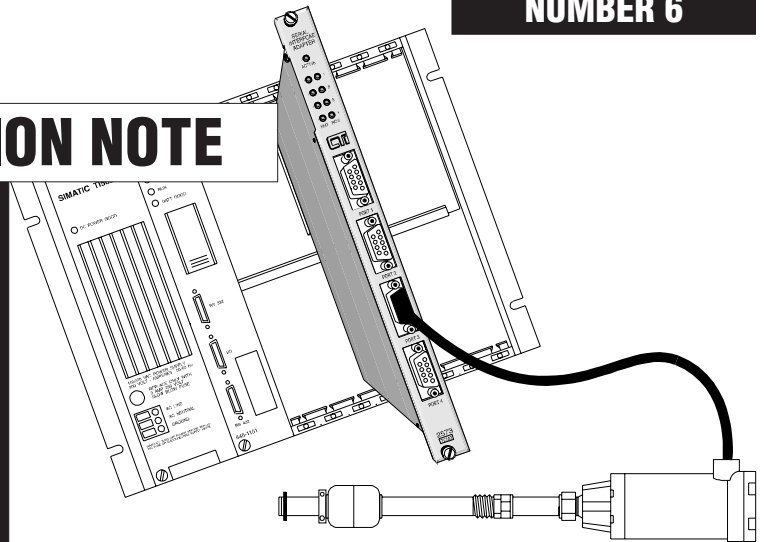


APPLICATION NOTE

2573-TCM2 Serial Interface Adapter to MTS Level Plus Direct Digital Access (DDA) Tank Gauge



NOTE:

This example shows the ladder logic and command blocks necessary to configure Port 1 of the 2573-TCM2 to communicate with the MTS Level Plus Direct Digital Access (DDA) Tank Gauge. Additional ports may be configured by creating additional ladder logic and command blocks.

The following examples describe the configuration of the 2573-TCM2 to communicate with 8 MTS Level Plus Tank Gauges on a RS-485 network using the General ASCII Support (GAS) **Polled Read Command** to send the address byte and command byte to the gauges and read the responses and store the data values in PLC V-memory.

In this example, the command 10 Hex is sent to 8 gauges with addresses from C0 to C7 Hex. By PLC ladder logic control, the 8 gauges are polled one at a time and the responses stored in PLC V-memory. The command 10 Hex elicits a response from the gauge which contains 2 data fields: Level 1 (product), Level 2 (interface) at 0.1 inch resolution.

The gauge response to command 10 Hex is: **<STX>dddd.d:dddd.d<ETX>cccc**

A gauge response with error codes would be: **<STX>Exxx:Exxx<ETX>cccc**

NOTE: The 5 digit appended checksum is ignored in this example regardless of whether it is enabled or disabled in the gauge.

Data from the two data fields will be parsed and stored in PLC V-memory in Real Number format. Along with data, a 3-digit error code preceded by an ASCII 'E' can be returned in any of the data fields. This example, with the accompanying ladder logic, will detect if a possible error code has been written from a particular gauge. The gauge will then be polled again using a format specification which allows the entire string to be read into PLC V-memory in Hex ASCII format where the ASCII string can be examined and error codes interpreted.

DIP SWITCH SETTINGS (Ref. CTI 2573-TCM2 Installation and Operation Guide, Section 2.3.)

For this example, setting the Port Protocol via **PLC Select** is required for Port No. 1. Set switches 6, 7, and 8 for PLC Select configuration to allow the GAS Protocol Manager to be initiated by the ladder logic using the Create Connection command block.

PLC COMMAND INTERFACE (Ref. CTI 2573-TCM2 Installation and Operation Guide, Appendix D.)

In this example, the 2573 is logged into the I/O Base in Slot No. 1. The 2573 logs into the CPU memory as a Special Function Module with **2WX** and **6WY**. The following addresses are used: **WX1, WX2, WY3, WY4, WY5, WY6, WY7, and WY8**.

PLC ladder logic controls the 2573 by placing pointers in **WY** registers to tables stored in V-memory. Command triggers are controlled via RLL to "wake up" the 2573 and capture the instructions from V-memory. Areas of V-memory called **Command Blocks** are used to store the command parameters.

COMMAND BLOCKS

Blocks of V-memory called Command Blocks contain the information necessary to set up port parameters (**Create Connection Command**), send a command to the device and wait for the device to respond with a message (**Polled Read Command**), and parse the data values from the response message and store them in V-memory (**Input Specification Table**).

CREATE CONNECTION COMMAND (V100-V115)

(Ref. CTI General ASCII Support Protocol Manager Reference Manual, Section 2.2.)

The Create Connection Command starts the GAS protocol manager and sets up the communication parameters for port 1 of the 2573. These should match the communication parameters of the MTS gauges attached serially to the module port. The communication parameters in this example are: 4800 baud, 8 data bits, even parity, one stop bit, and RS-485 communication.

CREATE CONNECTION

V100	INTEGER	00000	Command Error Word
V101	INTEGER	00001	Command Code for Create Connection
V102	INTEGER	19221	Connection Number (Valid range 19221-19229)
V103	INTEGER	00038	GAS Protocol Manager Number
V104	INTEGER	00001	Physical Port Number
V105	INTEGER	04800	Baud Rate
V106	INTEGER	00008	Bits per character
V107	INTEGER	00002	Selects EVEN parity
V108	INTEGER	00001	Selects 1 stop bit
V109	INTEGER	00004	Selects RS-485 communication
V110	INTEGER	00000	Not used - set to zero
*	*	*	
V115	INTEGER	00000	Not used - set to zero

POLLED READ COMMANDS (V200-V215, V400-V415, V600-V615, V800-V815, V1000-V1015, V1200-V1215, V1400-V1415, V1600-V1615)

(Ref. CTI General ASCII Support Protocol Manager Reference Manual, Section 2.6.)

