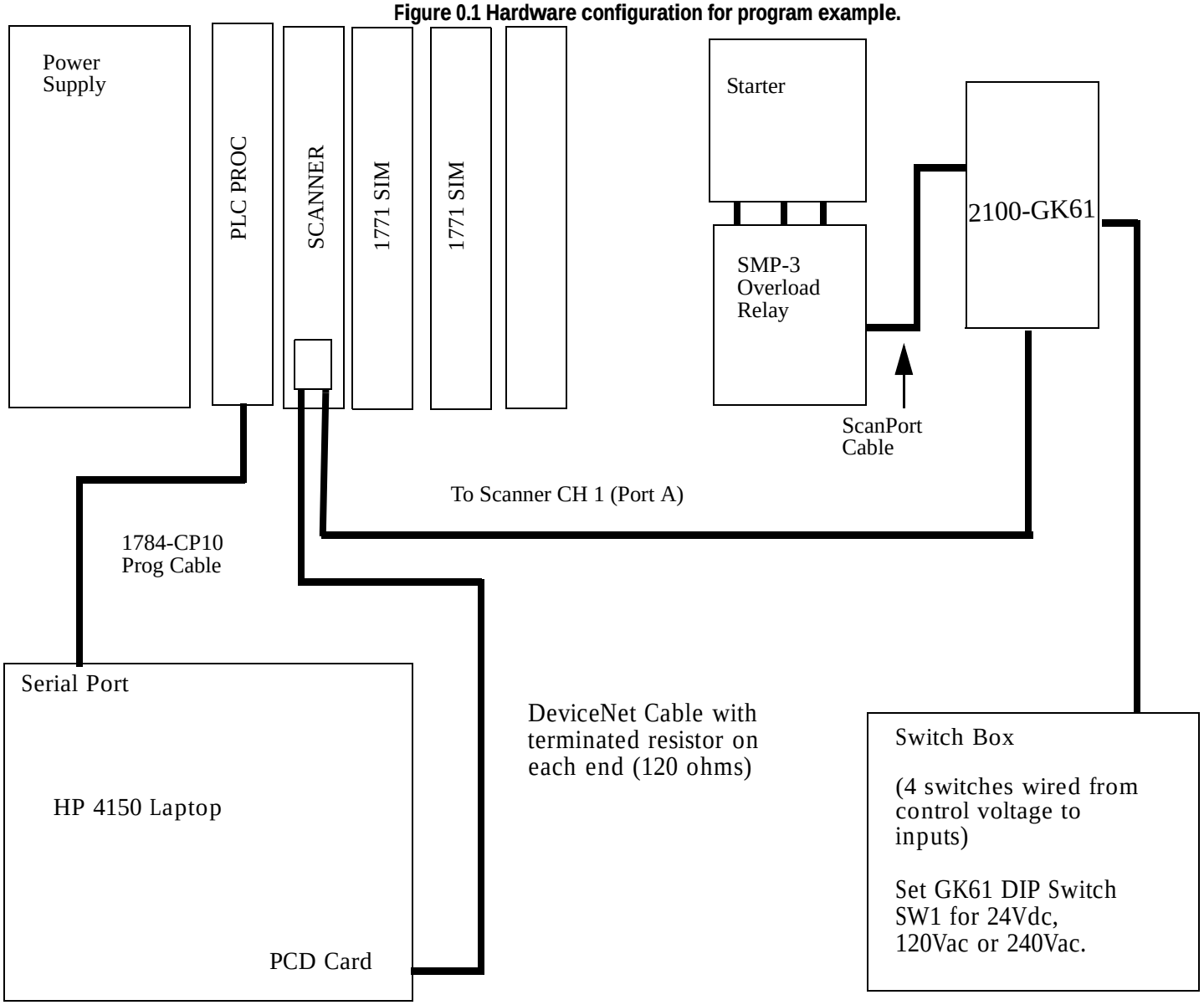
2100-GK61 2.001 Firmware Update
Reading 2100-GK61 Inputs in I/O Stream

What Firmware Update Provides: The inputs of the 2100-GK61 can now be read as part of an I/O stream using a polled, change-of-state (COS), or cyclic method. An explicit messaging technique can still be used if desired. Input bits are located at the beginning of the Input Scan List and the monitoring technique is the same as it would be for any PLC discrete device. The input word size changes from 4 bytes to 6 bytes. The output word size remains at 4 bytes.

