

## ADI Metasys N2 Operation

The ADI Metasys N2 interface occupies two consecutive N2 addresses. The first 256 LEDs and the first 256 switch contacts are controlled at the first N2 address. Subsequent LEDs and switches are on the next N2 address. Addresses are selected using a DIP switch on the Z-Card. ADI's N2 interface always occupies two N2 address blocks, even if some of the physical I/O space is unused. See TABLE 1 for details.

Each N2 address can control blocks of up to 256 objects. For example, a single N2 address can control 256 AO objects (LEDs) and 256 BI objects (switches). Automation Displays I/O cards are organized in blocks of 80 points each. Since the N2 bus is an addressable multi-drop communications system, other interfaces can be added to the same communication trunk as long as the N2 addresses do not overlap.

ADI's Metasys N2 interface supports two types of virtual objects: Switches are reported as Binary Input (BI) points, and LEDs are controlled by override commands to Analog Output (AO) points.

### Binary Inputs:

Before BI points can be used, the N2 master must use the Write Binary Input Command to set bit 0 of the first attribute byte of each object so that Change Of State (COS) is enabled for that point. If COS is not enabled, the state of a BI point can still be determined by reading bit 6 of the Object Status byte.

In response to a poll from the N2 master, BI points are reported with bit 6 of attribute byte #2 representing the current state of the switch contact. A "0" means that the switch is off, and a "1" means that the switch is on. If a scan bus failure is detected by the Z-Card, then bit 0 of attribute byte #2 is set to indicate that the point is unreliable.

### Analog Outputs:

Before AO points can be used, the N2 master must use the Write Analog Output Command to set bit 0 of the first attribute byte of each object so that Change Of State (COS) is enabled for that point.

LEDs are then controlled by the N2 master using the Override Analog Output Command which contains the address of the LED (0-255) as the output number and the LED state as the override value. The following four override values are used:

- 0 = LED off
- 1 = LED on
- 2 = LED slow flash
- 3 = LED fast flash

In addition, an LED can be turned off using the Override Release Request which has the same effect as sending an Override Analog Output Command with an override value of 0.

**TABLE 1 :**  
**Z-Card DIP Switch Settings**  
**(0 = off, 1 = on, x = don't care)**

DIP switch:								
1	2	3	4	5	6	7	8	
0	0	x	x	x	x	x	x	System has >40 inputs or outputs
0	1	x	x	x	x	x	x	System has <40 inputs AND < 40 outputs
0	x	1	x	x	x	x	x	LAMP TEST
0	x	x	0	0	0	0	0	N2 Addresses 1 & 2
0	x	x	0	0	0	0	1	N2 Addresses 8 & 9
0	x	x	0	0	0	1	0	N2 Addresses 16 & 17
0	x	x	0	0	0	1	1	N2 Addresses 24 & 25
0	x	x	0	0	1	0	0	N2 Addresses 32 & 33
0	x	x	0	0	1	0	1	N2 Addresses 40 & 41
0	x	x	0	0	1	1	0	N2 Addresses 48 & 49
0	x	x	0	0	1	1	1	N2 Addresses 56 & 57
0	x	x	0	1	0	0	0	N2 Addresses 64 & 65
0	x	x	0	1	0	0	1	N2 Addresses 72 & 73
0	x	x	0	1	0	1	0	N2 Addresses 80 & 81
0	x	x	0	1	0	1	1	N2 Addresses 88 & 89
0	x	x	0	1	1	0	0	N2 Addresses 96 & 97
0	x	x	0	1	1	0	1	N2 Addresses 104 & 105
0	x	x	0	1	1	1	0	N2 Addresses 112 & 113
0	x	x	0	1	1	1	1	N2 Addresses 120 & 121
0	x	x	1	0	0	0	0	N2 Addresses 128 & 129
0	x	x	1	0	0	0	1	N2 Addresses 136 & 137
0	x	x	1	0	0	1	0	N2 Addresses 144 & 145
0	x	x	1	0	0	1	1	N2 Addresses 152 & 153
0	x	x	1	0	1	0	0	N2 Addresses 160 & 161
0	x	x	1	0	1	0	1	N2 Addresses 168 & 169
0	x	x	1	0	1	1	0	N2 Addresses 176 & 177
0	x	x	1	0	1	1	1	N2 Addresses 184 & 185
0	x	x	1	1	0	0	0	N2 Addresses 192 & 193
0	x	x	1	1	0	0	1	N2 Addresses 200 & 201
0	x	x	1	1	0	1	0	N2 Addresses 208 & 209
0	x	x	1	1	0	1	1	N2 Addresses 216 & 217
0	x	x	1	1	1	0	0	N2 Addresses 224 & 225
0	x	x	1	1	1	0	1	N2 Addresses 232 & 233
0	x	x	1	1	1	1	0	N2 Addresses 240 & 241
0	x	x	1	1	1	1	1	N2 Addresses 248 & 249