The Polled Read Command tells the 2573 to send the address byte followed by the command byte to the attached device and wait for the device to respond with an input message. The output message content is determined by the Format Specification Table located at the V-memory address in offset 4 of the Polled Read Command. How the input message is to be read is determined by the Format Specification Table located at the V-memory address in offset 6. The time-out period for the command is set by the value in offset 8. The message maximum length expected is determined by the value in offset 9. Offset 10 determines the start and end delimiters for an input message. In this case, offset 10 has the value 0203 Hex (ASCII <STX> and <ETX>). So any message beginning with an <STX> (02H) and ending with an <ETX> (03H) will be read into the input buffer.

EXAMPLE POLLED READ COMMAND FOR READING DATA VALUES AT ADDRESS C0

V200	INTEGER	00000	Command Error Word
V201	INTEGER	09731	Command Code for Polled Read
V202	INTEGER	19221	Connection number created in Create Connection Command
V203	INTEGER	00000	Command Control Flags
V204	INTEGER	00220	Points to V-memory location of output Format Specification Table
V205	INTEGER	00000	Number of format specifications to read (0 = default = 6)
V206	INTEGER	00250	Points to V-memory location of input Format Specification Table
V207	INTEGER	00000	Number of format specifications to read (0 = default = 6)
V208	INTEGER	00004	Command time-out in seconds (0 = default = 9 seconds)
V209	INTEGER	00040	Input message maximum length expected (number of ASCII characters)
V210	HEX	0203	Input message delimiters, first set (<STX> and <ETX>)
V211	INTEGER	00000	Input message delimiters, second set (none specified)
V212	INTEGER	00000	Unused (set to 0)
*	*	*	*
V215	INTEGER	00000	Unused (set to 0)

NOTE: Gauge response times vary depending on the type of command sent. The command time-out value in offset 8 (V208) of the Polled Read Command should be adjusted to a value greater than the maximum response time for the gauge that is being polled. If a time-out error should occur, an error code 9885 dec. (269D Hex) would be written into V200. Consistent time-out errors would indicate that the time-out value is too short or that a gauge has stopped responding.

OUTPUT FORMAT SPECIFICATION 3001 (V220-V240, V420-V440, V620-V640, V820-V840, V1020-V1040, V1220-V1240, V1420-V1440, V1620-V1640)

(Ref. CTI General ASCII Support Protocol Manager Reference Manual, Section 3.17.)

This specification tells the GAS protocol manager to begin at position 1 in the output buffer and send the address byte followed by the command byte (specified in the table).

The following output specification table may be modified to poll any gauge address by changing the value in offset 5 (V225). The address byte must be placed in the high byte of this location. To poll gauge address C1, the value in V225 would be C100 Hex, for address C2 the value would be C200 Hex, and so on.

The output specification table may also be modified to send different command bytes by changing the value in the high byte of V235. To send the command 12 Hex, the value in V235 would be 1200 Hex.

OUTPUT SPECIFICATION TABLE

V220	INTEGER	19456	Signature value for valid format specification table
V221	INTEGER	03001	Format number for PLC ASCII Character to ASCII String
V222	INTEGER	00001	Start position within the output buffer for first character
V223	INTEGER	00001	Number of characters to be placed in the output buffer
V224	INTEGER	00000	Format error code (initially should be set to 0)
V225	HEX	C000	Address byte for address C0
V226	INTEGER	00000	Not used in this application (Set to 0)
*	*	*	*
V230	INTEGER	00000	Not used in this application (Set to 0)
V231	INTEGER	03001	Format number for PLC ASCII Character to ASCII String
V232	INTEGER	00002	Position within output buffer to place next character
V233	INTEGER	00001	Number of characters to be placed in the output buffer
V234	INTEGER	00000	Format error code (initially should be set to 0)
V235	HEX	1000	Command byte to be output with the above address byte
V236	INTEGER	00000	Not used in this application (Set to 0)
*	*	*	*
V240	INTEGER	00000	Not used in this application (Set to 0)
V241	INTEGER	65000	Specifies end of table

INPUT FORMAT SPECIFICATION 1002 (V250-V270, V450-V470, V650-V670, V850-V870, V1050-V1070, V1250-V1270, V1450-V1470, V1650-V1670)

(Ref. CTI General ASCII Support Protocol Manager Reference Manual, Section 3.10.)

Since there are two data fields which must be processed, we must use two input specifications (one for each data field). The first specification tells GAS to begin at the second position in the input buffer (STX will be the first character, the first data field begins with the second character) and process a variable length data field as a Real Number and store it in the PLC V-memory. The (:) between the data fields delimits the specification. An error code may be encountered in any of the data fields. Error codes are preceded by an "E" which cannot be processed by the 1002 specification. This will cause this format specification to fail and an error code 9841 dec. (Invalid real number start position) to be written into offset 0 of the associated Polled Read Command block. In this example, ladder logic is employed to check for this error condition and initiate another polled read command using input specification 3003 to read the input string in Hex ASCII format and store it in PLC V-memory where it may be examined and interpreted.

The following input specification will accommodate gauge Hex commands 10, 11, 12, 28, 29, and 2A. These all have 2 data fields. This table can be modified to accommodate commands with 1 data field by ending the table after the first 1002 specification or commands with more than 2 data fields by adding additional 1002 specifications to the table.

INPUT SPECIFICATION TABLE

V250	INTEGER	19456	Signature value for valid format specification table
V251	INTEGER	01002	Convert unsigned decimal fraction to PLC real number
V252	INTEGER	00002	Start position within the input buffer to begin processing
V253	INTEGER	65535	Specifies a variable length
V254	INTEGER	00000	Format error code (initially should be set to 0)
V255	INTEGER	00000	Unused in this specification (set to 0)
V256	REAL	+0.00000	Data from first field is stored here as a Real Number in V256 and V257
V257			
V258	INTEGER	00000	No pad character specified
V259	INTEGER	00000	Unused in this specification (set to 0)
V260	INTEGER	00000	Unused in this specification (set to 0)
V261	INTEGER	01002	Convert unsigned decimal fraction to PLC real number
V262	INTEGER	65535	Start at next position within the input buffer
V263	INTEGER	65535	Specifies a variable length
V264	INTEGER	00000	Format error code (initially set to 0)
V265	INTEGER	00000	Unused in this specification (set to 0)
V266	REAL	+0.00000	Data from second data field is stored here as a Real Number in V266 and V267
V267			
V268	HEX	003A	Specifies ASCII (:) as a pad character
V269	INTEGER	00000	Unused in this specification (set to 0)
V270	INTEGER	00000	Unused in this specification (set to 0)
V271	INTEGER	65000	Specifies end to table

The following command blocks are used to poll a gauge in the event that the previous polled read command failed with a 9841 error code returned in its command error word. This error code would be returned if an ASCII 'E' were returned within any of the data fields in a response from a gauge. This condition is checked for by the ladder logic and if it occurs the gauge is immediately polled again using the following command blocks.