Figure 0.1 Hardware configuration for program example.



Equipment used for example program:

PLC 4-slot chassis with:

- Processor Slot – PLC-5/20
- Slot 0 – 1771-SDN scanner
- Slot 1 – 1771-SIM card
- Slot 2 – 1771-SIM card
- External power supply

2100-GK61 DeviceNet to SCANport Communication Module with Digital Inputs

24V dc power supply

SMP-3 electronic overload relay

Laptop PC (HP 4150) with:

- 1784-PCD DeviceNet card
- PLC programming cable
- RSLinx software (communications drivers)
- RSNetworx for DeviceNet software (for configuring 2100-GK61 and scanner)
- RSLogix 5 software (for programming PLC)

DeviceNet cable and 5 position connectors (for linking scanner, 2100-GK61 and PCD card)

ScanPort cable (for connecting 2100-GK61 and SMP-3) Part # 40121-487-02(A)

120 ohm terminating resistors (one at each end of cable across blue and white wires)

References:

Pub 2100-UM001A-US-P DeviceNet to SCANport Communication Module with Digital Inputs

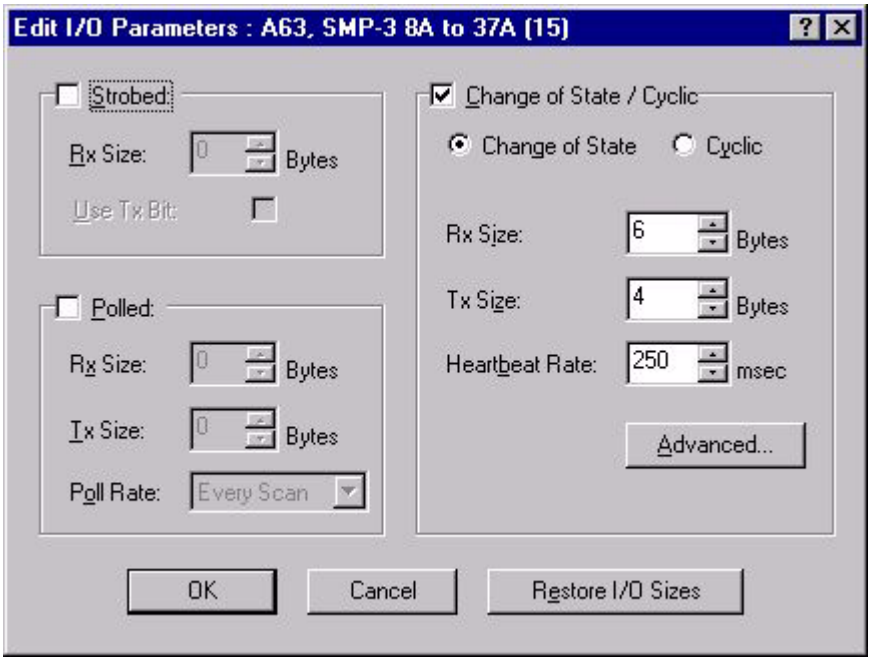
- Ch 4 – Configuring a Scanner to Communicate with the 2100-GK61 using RSNetworx for DeviceNet.
- Ch 5 – Ladder Logic Programming. Focus is on Logic Control Data and Status Data.

Pub 193-5.0 Bulletin 193/592 SMP-3 Solid-state Overload Relay User Manual

- Chapter 6 – Serial Communication – information on Logic Control Data and Status Data

