MVI46-MBP User Manual. Of particular interest in this manual are the general specifications on page 9 (in the pdf document) and the status LED interpretations on page 58 (in the pdf document).

Always wait for 20 seconds after energizing the PLC or changing the address before evaluating the LEDs.

The data map used by the Modbus Plus interface is shown in Table F-5. The interpretation of the data is in Tables F-3 and F-4.

F.10 LonWorks Interface (P/N 1295-0329)

The LonWorks protocol permits peer-to-peer communication without relying on a central controller. Routers permit expansion of networks to include thousands of nodes. For more information about LonWorks see http://www.echelon.com or www.engenuity.com

The LonWorks interface is implemented using a FieldServer Technologies model FS-B2011 bridge and other components. This is a purple box mounted below the PLC in the rear of the Vertex rack. The interface can be operated in either Polled Mode or Bind Mode. A service pin is provided for node identification. LED indicators are provided for Power, Run, System Error, and Configuration Error. Media type is FTT-10 twisted pair. Information on the FS-B2011 may be obtained from

http://www.fieldserver.com

The LonWorks external interface has 154 network variable outputs as listed in Table F-7. The interpretation of the data is in Tables F-3 and F-4

Function	Names			Type	Number
Alarms	nvoAlm_1_1_1	to	nvoAlm_3_3_8	SNVT_lev_disc	72
Faults	nvoFlt_1_1	to	nvoFlt_3_3	SNVT_lev_disc	9
Concentrations	nvoConc_1_1_1	to	nvoConc_3_3_8	SNVT_count	72
Heartbeat	nvoHeartbeat			SNVT_count	1

Table F-7: LonWorks Network Variable Outputs

F.11 Modbus/TCP (P/N1295-0520)

Modbus/TCP provides the highly reliable communications like the other fieldbusses over fast, economical Ethernet media. This interface uses ProSoft-Technology MVI46-MNET hardware. In the Vertex, this interface is always a TCP server, never a client. For more information see www.prosoft-technology.com. and www.modbus.org.

The 122 words of status information listed in Table F-5 are mapped as Modbus holding registers 40001 to 40122.

F.11.1 Configuring the IP Address

The following resources are needed to needed to set the IP address of the Vertex.

1. An external personal computer with Microsoft Windows 2000 or later operating system and an unused serial port.
2. The debugging cable shown in Figure F-5.
3. The file “WATTCP.CFG”. This may be supplied on a floppy disk or may be loaded in “C:\hmi\FieldbusFiles”

Figure F-5 -- Debugging Cable

Figure F-6 -- Connector Locations

Figure F-6 -- HyperTerminal Setup for Diagnostic Port

```
# WATTCP.CFG file for ProSoft Technology MVI46.DFNT
# 05/25/2005 MJG -- modify for Zellweger Analytics, Inc.
my_ip=10.1.162.99
netmask=255.255.255.0
gateway=10.1.162.1
```

Figure F-7 -- WATTCP.CFG File

This procedure is used to set the IP Address

Procedure 1

1. Determine the desired IP address, subnet mask, and default gateway. Usually a network administrator will assign these numbers. Note that the MVI46-MNET will not function as a client for the DHCP protocol.
2. Modify the WATTCP.CFG file for the correct Internet parameters using a suitable editor such as Notepad. The default file is shown in Figure F-7.
3. Connect the debugging cable from the external PC to the “DEBUG” port on the MVI-46 as shown in Figure F-6.
4. Start HyperTerminal and configure for 57600 baud.
5. Type “?” in HyperTerminal.
6. Verify that the menu to appears as shown in Figure F-6.
7. Type “M@?”.
8. Verify that HyperTerminal displays:

   NETWORK MENU

   ?=Display Menu

   R=Receive WATTCP.CFG

   S=Send WATTCP.CFG

   V=View WATTCP.CFG

   M=Main Menu
9. Type “RY”
10. On the HyperTerminal menu bar, click on <Transfer>/<Send>.
11. Click on <Browse> and navigate to the location of “WATTCP.CFG” in the PC.
12. Click on <Open> and then <Send>.

Note:

An error will occur if the user takes more that 50 seconds to perform this step. If an error occurs, repeat this procedure.

13. Verify that HyperTerminal displays:

    FILE TRANSFERRED FROM PC UNIT....
    THE MODULE MUST RESTART…

14. Cycle power to the PLC.
15. The WATTCP.CFG file may be conveniently viewed with the "V" command.

A 10/100BaseT Ethernet network cable may now be connected to the top RJ45 jack.

Notes

1. Honeywell strongly recommends that any gas detection network which is connected to the Internet be protected from unauthorized access by a firewall.
2. Honeywell recommends that a gas detection Ethernet network be separated from a general-purpose computer networks by a switch. This is because the transmission time of Ethernet networks is non-deterministic and can become large if the network is heavily loaded.
3. When the interface is correctly installed in the PLC backplane the "BP ACT" light will glow steady amber. The "OK" light will glow steady green.
4. The "LINK" indicator will glow steady green when a valid physical-layer connection is established to an Ethernet switch.
5. An external computer can confirm that the interface is set to the correct IP address by use of the "ping" command.
6. The MVI46-MNET contains a second configuration file named "MNET.CFG". If the module was purchased from Honeywell, this file will be preloaded. Otherwise, the file provided in "C:\hmi\FieldbusFiles" must be loaded.
7. The 122 words of Vertex status which are listed in Table F-5 may be viewed on the diagnostic port. These are mapped as registers 0 to 121 in the ProSoft database. Instructions on viewing the ProSoft database are in Chapter 6 of the ProSoft User Manual.
8. PC-based software for communicating with the MVI46-MNET and other Modbus/TCP devices may be purchased from Witte Software at www.modbustools.com

F.12 Ethernet/CIP (P/N1295-0519)

EtherNet/CIP provides the highly reliable communications like the other fieldbusses over fast, economical Ethernet media. This interface uses ProSoft-Technology MVI46-DFNT hardware. In the Vertex this interface is always a server, never a client. For more information see www.prosoft-technology.com and www.controlnet.org.