**EXAMPLE OF POLLED READ COMMAND TO READ ERROR CODES
(V2000-V2015, V2100-V2115, V2200-V2215, V2300-V2315, V2400-V2415, V2500-V2515, V2600-V2615, V2700-V2715)**

V2000	INTEGER	00000	Command Error Word
V2001	INTEGER	09731	Command Code for Polled Read
V2002	INTEGER	19221	Connection number created in Create Connection Command
V2003	INTEGER	00000	Command Control Flags
V2004	INTEGER	00220	Points to V-memory location of output Format Specification Table
V2005	INTEGER	00000	Number of format specifications to read (0 = default = 6)
V2006	INTEGER	02050	Points to V-memory location of input Format Specification Table
V2007	INTEGER	00000	Number of format specifications to read (0 = default = 6)
V2008	INTEGER	00004	Command time-out in seconds (0 = default = 9 seconds)
V2009	INTEGER	00040	Input message maximum length expected
V2010	HEX	0203	Input message delimiters, first set (<STX> and <ETX>)
V2011	INTEGER	00000	Input message delimiters, second set (none specified)
V2012	INTEGER	00000	Unused (set to 0)
*	*	*	*
V2015	INTEGER	00000	Unused (set to 0)

NOTE: The output Format Specification Table pointed to in the above polled read command (V220) is the same Table used in the previous polled read command. The same address byte and command byte is being transmitted but this time the response will be read using a different input Format Specification Table.

**INPUT SPECIFICATION TABLE TO READ AND STORE ERROR CODES
(V2050-V2060, V2150-V2160, V2250-V2260, V2350-V2360, V2450-V2460, V2550-V2560, V2650-V2660,
V2750-V2760)**

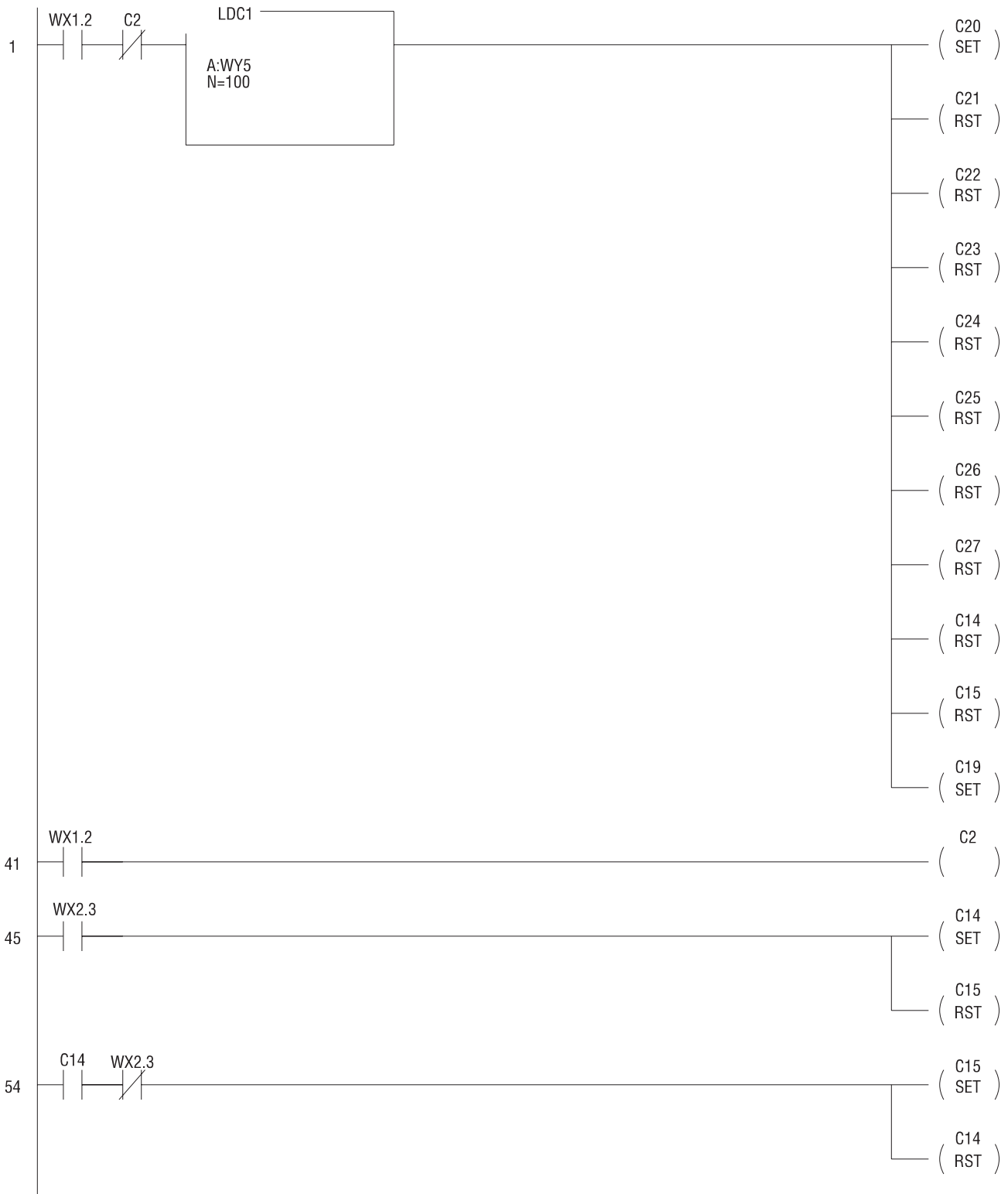
V2050	INTEGER	19456	Signature value for valid format specification table
V2051	INTEGER	03003	Convert variable length ASCII string to PLC ASCII
V2052	INTEGER	00001	Start position within the input buffer to begin processing
V2053	INTEGER	00040	Maximum number of characters to be stored in V-memory
V2054	INTEGER	00000	Format error code (initially should be set to 0)
V2055	INTEGER	02070	Points to V-memory storage for converted string
V2056	INTEGER	00000	Unused by this specification (set to 0)
*	*	*	*
V2060	INTEGER	00000	Unused by this specification (set to 0)
V2061	INTEGER	65000	Specifies table end