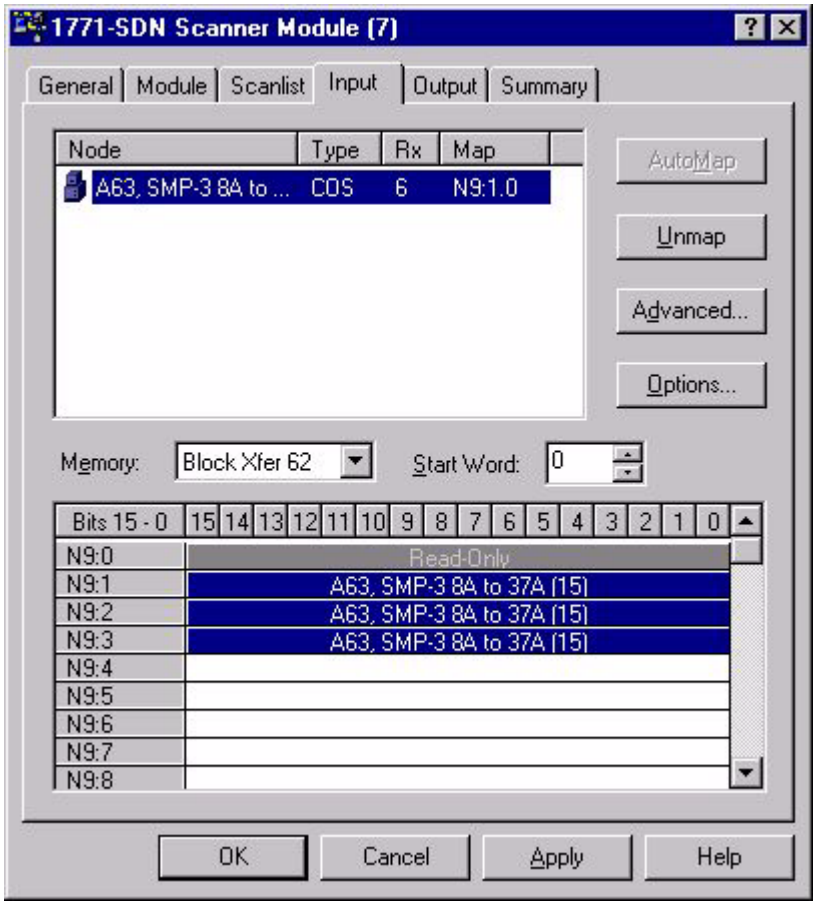
Setting Word Size in Scan List:

From RSNetworx, click on Scanner, select “Edit I/O Parameters” and set Rx size to 6 Bytes and Tx size to 4 Bytes. Change of State is shown, but Polled or Cyclic may also be used.



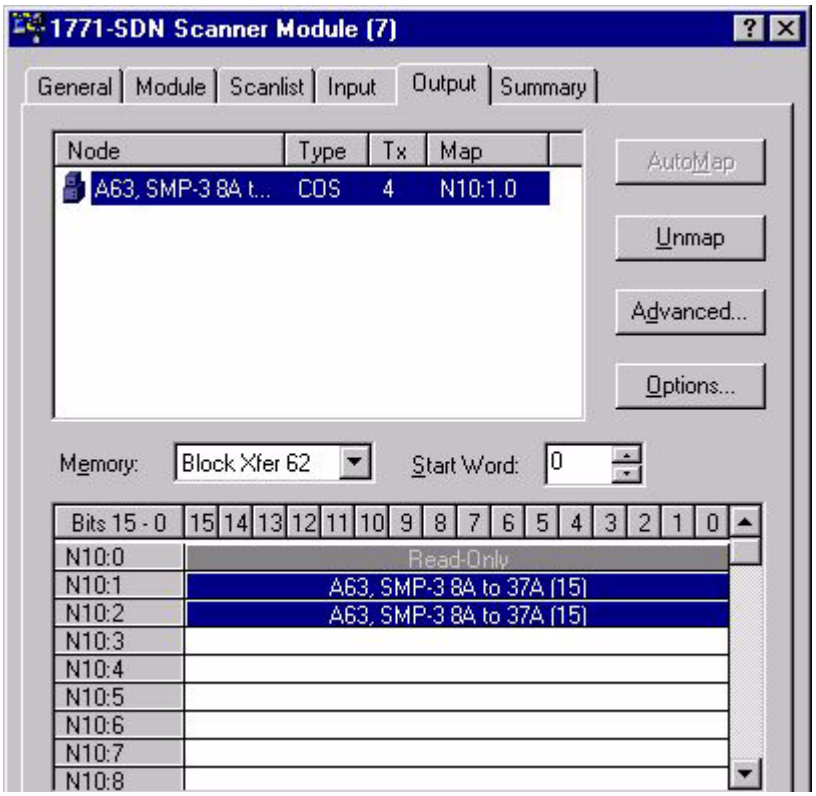
Scanner Module Input List:

Scanner inputs should be mapped as shown below. This example illustrates SMP-3 on Node 14. GK61 input data location is N9:1 bit 0 through bit 3. SMP-3 status data starts at N9:2 bit 0.