This interface provides 122 words of status information as listed in Table F-8. The presentation of this data varies depending on the type of client used. Examples of this presentation are included at the top of page 18 in the ProSoft User Manual and also in Table F-8, below.

WARNING

It is essential that Ethernet/CIP clients which communicate with the Vertex monitor the "Heart-beat" byte in word 40. This is because the MVI46-DFNT will continue to communicate if the Vertex PLC ceases to run. External automation equipment must be programmed to treat a failure of the heartbeat to increment as a complete loss of gas detection.

Database Address	Vertex Meaning	PLC2 Address	PLC5 or SLC Address	ControlLogix		
				PCC	CIP Byte	CIP Integer
0 to 35	point alarm status	0 to 35	N10:0 to N10:35	N10:0 to N10:35	SintData[0] to SintData[71]	Int_Data[0] to Int_Data[35]
36 to 40	analyzer fault status	36 to 40	N10:36 to N10:40	N10:36 to N10:40	SintData[72] to SintData[80]	Int_Data[36] to Int_Data[40]
	heartbeat				SintData[81]	
41 to 49	undefined	41 to 49	N10:41 to N10:49	N10:41 to N10:49	SintData[82] to SintData[99]	Int_Data[41] to Int_Data[49]
50 to 121	point gas concentration	50 to 121	N10:50 to N10:121	N10:50 to N10:121	SintData[100] to SintData[243]	Int_Data[50] to Int_Data[121]
122 to 3999	undefined	122 to 3999	N10:122 to N13:999	N10:122 to N13:999	SintData[244] to SintData[7999]	Int_Data[122] to Int_Data[3999]

Table F-8: Data Presentation in Various PLCs

F.12.1 Configuring the IP Address

The IP address of this interface is set using a procedure similar to that listed in Section F.11. The file "WATTCP.CFG" is modified with Notepad and downloaded with HyperTerminal.

Notes

1. Honeywell strongly recommends that any gas detection network which is connected to the Internet be protected from unauthorized access by a firewall.
2. Honeywell recommends that a gas detection Ethernet network be separated from a general-purpose computer networks by a switch. This is because the transmission time of Ethernet networks is non-deterministic and can become large if the network is heavily loaded.
3. When the interface is correctly installed in the PLC backplane the "BP ACT" light will glow steady amber. The "OK" light will glow steady green.
4. The "LINK" indicator will glow steady green when a valid physical-layer connection is established to an Ethernet switch.
5. An external computer can confirm that the interface is set to the correct IP address by use of the "ping" command.
6. The MVI46-DFNT contains a second configuration file named "DFNT.CFG". If the module was purchased from Honeywell, this file will be preloaded. Otherwise, the file provided in "C:\hmi\FieldbusFiles" must be loaded.
7. The 122 words of Vertex status which are listed in Table F-5 may be viewed on the diagnostic port. These are mapped as registers 0 to 121 in the ProSoft database. Instructions on viewing the ProSoft database are in chapter 6 of the ProSoft User Manual.
8. If desired, Allen-Bradley RSLinx software may be used to communicate with the MVI46-DFNT. This is explained in Appendix E of the ProSoft User Manual.

F.13 RSView32 Active Display Set-Up Instructions

Three terms have special meanings in this section:

Rack – The DAQ PC inside the Vertex rack.

Remote Station – A computer external to the Vertex rack. The desktop computer will be used to remotely view the Vertex rack PC.

Host ID Device – A USB ethernet device with memory that is used to node lock and hold the license when the Factory Talk activation method is used.

Note

In this process, it will be necessary to reboot the computer several times. For brevity, this instruction has been excluded. In general, reboot whenever prompted to or if a step fails.

Windows Update

Ensure that the current upgrades to the Microsoft Windows operating system have been installed by selecting the *Custom* option from *www.update.microsoft.com* as shown in Figure F-9.

Figure F-9

Ensure that all functionality is enabled by selecting *Hardware, Optional* from the Customized Windows Update as shown in Figure F-10.

Figure F-10

Add Rockwell Software to Rack

The RSView active display server is not installed on the rack unless the license has been purchased. Loading this software without a license file interferes with the Internet Information Service (IIS) needed for other Vertex functionality. Install this software only if it is licensed.

Two versions of RSView are currently active: 6.4 and 7.2. Both versions have three software components:

- RSView on the Vertex rack
- Active Display server on the Vertex rack
- Active Display client on the Vertex desktop

For Active Display to work properly, the revision levels of all three components must match. Determine the revision level of the installation by navigating to the About RSView32 screen:

Project > Stop Project > Help > About RSView32.

A screen similar to Figure F-11 will appear. The version number is highlighted in blue.

Figure F-11

Active Display software is distributed via a CD labeled *RSView32* and *Active Display*$_{TM}$. For users on the Honeywell network, this software is available in the Rockwell Software folder at *\\158.100.40.11\vtxinstl* . The splash screen is shown Figure F-12.

Install the server application on the rack by clicking *Install RSView32 Active Display Server* (highlighted in blue).

Figure F-12

Add Rockwell Software to Remote Computer

Install these three Rockwell packages on the remote computer:

- Active Display Client
- Security Controls
- TrendX

Active Display Client is installed using the program that installed the server on the rack. Click *Install RSView32 Active Display Client*, (highlighted in purple in Figure F-12) to begin the installation.