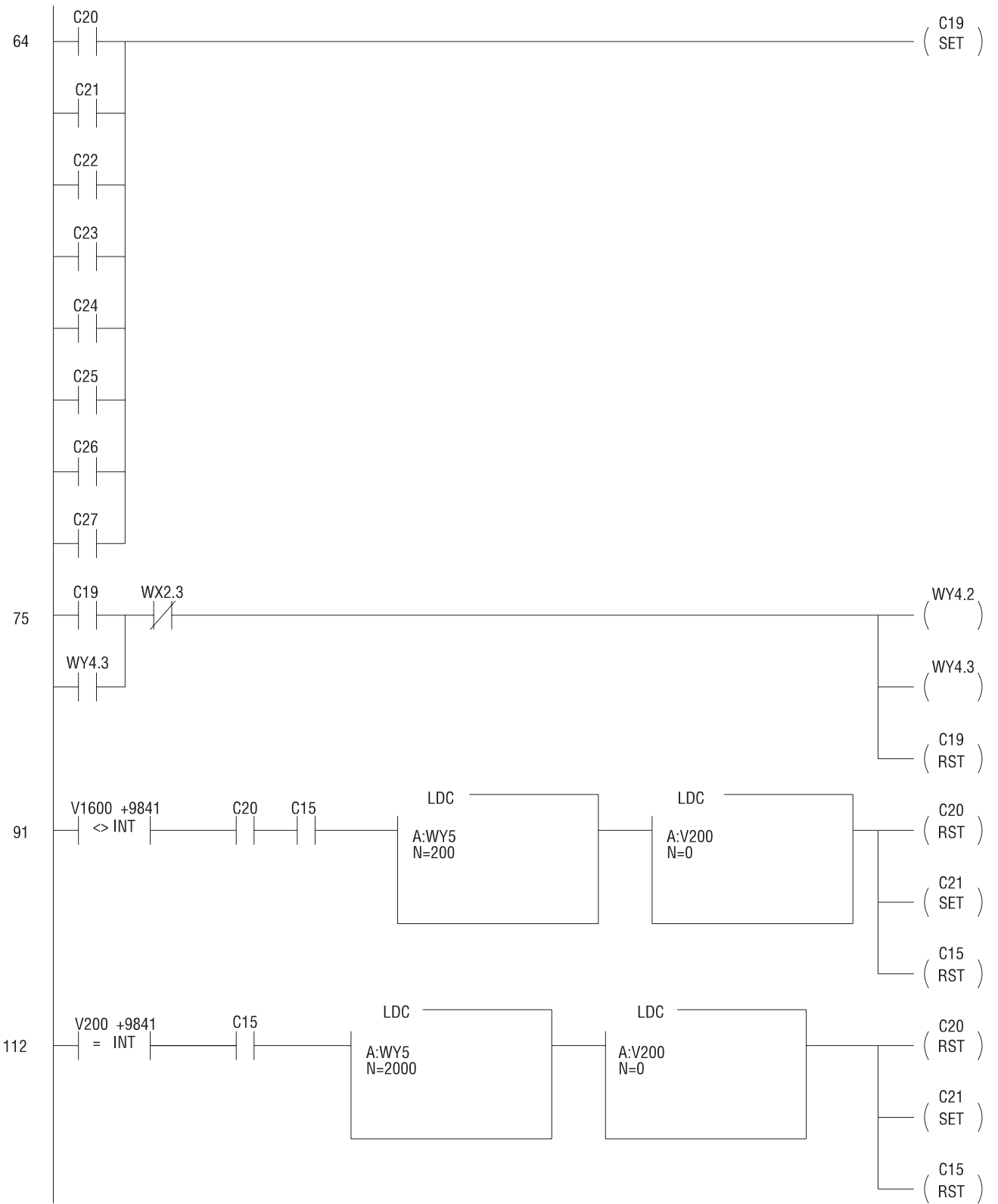
This specification reads in an ASCII string (to a maximum of 40 characters) and stores it in PLC V-memory in HEX ASCII format. The V-memory location pointed to in offset 5 (V2070) will contain a length value for the number of characters read. The high byte of the next location, V2071, will contain the first character read and the low byte will contain the second character. The high byte of the next location, V2072, will contain the third character, and so on.

If the string, <STX>E102:E102<ETX>cccc, were read into the above input specification the V-memory table beginning at V2070 would be as follows:

V2070	INTEGER	00011	11 ASCII characters were read
V2071	HEX	0245	ASCII (STX) and (E)
V2072	HEX	3130	ASCII (1) and (0)
V2073	HEX	323A	ASCII (2) and (:)
V2074	HEX	4531	ASCII (E) and (1)
V2075	HEX	3032	ASCII (0) and (2)
V2076	HEX	0300	ASCII (ETX) and (NULL)