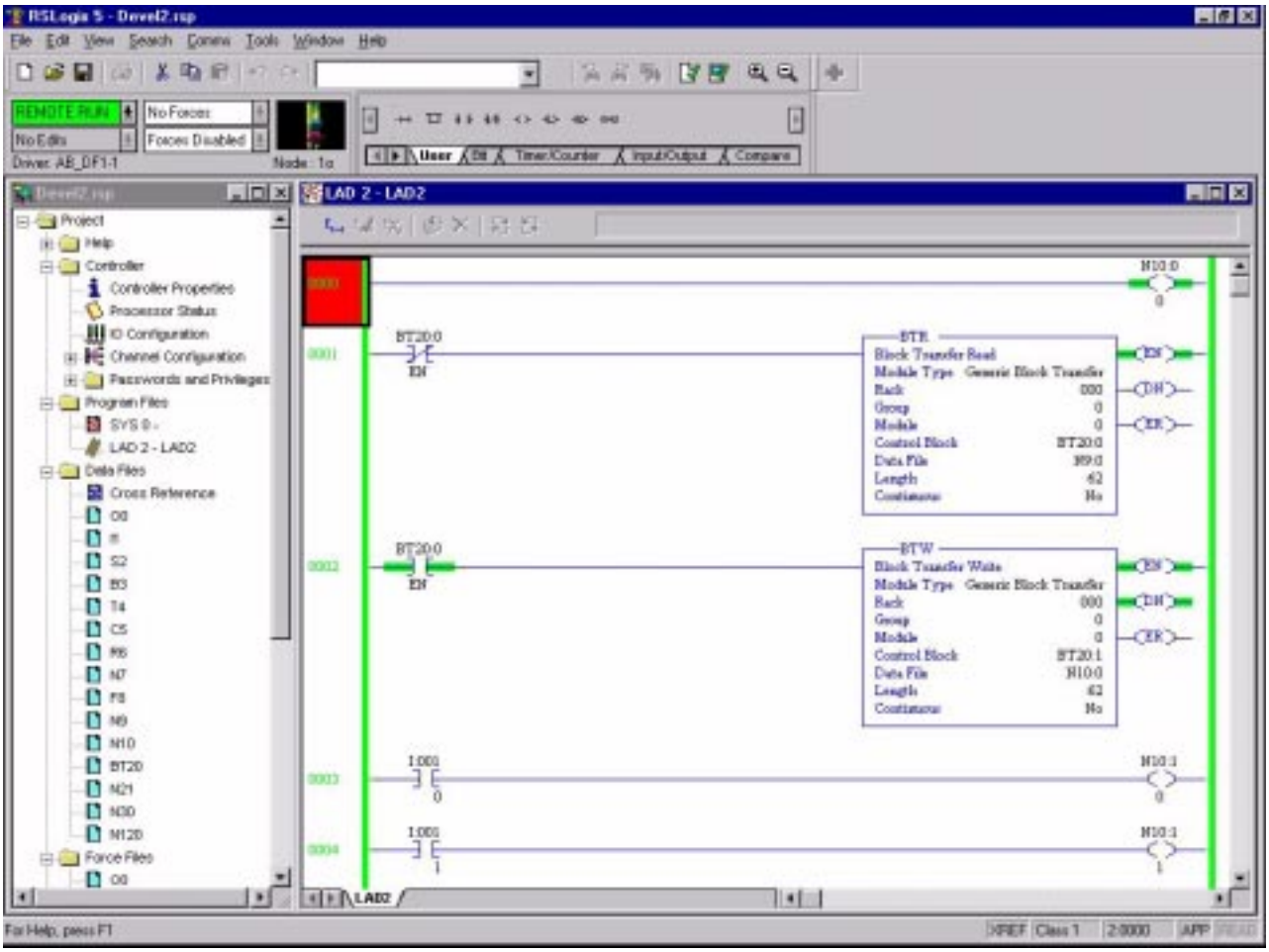


Scanner Module Output List:

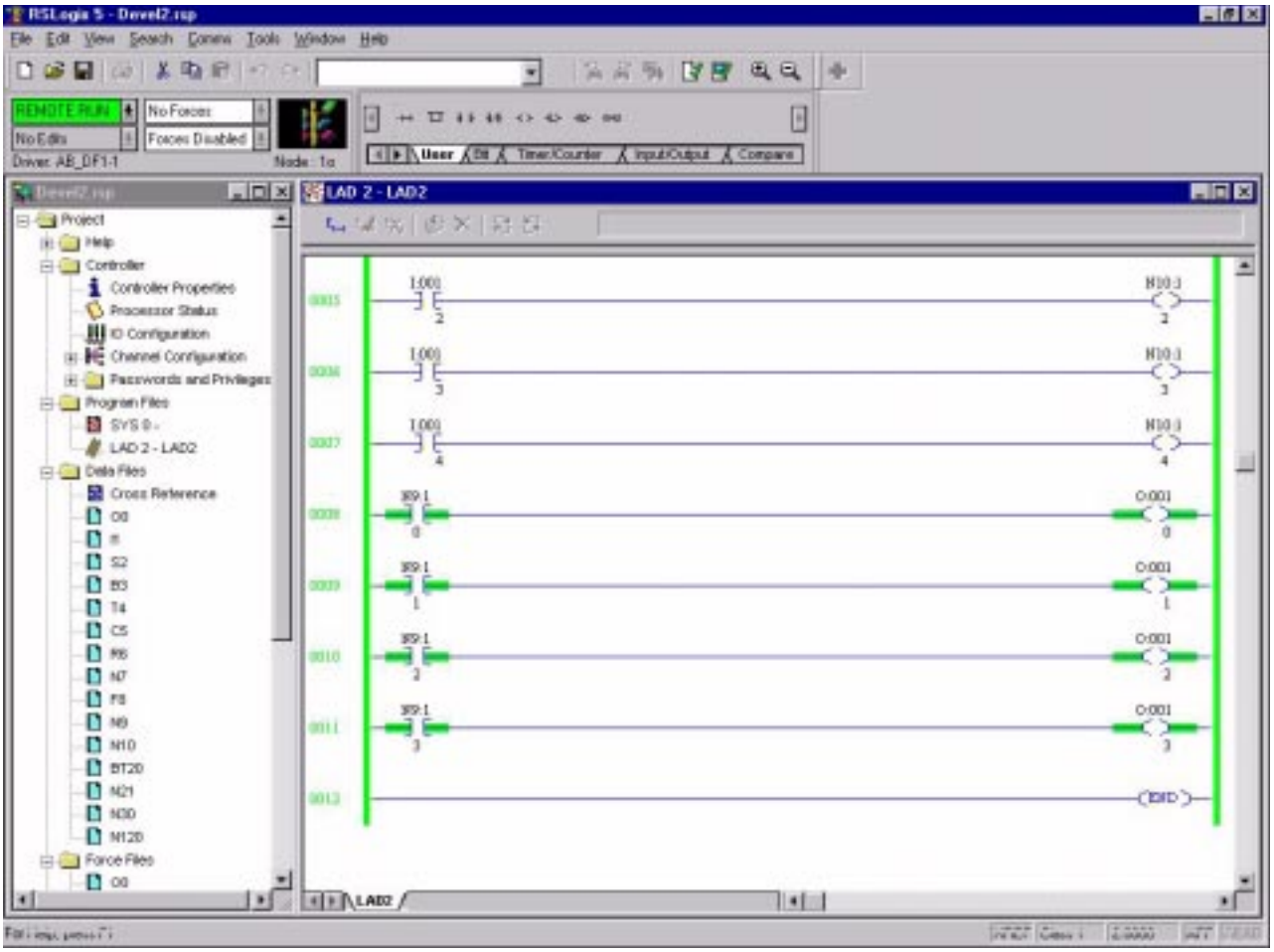
Scanner outputs should be mapped as shown below. This example illustrates a SMP-3 on Node 14. SMP-3 control data is located at N10:1 bit 0 through bit 15.