Rockwell Security Controls are found on the Honeywell Vertex Application Software CD. The setup program is *ActiveX\Security\setup.exe*. For those on the Honeywell network, this is found in the ActiveX\Security folder.

TrendX is distributed on the Honeywell Vertex Application Software CD and on the Honeywell network as the self-extracting zip file *ActiveX\ trendx v3.42.exe*.

Create a temporary folder on the desktop and unzip the program files there. Run the installation program by clicking on *setup.exe* in this folder.

When the setup program starts, click *Client Install*, highlighted in green in Figure F-13.

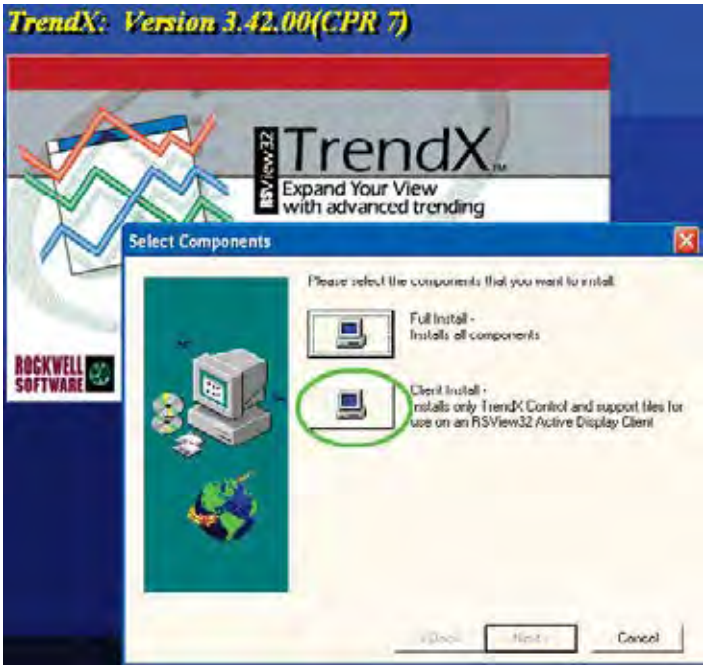

Figure F-13

When the Rockwell software is properly installed on the remote client, the Windows control panel program list will include the four programs highlighted in green in Figure F-14.

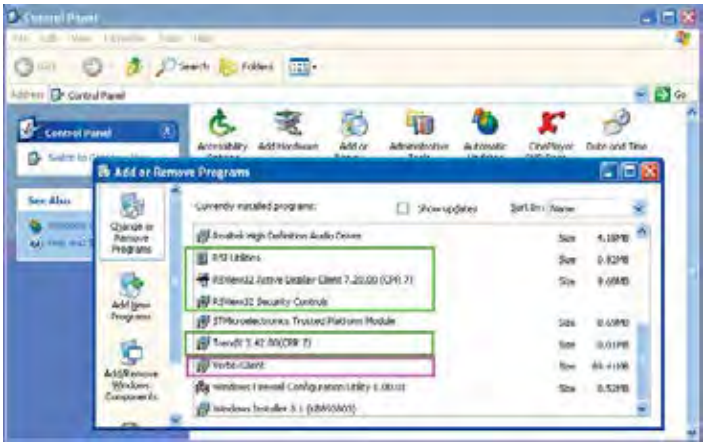

Figure F-14

Add Honeywell Software to Remote Computer

Software from Honeywell Analytics must be installed on the remote computer for correct operation. Run *SetupClient\setup.exe* found on the Vertex Application Software CD and also on the Honeywell network. After successful installation, “VertexClient” will appear in the desktop program list as highlighted in purple in Figure F-14.

CAUTION

Protect both the remote station and the network between it and the Vertex monitor from unauthorized contact. Software changes increase the vulnerability of the Vertex rack to malicious attack.

Add Rockwell License Files to the Rack (Master Disc Activation Method)

Moving license files requires that all Rockwell applications be shut down, including RSLinx. To stop RSLinx, right-click the RSLinx icon (highlighted in green below) and select *Shutdown RSLinx*.

Figure F-15

The Rockwell Move Activation utility moves license files between the original floppy disk and any non-removable file system. This program is started by navigating to the Move Activation screen:

Start > All Programs > Rockwell Software > Utilities > Move Activation

An example of a rack with several licenses is shown in Figure F-17.

Figure F-17

The number of licenses installed is highlighted in brown. The two lines underlined in blue must be present for the RSView HMI system to work. Additionally, the Active Display server license must be present in the rack for remote Active Display to work. This is highlighted in green. A floating client license may also be present on either the rack or the desktop PC. If a floating client is not used, a dedicated client license must be present on the desktop PC.

Add Rockwell License Files to the Rack (Factory Talk activation method)

The Rockwell Factory Talk activation method consists of a host ID device that contains the license file locked to that particular host device's MAC address and the Factory Talk Activation Tool software running on the rack computer. Factory Talk and Master Disc activations can be mixed on a Vertex rack. The advantage to this system is that the host device with the associated file is a standalone RSView activation system that can be used on any computer running that software. In case of a computer swap, no license moving is required; just plug the host device into the new computer.