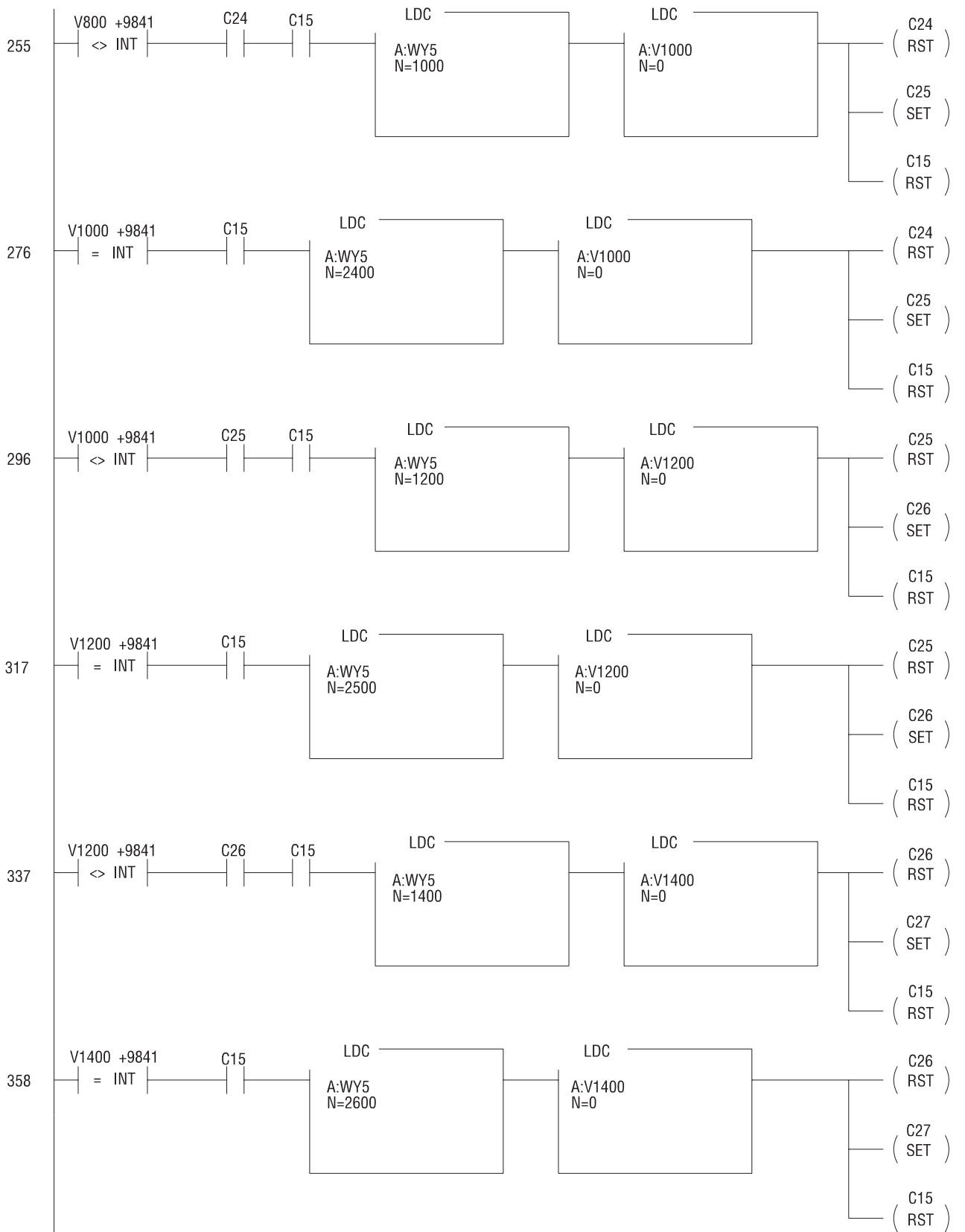
NOTE: If the last character ends up in the high byte of the V-memory location, GAS fills the low byte of the word with 00.





210

235 V800 +9841 C15
= INT



V14

C27

C15

C15

WX2.1

V100	INTEGER	00000
V101	INTEGER	00001
V102	INTEGER	19221
V103	INTEGER	00038
V104	INTEGER	00001
V105	INTEGER	04800
V106	INTEGER	00008
V107	INTEGER	00002
V108	INTEGER	00001
V109	INTEGER	00004
V110	INTEGER	00000
V111	INTEGER	00000
V112	INTEGER	00000
V113	INTEGER	00000
V114	INTEGER	00000
V115	INTEGER	00000
V200	INTEGER	00000
V201	INTEGER	09731
V202	INTEGER	19221
V203	INTEGER	00000
V204	INTEGER	00220
V205	INTEGER	00000
V206	INTEGER	00250
V207	INTEGER	00000
V208	INTEGER	00004
V209	INTEGER	00040
V210	HEX	0203
V211	INTEGER	00000
V212	INTEGER	00000
V213	INTEGER	00000
V214	INTEGER	00000
V215	INTEGER	00000
V220	INTEGER	19456
V221	INTEGER	03001
V222	INTEGER	00001
V223	INTEGER	00001
V224	INTEGER	00000
V225	HEX	C000