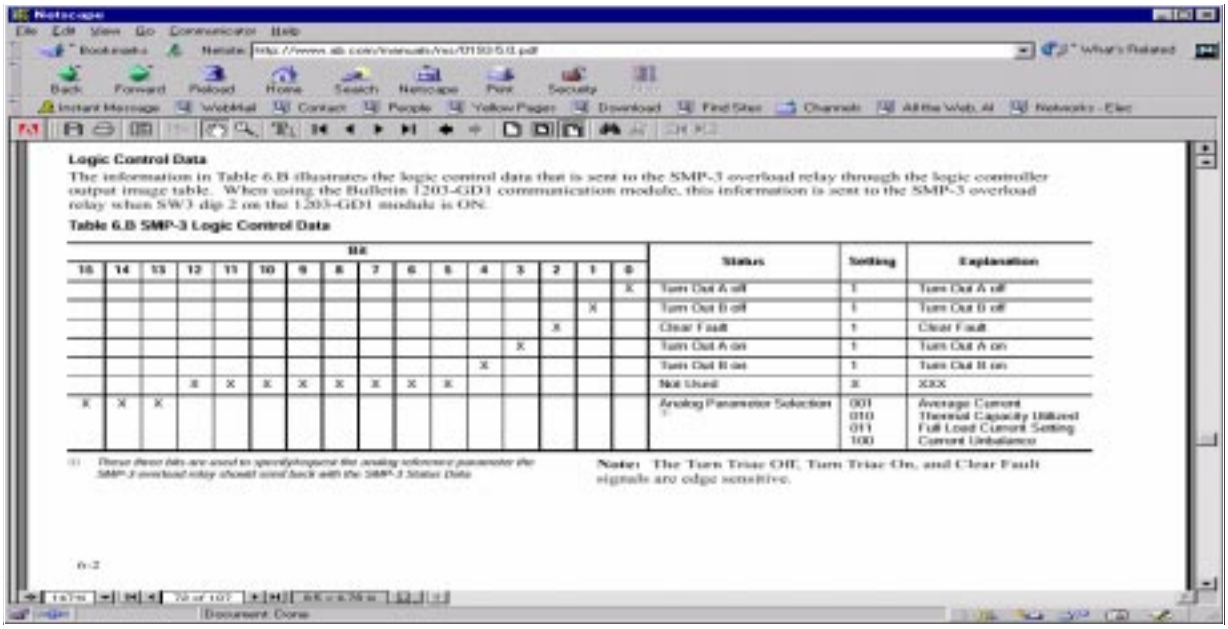
PLC Code: Rung 0 enables scanner; Rungs 1 and 2 are Block Transfer Read & Write. SMP-3 Output A is turned OFF when I:001/0 in Rung 3 is momentarily turned ON. SMP-3 output B is turned OFF when I:001/1 in Rung 4 is momentarily turned ON.



PLC Code: SMP-3 is RESET when I:001/4 in Rung 5 is turned ON. SMP-3 Output A is turned ON when I:001/3 in Rung 6 is momentarily turned ON. SMP-3 output B is turned ON when I:001/4 in Rung 7 is momentarily turned ON. Rungs 8-11 read GK61 inputs and turn on respective LED in SIM card located in PLC Chassis Slot 1.



For Reference, Logic Control Data and Status Data tables from SMP-3 manual are included below.