If the Vertex Rack already uses Factory Talk Activation

The Factory Talk Activation Tool software will already be installed on the Vertex rack and configured to look for the Rockwell licenses on the connected host device (removable drive E:). The new software's license file must be generated and locked to that same host device. The Active Display software package will come with a certificate that contains the software serial number and product key required to complete the activation. Three methods are available to complete the activation:

Method 1

If the Vertex has access to the internet, use the Factory Talk Activation Tool already installed on the rack computer.

a. Shut down all Rockwell applications as described previously.

b. Start the Factory Talk Activation Tool from the desktop icon or navigate to the tool:

Start > All Programs > Rockwell Software > Factory Talk Activation > Factory Talk Activation Tool

c. On the *Get Activations* tab, click the button for *Open Activation Wizard.*

d. Click *Next* on the welcome screen, then on the *Path Selection* screen. The recommended path will be on the hard drive. Leave this as the default so the file will be stored on the hard drive as a backup. Click *Next*.

e. Enter the serial number and product key into the appropriate fields.

f. Select the number of activations to download (one per serial number), click *Next*.

g. Select the *I need product activation for this computer* radio button. Click *Next*.

h. Choose the host ID that matches the MAC address of the host device on the rear of the

rack computer (the description will be similar to "Realtek RTL8150 USB 10/100 Fast Ethernet Adapter #x". Click *Next*.

i. Verify the information on the confirm screen and click *Next*.

j. On the following screen, note the file name and location that the file is stored, browse to that directory, then copy the file to the memory of the host device (right click the file, select *Send to*, then select *Removeable disk E*).

Method 2

If the Vertex is not connected to the internet, use a computer to generate an activation file and copy it to the host device on the Vertex. Go to the site:

activate.rockwellautomation.com/Default.aspx.

a. Click the *Get New Activations* link to activate without installing Factory Talk Activation Manager.

b. Select *Download activations to this computer* and click *Next*.

c. For host ID type, select *Network MAC Address.* Enter the MAC address found on the bottom of the USB host device on the rear of the rack computer. Enter the serial number and product key from the software certificate.

If installing multiple floating clients on a single rack, click the + sign on the left end of the line, then enter the serial number and product key of the additional license. Click *Next*.

d. A table will then show how many activations are available for each license. This will typically be *1*, so select *1* from the dropdown box for each licence to download. Click *Next*.

e. Download the activation file from the next screen and transfer it to the root directory of the memory portion of the USB device installed on the rear of the rack computer.

Method 3

Phone 1-440-646-3434, select *Option 3* (Technical Support), select *Option 1* (Direct Dial), select *Option 1* again and enter the three-digit code *010*. Have the serial number and product key from the certificate and the MAC address from the sticker on the bottom of the the host device ready. Tell the customer service representative (CSR) you need to activate RSview software. The CSR will create the file and email it to you and then guide you through the activation steps.

If the Vertex Rack does not currently use Factory Talk Activation:

The Factory Talk Activation Tool software must be installed on the Vertex rack and configured. A host device must also be purchased to host the license. The Factory Talk Activation Tool is on the same CD as the software in the *FactoryTalk_ Activation_3.02* directory.

1. Double click the *setup.exe* file in that directory and follow the directions. (Do not install the HASP dongle drivers.)

2. After installation, plug the Host device into the rack computer and install the drivers (The drivers are stored within the device itself.)

3. Start the Factory Talk Activation Tool from the desktop icon or navigate to it from the Start menu:

Start > All Programs > Rockwell Software > Factory Talk Activation > Factory Talk Activation Tool

4. On the *Settings* tab, click the + sign above the box for *Folders and servers searched by applications:*. In the entry field that opens, enter *E:* or use the browse button at the end of the field to browse to the removable memory device.

5. Repeat step 4 for the *Folders searched by local applications* box.

6. Check the box with *Browse for activations on start-up*.

7. Click the *Start* button to open the activation server.

8. Continue with either of the activation methods to activate the new software.

Configure DCOM on Rack

Successful operation of a remote Vertex display requires numerous changes to the Windows operating system using the *dcomcnfg* program. This is started as shown in Figure F-18.

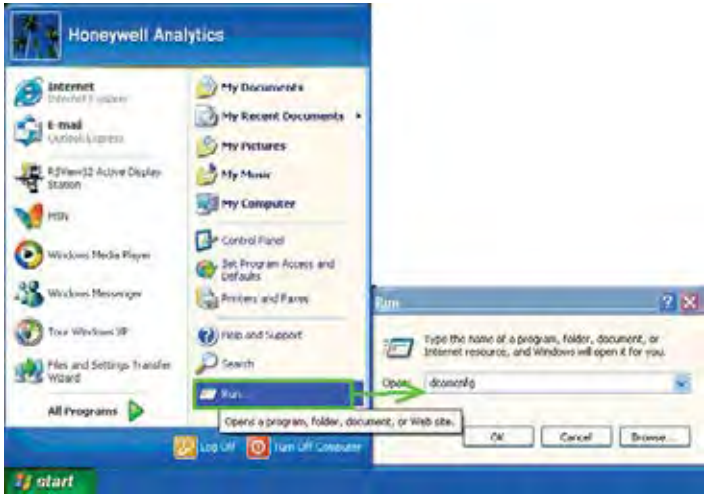

Figure F-18

When *OK* is clicked, a Microsoft Component Services Management Console window, shown in Figure F-19, will appear. If a *DCOM Configuration Warning!* message appears (similar to the one in Figure F-18), close it by clicking *Yes*.