V400	INTEGER	00000	V612	INTEGER	00000
V401	INTEGER	09731	V613	INTEGER	00000
V402	INTEGER	19221	V614	INTEGER	00000
V403	INTEGER	00000	V615	INTEGER	00000
V404	INTEGER	00420			
V405	INTEGER	00000	V620	INTEGER	19456
V406	INTEGER	00450	V621	INTEGER	03001
V407	INTEGER	00000	V622	INTEGER	00001
V408	INTEGER	00004	V623	INTEGER	00001
V409	INTEGER	00040	V624	INTEGER	00000
V410	INTEGER	00515	V625	HEX	C200
V411	INTEGER	00000	V626	INTEGER	00000
V412	INTEGER	00000	V627	INTEGER	00000
V413	INTEGER	00000	V628	INTEGER	00000
V414	INTEGER	00000	V629	INTEGER	00000
V415	INTEGER	00000	V630	INTEGER	00000
			V631	INTEGER	03001
V420	INTEGER	19456	V632	INTEGER	00002
V421	INTEGER	03001	V633	INTEGER	00001
V422	INTEGER	00001	V634	INTEGER	00000
V423	INTEGER	00001	V635	HEX	1000
V424	INTEGER	00000	V636	INTEGER	00000
V425	HEX	C100	V637	INTEGER	00000
V426	INTEGER	00000	V638	INTEGER	00000
V427	INTEGER	00000	V639	INTEGER	00000
V428	INTEGER	00000	V640	INTEGER	00000
V429	INTEGER	00000	V641	INTEGER	65000
V430	INTEGER	00000			
V431	INTEGER	03001	V650	INTEGER	19456
V432	INTEGER	00002	V651	INTEGER	01002
V433	INTEGER	00001	V652	INTEGER	00002
V434	INTEGER	00000	V653	INTEGER	65535
V435	HEX	1000	V654	INTEGER	00000
V436	INTEGER	00000	V655	INTEGER	00000
V437	INTEGER	00000	V656	REAL	+0.00000
V438	INTEGER	00000	V657		
V439	INTEGER	00000	V658	INTEGER	00000
V440	INTEGER	00000	V659	INTEGER	00000
V441	INTEGER	65000	V660	INTEGER	00000
			V661	INTEGER	01002
V450	INTEGER	19456	V662	INTEGER	65535
V451	INTEGER	01002	V663	INTEGER	65535
V452	INTEGER	00002	V664	INTEGER	00000
V453	INTEGER	65535	V665	INTEGER	00000
V454	INTEGER	00000	V666	REAL	+0.00000
V455	INTEGER	00000	V667		
V456	REAL	+0.00000	V668	HEX	003A
V457			V669	INTEGER	00000
V458	INTEGER	00000	V670	INTEGER	00000
V459	INTEGER	00000	V671	INTEGER	65000
V460	INTEGER	00000			
V461	INTEGER	01002	V800	INTEGER	00000
V462	INTEGER	65535	V801	INTEGER	09731
V463	INTEGER	65535	V802	INTEGER	19221
V464	INTEGER	00000	V803	INTEGER	00000
V465	INTEGER	00000	V804	INTEGER	00820
V466	REAL	+0.00000	V805	INTEGER	00000
V467			V806	INTEGER	00850
V468	HEX	003A	V807	INTEGER	00000
V469	INTEGER	00000	V808	INTEGER	00004
V470	INTEGER	00000	V809	INTEGER	00040
V471	INTEGER	65000	V810	HEX	0203
			V811	INTEGER	00000
V600	INTEGER	00000	V812	INTEGER	00000
V601	INTEGER	09731	V813	INTEGER	00000
V602	INTEGER	19221	V814	INTEGER	00000
V603	INTEGER	00000	V815	INTEGER	00000
V604	INTEGER	00620			
V605	INTEGER	00000	V820	INTEGER	19456
V606	INTEGER	00650	V821	INTEGER	03001
V607	INTEGER	00000	V822	INTEGER	00001
V608	INTEGER	00004	V823	INTEGER	00001
V609	INTEGER	00040	V824	INTEGER	00000
V610	INTEGER	00515	V825	HEX	C300
V611	INTEGER	00000	V826	INTEGER	00000

V827	INTEGER	00000	V1039	INTEGER	00000
V828	INTEGER	00000	V1040	INTEGER	00000
V829	INTEGER	00000	V1041	INTEGER	65000
V830	INTEGER	00000			
V831	INTEGER	03001	V1050	INTEGER	19456
V832	INTEGER	00002	V1051	INTEGER	01002
V833	INTEGER	00001	V1052	INTEGER	00002
V834	INTEGER	00000	V1053	INTEGER	65535
V835	HEX	1000	V1054	INTEGER	00000
V836	INTEGER	00000	V1055	INTEGER	00000
V837	INTEGER	00000	V1056	REAL	+0.00000
V838	INTEGER	00000	V1057		
V839	INTEGER	00000	V1058	INTEGER	00000
V840	INTEGER	00000	V1059	INTEGER	00000
V841	INTEGER	65000	V1060	INTEGER	00000
			V1061	INTEGER	01002
V850	INTEGER	19456	V1062	INTEGER	65535
V851	INTEGER	01002	V1063	INTEGER	65535
V852	INTEGER	00002	V1064	INTEGER	00000
V853	INTEGER	65535	V1065	INTEGER	00000
V854	INTEGER	00000	V1066	REAL	+0.00000
V855	INTEGER	00000	V1067		
V856	REAL	+0.00000	V1068	HEX	003A
V857			V1069	INTEGER	00000
V858	INTEGER	00000	V1070	INTEGER	00000
V859	INTEGER	00000	V1071	INTEGER	65000
V860	INTEGER	00000			
V861	INTEGER	01002	V1200	INTEGER	00000
V862	INTEGER	65535	V1201	INTEGER	09731
V863	INTEGER	65535	V1202	INTEGER	19221
V864	INTEGER	00000	V1203	INTEGER	00000
V865	INTEGER	00000	V1204	INTEGER	01220
V866	REAL	+0.00000	V1205	INTEGER	00000
V867			V1206	INTEGER	01250
V868	HEX	003A	V1207	INTEGER	00000
V869	INTEGER	00000	V1208	INTEGER	00004
V870	INTEGER	00000	V1209	INTEGER	00040
V871	INTEGER	65000	V1210	INTEGER	00515
			V1211	INTEGER	00000
V1000	INTEGER	00000	V1212	INTEGER	00000
V1001	INTEGER	09731	V1213	INTEGER	00000
V1002	INTEGER	19221	V1214	INTEGER	00000
V1003	INTEGER	00000	V1215	INTEGER	00000
V1004	INTEGER	01020			
V1005	INTEGER	00000	V1220	INTEGER	19456
V1006	INTEGER	01050	V1221	INTEGER	03001
V1007	INTEGER	00000	V1222	INTEGER	00001
V1008	INTEGER	00004	V1223	INTEGER	00001
V1009	INTEGER	00040	V1224	INTEGER	00000
V1010	INTEGER	00515	V1225	HEX	C500
V1011	INTEGER	00000	V1226	INTEGER	00000
V1012	INTEGER	00000	V1227	INTEGER	00000
V1013	INTEGER	00000	V1228	INTEGER	00000
V1014	INTEGER	00000	V1229	INTEGER	00000
V1015	INTEGER	00000	V1230	INTEGER	00000
			V1231	INTEGER	03001
V1020	INTEGER	19456	V1232	INTEGER	00002
V1021	INTEGER	03001	V1233	INTEGER	00001
V1022	INTEGER	00001	V1234	INTEGER	00000
V1023	INTEGER	00001	V1235	HEX	1000
V1024	INTEGER	00000	V1236	INTEGER	00000
V1025	HEX	C400	V1237	INTEGER	00000
V1026	INTEGER	00000	V1238	INTEGER	00000
V1027	INTEGER	00000	V1239	INTEGER	00000
V1028	INTEGER	00000	V1240	INTEGER	00000
V1029	INTEGER	00000	V1241	INTEGER	65000
V1030	INTEGER	00000			
V1031	INTEGER	03001	V1250	INTEGER	19456
V1032	INTEGER	00002	V1251	INTEGER	01002
V1033	INTEGER	00001	V1252	INTEGER	00002
V1034	INTEGER	00000	V1253	INTEGER	65535
V1035	HEX	1000	V1254	INTEGER	00000
V1036	INTEGER	00000	V1255	INTEGER	00000
V1037	INTEGER	00000	V1256	REAL	+0.00000
V1038	INTEGER	00000	V1257		