Logic Control Data

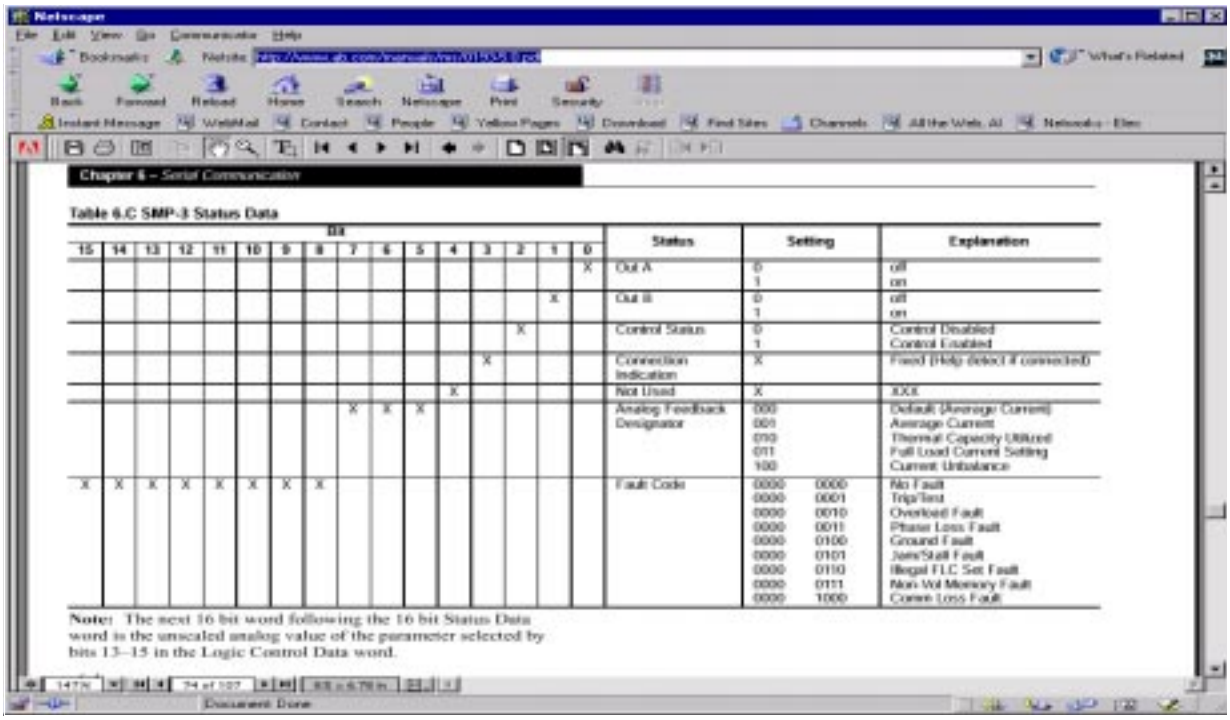
The information in Table 6.B illustrates the logic control data that is sent to the SMP-3 overload relay through the logic controller output image table. When using the Bulletin 1203-GD1 communication module, this information is sent to the SMP-3 overload relay when SW3 dip 2 on the 1203-GD1 module is ON.

Table 6.B SMP-3 Logic Control Data

Bit 15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Status	Setting	Explanation
															X	Turn Out A off	1	Turn Out A off
														X		Turn Out B off	1	Turn Out B off
													X			Clear Fault	1	Clear Fault
												X				Turn Out A on	1	Turn Out A on
											X					Turn Out B on	1	Turn Out B on
			X	X	X	X	X	X	X	X						Not Used	X	XXX
X	X	X														Analog Parameter Selection (1)	001 010 011 100	Average Current Thermal Capacity Utilized Full Load Current Setting Current Unbalance

(1) These three bits are used to specify/request the analog reference parameter the SMP-3 overload relay should send back with the SMP-3 Status Data.

Note: The Turn Triac Off, Turn Triac On, and Clear Fault signals are edge sensitive.



Chapter 6 – Serial Communication

Table 6.C SMP-3 Status Data

Bit 15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Status	Setting	Explanation
															X	Out A	0 1	off on
														X		Out B	0 1	off on
													X			Control Status	0 1	Control Disabled Control Enabled
												X				Connection Indication	X	Fixed (Help detect if connected)
											X					Not Used	X	XXX
								X	X	X						Analog Feedback Designator	000 001 010 011 100	Default (Average Current) Average Current Thermal Capacity Utilized Full Load Current Setting Current Unbalance
X	X	X	X	X	X	X	X									Fault Code	0000 0000 0000 0001 0000 0010 0000 0011 0000 0100 0000 0101 0000 0110 0000 0111 0000 1000	No Fault Trip/Test Overload Fault Phase Loss Fault Ground Fault Jam/Stall Fault Illegal FLC Set Fault Non Vol Memory Fault Comm Loss Fault

Note: The next 16 bit word following the 16 bit Status Data word is the unscaled analog value of the parameter selected by bits 13–15 in the Logic Control Data word.

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