Figure F-19

Default security for the entire computer as well as security settings for individual programs can be set with this tool. These four programs selected in Figure F-20 require special attention:

- ChemCamServer
- HvSvr.Xtimer
- Interface for automated file transfer
- Interface for Vertex PLC Utility

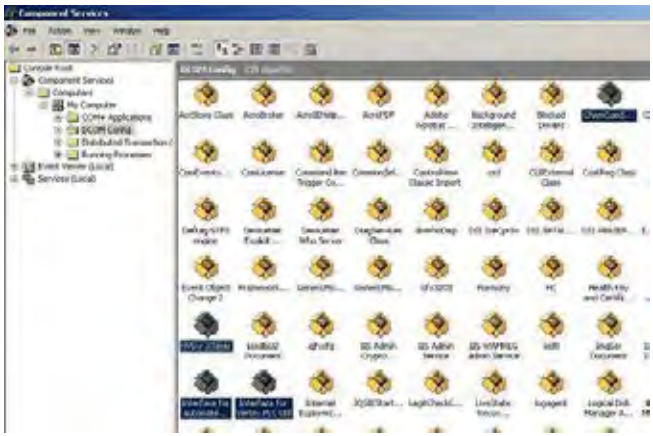

Figure F-20

Security bits are set by clicking on one of the four edit buttons highlighted in purple in Figure F-21. An *Access Permission* window will appear; objects to receive permission are listed at the top, highlighted in brown. Permissions are set with checkboxes below, highlighted in green.

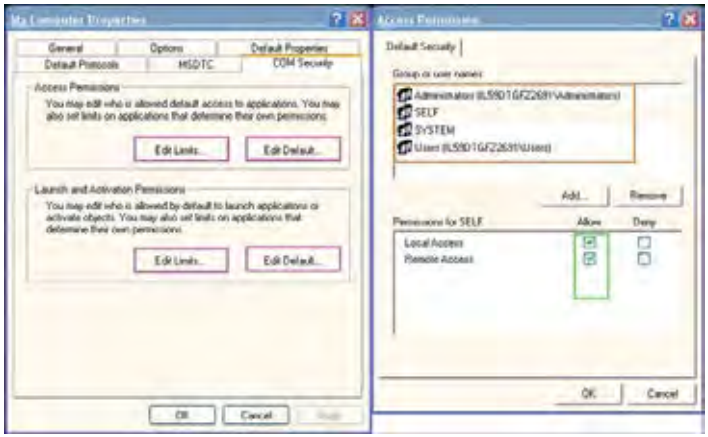

Figure F-21

The necessary DCOM permission settings are listed in tabular form below for brevity. In many cases, it will be necessary to add new objects as shown in Figure F-22.

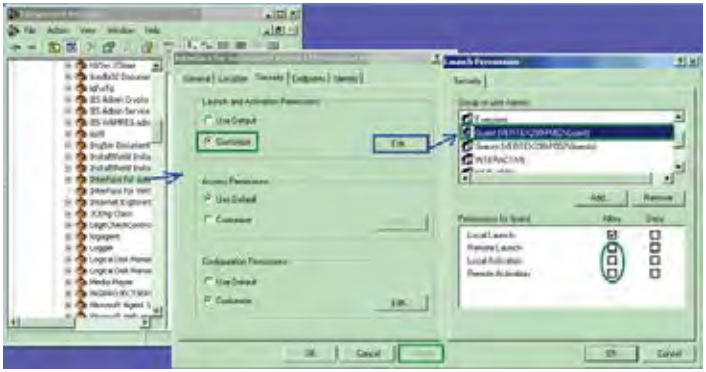

Figure F-22

Typical objects that might be added:

- Administrators
- ANONYMOUS LOGON
- Everyone
- Guests
- INTERACTIVE
- NETWORK
- SYSTEM
- Users

Other Settings on Rack

None.

Other Settings on Desktop

Windows' firewall is incompatible with Active Display and must be turned off. Select

Start > *Control Panel* > *Windows Firewall* > *Off*

as shown in Figure F-23.

Figure F-23

Create Matching Windows Accounts

Microsoft Windows security requires that matching accounts exist on both the rack and the desktop to provide the necessary credentials. Vertex racks ship with an account named *Honeywell Analytics* with the password *vertex*. Create a similar account on the desktop by selecting

Start > *My Computer* > right-click on *Properties*.

Add a new account as shown in Figure F-24 and add *Honeywell Analytics* to the *Administrators* group.

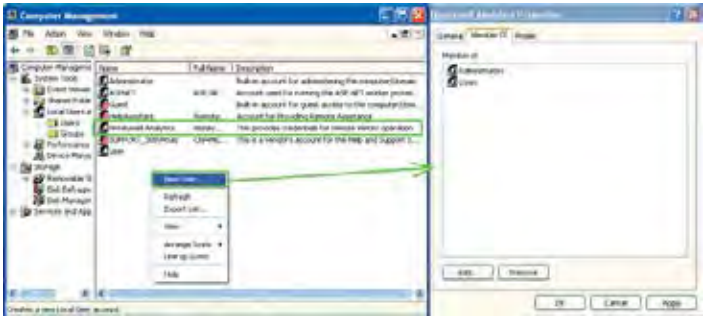

Figure F-24

Create HMI account (optional)

It is often useful to create multiple HMI accounts. This facilitates using the HMI security system to control access to the HMI's features as described in *Section 4.6.6 Security Access*. Alternatively, the *Admin* account with the password *Admin* can be used.

Creating an Active Display Account

On the remote computer, navigate to

Start > All Programs > Rockwell Software > RAD System > RSView32 Active Display Station.

A dialog similar to Figure F-25 will appear. Create a name for the Window then click *Next*.

A dialog similar to Figure F-26 will appear. Enter the name of the Vertex rack to be displayed (either the IP address or the hostname can be used). The button highlighted in purple facilitates searching for the rack by hostname.

Figure F-25

Figure F-26

Select *Next*.

Figure F-27

Click the *Save user name and password* (shown in Figure F-27) checkbox and then click *OK*.

Figure F-28

Figure F-29

Figure F-30

Figure F-31

Debugging

1. Occasionally, a failed operation is manifested by the desktop Active Display screen being all gray with no error messages. If this occurs, verify the correct network gateway setting by performing *ipcofig /all* from the command prompt as shown in Figures 30 and 31.