V1258	INTEGER	00000	V1469	INTEGER	00000
V1259	INTEGER	00000	V1470	INTEGER	00000
V1260	INTEGER	00000	V1471	INTEGER	65000
V1261	INTEGER	01002			
V1262	INTEGER	65535	V1600	INTEGER	00000
V1263	INTEGER	65535	V1601	INTEGER	09731
V1264	INTEGER	00000	V1602	INTEGER	19221
V1265	INTEGER	00000	V1603	INTEGER	00000
V1266	REAL	+0.00000	V1604	INTEGER	01620
V1267			V1605	INTEGER	00000
V1268	HEX	003A	V1606	INTEGER	01650
V1269	INTEGER	00000	V1607	INTEGER	00000
V1270	INTEGER	00000	V1608	INTEGER	00004
V1271	INTEGER	65000	V1609	INTEGER	00040
			V1610	INTEGER	00515
V1400	INTEGER	00000	V1611	INTEGER	00000
V1401	INTEGER	09731	V1612	INTEGER	00000
V1402	INTEGER	19221	V1613	INTEGER	00000
V1403	INTEGER	00000	V1614	INTEGER	00000
V1404	INTEGER	01420	V1615	INTEGER	00000
V1405	INTEGER	00000			
V1406	INTEGER	01450	V1620	INTEGER	19456
V1407	INTEGER	00000	V1621	INTEGER	03001
V1408	INTEGER	00004	V1622	INTEGER	00001
V1409	INTEGER	00040	V1623	INTEGER	00001
V1410	INTEGER	00515	V1624	INTEGER	00000
V1411	INTEGER	00000	V1625	HEX	C700
V1412	INTEGER	00000	V1626	INTEGER	00000
V1413	INTEGER	00000	V1627	INTEGER	00000
V1414	INTEGER	00000	V1628	INTEGER	00000
V1415	INTEGER	00000	V1629	INTEGER	00000
			V1630	INTEGER	00000
V1420	INTEGER	19456	V1631	INTEGER	03001
V1421	INTEGER	03001	V1632	INTEGER	00002
V1422	INTEGER	00001	V1633	INTEGER	00001
V1423	INTEGER	00001	V1634	INTEGER	00000
V1424	INTEGER	00000	V1635	HEX	1000
V1425	HEX	C600	V1636	INTEGER	00000
V1426	INTEGER	00000	V1637	INTEGER	00000
V1427	INTEGER	00000	V1638	INTEGER	00000
V1428	INTEGER	00000	V1639	INTEGER	00000
V1429	INTEGER	00000	V1640	INTEGER	00000
V1430	INTEGER	00000	V1641	INTEGER	65000
V1431	INTEGER	03001			
V1432	INTEGER	00002	V1650	INTEGER	19456
V1433	INTEGER	00001	V1651	INTEGER	01002
V1434	INTEGER	00000	V1652	INTEGER	00002
V1435	HEX	1000	V1653	INTEGER	65535
V1436	INTEGER	00000	V1654	INTEGER	00000
V1437	INTEGER	00000	V1655	INTEGER	00000
V1438	INTEGER	00000	V1656	REAL	+0.00000
V1439	INTEGER	00000	V1657		
V1440	INTEGER	00000	V1658	INTEGER	00000
V1441	INTEGER	65000	V1659	INTEGER	00000
V1450	INTEGER	19456	V1660	INTEGER	00000
V1451	INTEGER	01002	V1661	INTEGER	01002
V1452	INTEGER	00002	V1662	INTEGER	65535
V1453	INTEGER	65535	V1663	INTEGER	65535
V1454	INTEGER	00000	V1664	INTEGER	00000
V1455	INTEGER	00000	V1665	INTEGER	00000
V1456	REAL	+0.00000	V1666	REAL	+0.00000
V1457			V1667		
V1458	INTEGER	00000	V1668	HEX	003A
V1459	INTEGER	00000	V1669	INTEGER	00000
V1460	INTEGER	00000	V1670	INTEGER	00000
V1461	INTEGER	01002	V1671	INTEGER	65000
V1462	INTEGER	65535			
V1463	INTEGER	65535			
V1464	INTEGER	00000			
V1465	INTEGER	00000			
V1466	REAL	+0.00000			
V1467					
V1468	HEX	003A			