2. Failures because of DCOM settings are often accompanied by records in the Windows event log. These can be viewed by selecting

Start > My Computer > Manage.

Events correlated in time with the undesired behavior and any “Error” merit attention.

More detailed information as shown in Figure F-32 can be viewed by double-clicking on the event.

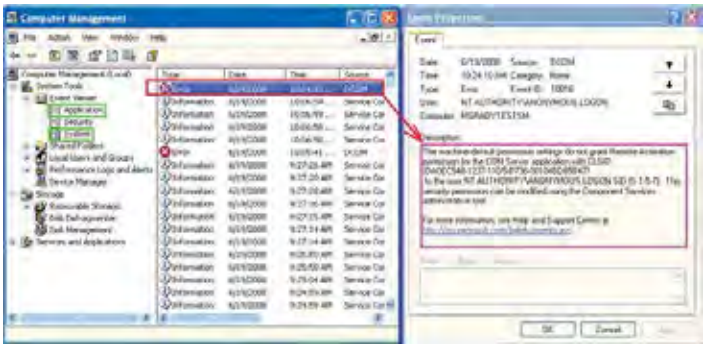

Figure F-32

G Line Integrity Test Option

Honeywell Analytics now offers the optional capability to check for leaks in Vertex sample lines. Analyzers equipped with option 1295-0510 detect a pneumatic signal from valves installed at the end of the sample line. Any leak in the tubing will cause a change in the signal and will be detected. This test is performed automatically as a line integrity test (LIT). This new test complements the ability of all Vertex analyzers to detect blocked sample lines.

The Line Integrity Test Option requires a minimum software revision of 1.21.1 and configuration of analyzer software by a Honeywell Analytics Field Service Engineer.

Pneumatic Overview

The pneumatic design of the Vertex rack is summarized in Figure 1. The Vertex analyzer contains eight sample pressure transducers, one for each point. The external tubing is terminated with a filter and a check valve. The check valve will not permit any flow until a “cracking” pressure of about 1.0 in. Hg is applied. (see Note 1) A leak between the analyzer and the check valve will result in an increase in pressure at the analyzer.

Before the LIT test can be performed, the Vertex and the external plumbing must be “characterized”. This process involves measuring the sample pressure when the tubes are known to be leak-free and otherwise correct. It is possible to confirm that a tube is leak-free by plugging the end and observing the sample flow decrease to zero. During the characterization process, the Vertex records the observed sample pressure. Later LIT tests will issue a fault if the sample pressure increases significantly. Performing the characterization without a leak check invalidates the LIT.

Note :

In this document all pressures are given in inches of mercury. This may be converted to kilopascals by multiplying by 3.38. Furthermore, all pressures are reported as gauge pressure, not as vacuum. Using this nomenclature, the effect of a sample line leak is described as a pressure increase instead of a vacuum decrease.

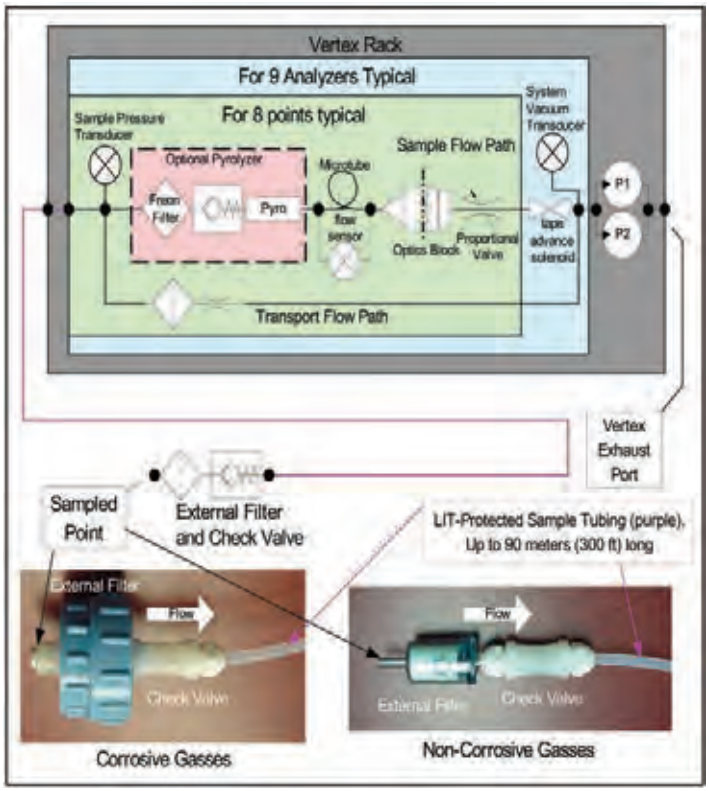

Figure G-1 -- Simplified Pneumatic Schematic

In practice, the sample pressure measurements are made as a differential measurement with the pump on and then off. This eliminates the effect of any transducer offset. However, since analyzers share a pump, performing the LIT requires that all analyzers stop monitoring. Pressures throughout the Vertex are allowed to stabilize for 30 seconds before taking any measurements. An LIT causes monitoring to be interrupted for about two minutes because of synchronization delays.

The test is not compatible with shared sample lines.

The use of external filters is mandatory with Vertex LIT as it is with all Vertex points. Appendix B, Specification, Section B.2 Filter Compatibility contains guidance on filter selection.

Quantitative Performance

The pressure at the pump inlet must be less than -7.0 in Hg or the test will be inhibited. The sample line must be 4.8 mm ID [thin wall or 0.190 inch ID] and have a length of 90 meters or less. This supersedes table B-2 in Appendix B, Specifications.

The total gas flow (transport plus sample) is typically 1.3 liters per minute per point. This results in a differential pressure of about 1.2 in. Hg with the maximum tubing length. The check valve increases the differential pressure by an additional 1.0 in. Hg for a total of about 2.2 in Hg.

During characterization the differential pressure must be 0.8 in. Hg or more or a fault will be issued. During LI testing the differential pressure must be at least 70% of the characterization differential pressure or more or a fault will be issued. Leaks of 1 mm [0.039 inch] diameter or larger will cause a substantial decrease in the differential pressure and the generation of a fault.

The LIT measurement requires that the total pressure variance of the sampled point, the Vertex rack and the exhaust outlet must be less than 0.3 in. Hg. for correct operation (see Figure G-1).

Software Overview

Automatic LI tests can be scheduled to take place at any of the times when a time weighted average (TWA) is recorded. TWAs are recorded every eight hours so that up to three LI tests can be performed per day. As with previous software, the time of the TWA can be shifted up to eight hours so that the LI test time can be any time of day. The LI test can be disabled on a per-point basis to permit a rack with LIT to have some tube configurations that are incompatible with LIT.

Buttons are provided to start an LI characterization or an unscheduled test. These two buttons are on the RS View “Authorized Service” screen.

Accessing LIT Parameters

A checkbox on the Configure Point screen as highlighted by the red rectangle in Figure G-2, enables the selected analyzer to participate in the LIT. By default, all analyzers purchased with this option will participate. Clearing this checkmark removes the analyzer from the LIT and prevents the generation of LIT-related faults for the associated point. Otherwise, nuisance faults may be generated for points with incompatible external components. Examples include tubes longer than 90m, medium-walled tubing, and shared sample lines.

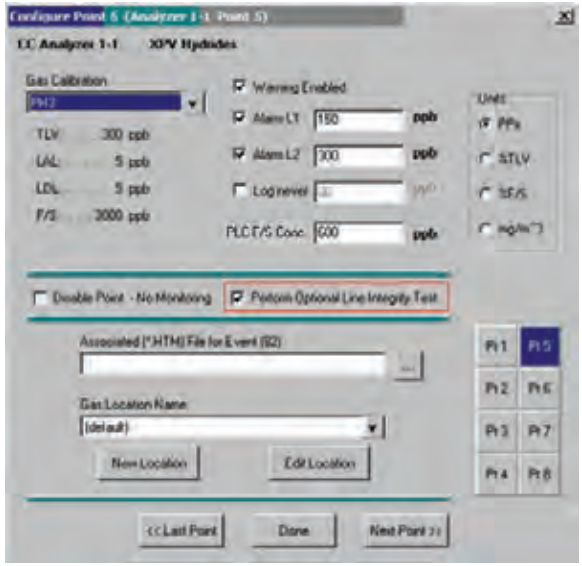

Figure G-2 -- LIT Access

Pressing the “Line Integrity Test’ button shown in Figure G-3 causes the form shown in Figure G-4 to appear.

The three times displayed on the left of the new tabsheet indicate the TWA times. (TWA times are set on Data Logging tabsheet.)

The checkbox and labels on the right of the new page will become black if any of the left-side checkboxes are checked. Otherwise the right-side items will become gray.

The checkmark itself indicates the status of the point-specific checkboxes shown in Figure G-2. If the point-specific LIT checkboxes are all set, this

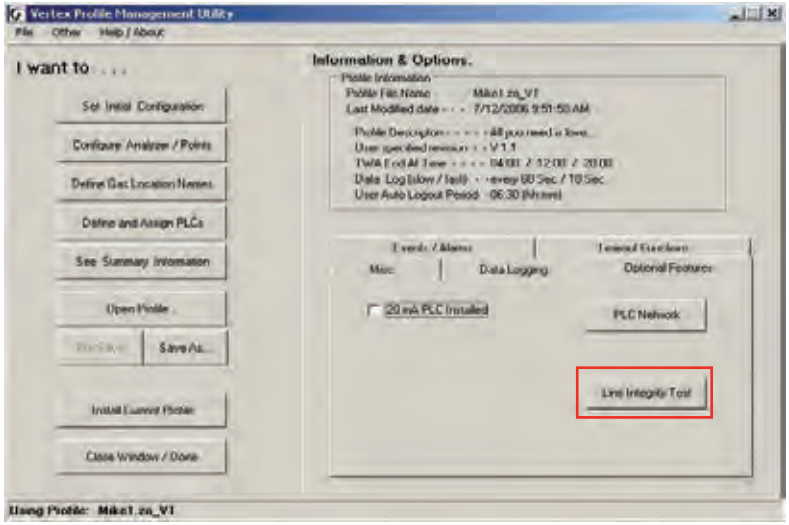

Figure 3 -- Configuration Editor New Button

checkmark will be set.

LIT Access from RSView

RSView has two buttons.

1. Two buttons in the Authorized Service screen as shown in Figure G-5. When the associated analyzer is in Monitor mode this will appear as shown in Figure G-6.

Access to the Authorized Service screen is restricted to RSView users with the “E” permission code turned on for their account. For RSView permission codes, see Section 4.6.6 Security Access.