V2000	INTEGER	00000	V2250	INTEGER	19456
V2001	INTEGER	09731	V2251	INTEGER	03003
V2002	INTEGER	19221	V2252	INTEGER	00001
V2003	INTEGER	00000	V2253	INTEGER	00040
V2004	INTEGER	00220	V2254	INTEGER	00000
V2005	INTEGER	00000	V2255	INTEGER	02270
V2006	INTEGER	02050	V2256	INTEGER	00000
V2007	INTEGER	00000	V2257	INTEGER	00000
V2008	INTEGER	00004	V2258	INTEGER	00000
V2009	INTEGER	00040	V2259	INTEGER	00000
V2010	HEX	0203	V2260	INTEGER	00000
V2011	INTEGER	00000	V2261	INTEGER	65000
V2012	INTEGER	00000			
V2013	INTEGER	00000	V2300	INTEGER	00000
V2014	INTEGER	00000	V2301	INTEGER	09731
V2015	INTEGER	00000	V2302	INTEGER	19221
			V2303	INTEGER	00000
V2050	INTEGER	19456	V2304	INTEGER	00820
V2051	INTEGER	03003	V2305	INTEGER	00000
V2052	INTEGER	00001	V2306	INTEGER	02350
V2053	INTEGER	00040	V2307	INTEGER	00000
V2054	INTEGER	00000	V2308	INTEGER	00004
V2055	INTEGER	02070	V2309	INTEGER	00040
V2056	INTEGER	00000	V2310	HEX	0203
V2057	INTEGER	00000	V2311	INTEGER	00000
V2058	INTEGER	00000	V2312	INTEGER	00000
V2059	INTEGER	00000	V2313	INTEGER	00000
V2060	INTEGER	00000	V2314	INTEGER	00000
V2061	INTEGER	65000	V2315	INTEGER	00000
V2100	INTEGER	00000	V2350	INTEGER	19456
V2101	INTEGER	09731	V2351	INTEGER	03003
V2102	INTEGER	19221	V2352	INTEGER	00001
V2103	INTEGER	00000	V2353	INTEGER	00040
V2104	INTEGER	00420	V2354	INTEGER	00000
V2105	INTEGER	00000	V2355	INTEGER	02370
V2106	INTEGER	02150	V2356	INTEGER	00000
V2107	INTEGER	00000	V2357	INTEGER	00000
V2108	INTEGER	00004	V2358	INTEGER	00000
V2109	INTEGER	00040	V2359	INTEGER	00000
V2110	HEX	0203	V2360	INTEGER	00000
V2111	INTEGER	00000	V2361	INTEGER	65000
V2112	INTEGER	00000			
V2113	INTEGER	00000	V2400	INTEGER	00000
V2114	INTEGER	00000	V2401	INTEGER	09731
V2115	INTEGER	00000	V2402	INTEGER	19221
			V2403	INTEGER	00000
V2150	INTEGER	19456	V2404	INTEGER	01020
V2151	INTEGER	03003	V2405	INTEGER	00000
V2152	INTEGER	00001	V2406	INTEGER	02450
V2153	INTEGER	00040	V2407	INTEGER	00000
V2154	INTEGER	00000	V2408	INTEGER	00004
V2155	INTEGER	02170	V2409	INTEGER	00040
V2156	INTEGER	00000	V2410	HEX	0203
V2157	INTEGER	00000	V2411	INTEGER	00000
V2158	INTEGER	00000	V2412	INTEGER	00000
V2159	INTEGER	00000	V2413	INTEGER	00000
V2160	INTEGER	00000	V2414	INTEGER	00000
V2161	INTEGER	65000	V2415	INTEGER	00000
V2200	INTEGER	00000	V2450	INTEGER	19456
V2201	INTEGER	09731	V2451	INTEGER	03003
V2202	INTEGER	19221	V2452	INTEGER	00001
V2203	INTEGER	00000	V2453	INTEGER	00040
V2204	INTEGER	00620	V2454	INTEGER	00000
V2205	INTEGER	00000	V2455	INTEGER	02470
V2206	INTEGER	02250	V2456	INTEGER	00000
V2207	INTEGER	00000	V2457	INTEGER	00000
V2208	INTEGER	00004	V2458	INTEGER	00000
V2209	INTEGER	00040	V2459	INTEGER	00000
V2210	HEX	0203	V2460	INTEGER	00000
V2211	INTEGER	00000	V2461	INTEGER	65000
V2212	INTEGER	00000			
V2213	INTEGER	00000			
V2214	INTEGER	00000			
V2215	INTEGER	00000			

V2500	INTEGER	00000	V2700	INTEGER	00000
V2501	INTEGER	09731	V2701	INTEGER	09731
V2502	INTEGER	19221	V2702	INTEGER	19221
V2503	INTEGER	00000	V2703	INTEGER	00000
V2504	INTEGER	01220	V2704	INTEGER	01620
V2505	INTEGER	00000	V2705	INTEGER	00000
V2506	INTEGER	02550	V2706	INTEGER	02750
V2507	INTEGER	00000	V2707	INTEGER	00000
V2508	INTEGER	00004	V2708	INTEGER	00004
V2509	INTEGER	00040	V2709	INTEGER	00040
V2510	HEX	0203	V2710	HEX	0203
V2511	INTEGER	00000	V2711	INTEGER	00000
V2512	INTEGER	00000	V2712	INTEGER	00000
V2513	INTEGER	00000	V2713	INTEGER	00000
V2514	INTEGER	00000	V2714	INTEGER	00000
V2515	INTEGER	00000	V2715	INTEGER	00000
V2550	INTEGER	19456	V2750	INTEGER	19456
V2551	INTEGER	03003	V2751	INTEGER	03003
V2552	INTEGER	00001	V2752	INTEGER	00001
V2553	INTEGER	00040	V2753	INTEGER	00040
V2554	INTEGER	00000	V2754	INTEGER	00000
V2555	INTEGER	02570	V2755	INTEGER	02770
V2556	INTEGER	00000	V2756	INTEGER	00000
V2557	INTEGER	00000	V2757	INTEGER	00000
V2558	INTEGER	00000	V2758	INTEGER	00000
V2559	INTEGER	00000	V2759	INTEGER	00000
V2560	INTEGER	00000	V2760	INTEGER	00000
V2561	INTEGER	65000	V2761	INTEGER	65000
V2600	INTEGER	00000			
V2601	INTEGER	09731			
V2602	INTEGER	19221			
V2603	INTEGER	00000			
V2604	INTEGER	01420			
V2605	INTEGER	00000			
V2606	INTEGER	02650			
V2607	INTEGER	00000			
V2608	INTEGER	00004			
V2609	INTEGER	00040			
V2610	HEX	0203			
V2611	INTEGER	00000			
V2612	INTEGER	00000			
V2613	INTEGER	00000			
V2614	INTEGER	00000			
V2615	INTEGER	00000			
V2650	INTEGER	19456			
V2651	INTEGER	03003			
V2652	INTEGER	00001			
V2653	INTEGER	00040			
V2654	INTEGER	00000			
V2655	INTEGER	02670			
V2656	INTEGER	00000			
V2657	INTEGER	00000			
V2658	INTEGER	00000			
V2659	INTEGER	00000			
V2660	INTEGER	00000			
V2661	INTEGER	65000			