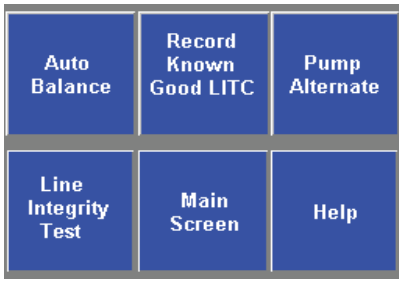

Figure G-5 -- LIT Access from Authorized Service Mode

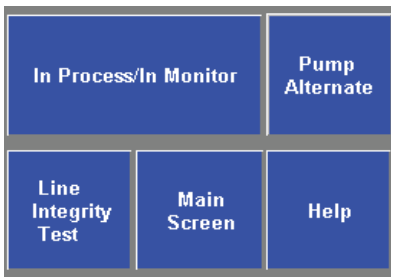

Figure G-6 -- LIT Access from Monitor Mode

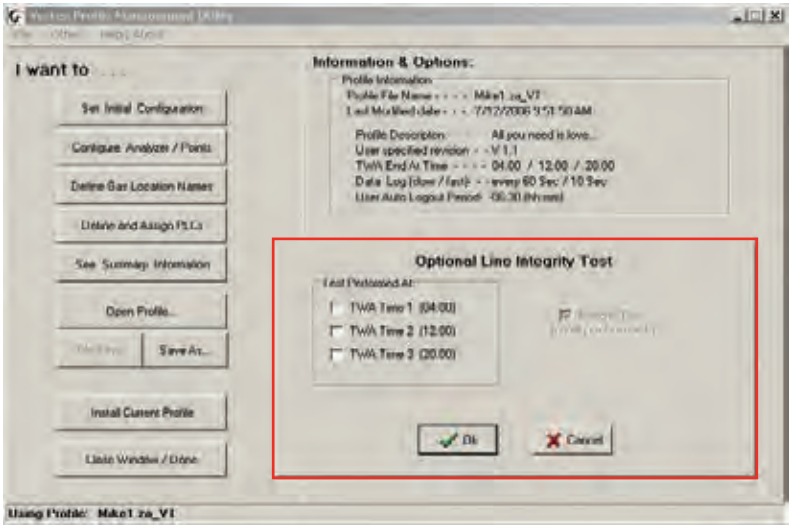

Figure 4 -- Configuration Editor New Page

Pressing the “Record Known Good LITC” button will cause a characterization to be performed on all analyzers in the rack. Similarly, pressing the “Line Integrity Test” button will cause a line integrity test to be performed immediately. This is in addition to the LITs which are scheduled by the checkboxes in Figure 4.

During a LIT test or characterization, the RSView analyzer status display will change from “MONT” or “IDLE” to “LIT”

LIT Related Events

The Vertex is capable of creating four Maintenance Faults 122 through 125 as shown in Table 6-7: Maintenance Faults.

If the LIT generates Event 124, care must be taken to inspect the integrity of the sample line tubing along its length as the monitored sample may be taken from the break in the tubing, not from the intended area.

The Vertex is also capable of five new informational events as listed in Table 6-9: Information Events.

Note :

> If additional or replacement Vertex Analyzers are purchased without specifying the LIT option, no faults will be generated for the lack of the option in the new analyzer. However, an “INFO” message will be logged in the Event History each time the LIT option is invoked. Existing analyzers configured for LIT will be unaffected.

H Warranty Statement

Chemcassette® Device Warranty Statement

All products are designed and manufactured to the latest internationally recognized standards by Honeywell Analytics under a Quality Management System that is certified to ISO 9001.

As such, this instrument (including the pump) is warranted under proper use, to the original end-user purchaser, against any defects in materials or workmanship related failures for a period of 12 months from the date of first turn-on or 18 months from delivery from Honeywell Analytics to the customer, whichever is less. Separate warranty conditions apply to the sensor cartridges limited as indicated below. During this period, Honeywell Analytics will repair or replace defective parts on an exchange basis, F.O.B. to approved service centers on a global basis.

This warranty does not cover damage caused by accident, abuse, abnormal operating conditions or extreme poisoning of the sensor cartridge.

Defective equipment must be returned to Honeywell Analytics for repair. Before returning materials for repair or replacement, the Customer must obtain a Service Event Number (SE#) by contacting Honeywell Analytics Service in advance; include a detailed report stating the nature of the defect and ship the equipment prepaid to Honeywell Analytics' factory. If no detail report is included, Honeywell Analytics reserves the right to charge an investigative fee (prices available upon request) before any repair or replacement is performed. Returned goods must detail the Service Event Number (SE#) clearly on the package.

Service in the field or at the customer's premises is not covered under these warranty terms. Time and travel expenses for on-site warranty services will be charged at Honeywell Analytics' normal billing rates. Contact your Honeywell Analytics representative for information on available Service Contracts.

Honeywell Analytics shall not be liable for any loss or damage whatsoever or howsoever occasioned which may be a direct or indirect result of the use or operation of the Contract Goods by the Buyer or any Party.

This warranty covers the gas detector and parts sold to the Buyer only by authorized distributors, dealers and representatives as appointed by Honeywell Analytics. This warranty does not cover defects attributable to improper installation, repair by an unauthorized person or the use of unauthorized accessories/parts on the product. A warranty claim will only be accepted if a proof of purchase is submitted and all conditions obtained within this Warranty are met.

Honeywell Analytics reserves the right to validate any warranty claim prior to processing. Upon acceptance of a warranty claim, Honeywell Analytics will repair or replace the defective product free of charge. The initial warranty period is not extended by virtue of any works carried out there after.

Instruments which have been repaired or replaced during the warranty period are warranted for the remainder of the unexpired portion of the original warranty period. Honeywell Analytics is released from all obligations under its warranty in the event repairs or modifications are made by persons other than its own authorized personnel, unless such work is authorized in writing by Honeywell Analytics. Honeywell Analytics is released from all obligations under its warranty in the event that detection substrates other than Honeywell Analytics' Chemcassettes® have been installed and used in Honeywell Analytics' instruments.

Honeywell Analytics reserves the right to change this policy at any time. Contact Honeywell Analytics for the most current warranty information.

Chemcassette® Warranty

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