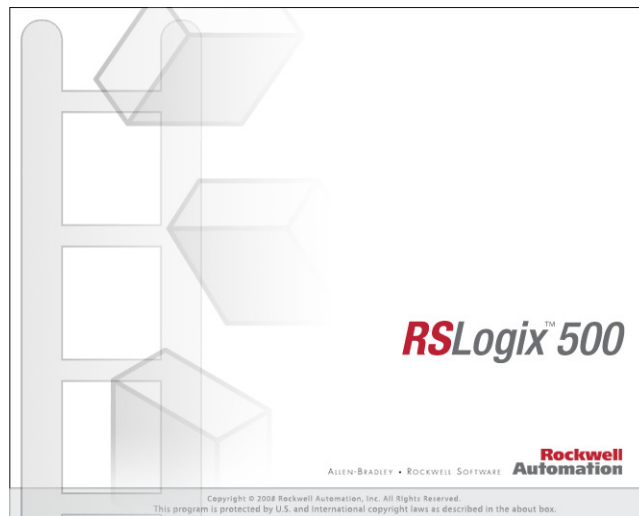


RSLogix Micro Project Report



Processor Information

Processor Type: Bul.1766 MicroLogix 1400 Series A

Processor Name: UNTITLED

Total Memory Used: 1696 Instruction Words Used - 3431 Data Table Words Used

Total Memory Left: 10738 Instruction Words Left

Program Files: 19

Data Files: 30

Program ID: 62a3

I/O Configuration

0	Bul.1766	MicroLogix 1400 Series A
1		
2		
3		
4		
5		
6		
7		

Channel Configuration

CHANNEL 0 (SYSTEM) - Driver: ASCII

CHANNEL 0 (SYSTEM) - Driver: ASCII Edit Resource/Owner Timeout: 60
CHANNEL 0 (SYSTEM) - Driver: ASCII Passthru Link ID: 1
CHANNEL 0 (SYSTEM) - Driver: ASCII Write Protected: No
CHANNEL 0 (SYSTEM) - Driver: ASCII Comms Servicing Selection: Yes
CHANNEL 0 (SYSTEM) - Driver: ASCII Message Servicing Selection: Yes
CHANNEL 0 (SYSTEM) - Driver: ASCII 1st AWA Append Character: \d
CHANNEL 0 (SYSTEM) - Driver: ASCII 2nd AWA Append Character: \a

Baud: 9600
Parity: NONE
Termination Character 1: \d
Termination Character 2: \ff
Control Line : No Handshaking (485 Network)
Delete mode: Ignore
Echo: No
XON/XOFF: No
RTS Off Delay(x20 ms): 0
RTS Send Delay(x20 ms): 0

CHANNEL 1 (SYSTEM) - Driver: Ethernet

CHANNEL 1 (SYSTEM) - Driver: Ethernet Edit Resource/Owner Timeout: 60
CHANNEL 1 (SYSTEM) - Driver: Ethernet Passthru Link ID: 1
CHANNEL 1 (SYSTEM) - Driver: Ethernet Write Protected: No
CHANNEL 1 (SYSTEM) - Driver: Ethernet Comms Servicing Selection: Yes
CHANNEL 1 (SYSTEM) - Driver: Ethernet Message Servicing Selection: Yes

Hardware Address: 00:00:00:00:00:00
IP Address: 192.168.100.21
Subnet Mask: 255.255.255.0
Gateway Address: 192.168.100.1
Msg Connection Timeout (x 1mS): 15000
Msg Reply Timeout (x mS): 3000
Inactivity Timeout (x Min): 30
Bootp Enable: No
Dhcp Enable: No
SMTP Enable: No
SNMP Enable: Yes
HTTP Enable: Yes
Auto Negotiate Enable: Yes
Port Speed Enable: 10/100 Mbps Full Duplex/Half Duplex
Contact:
Location:

CHANNEL 2 (SYSTEM) - Driver: DF1 Full Duplex

CHANNEL 2 (SYSTEM) - Driver: DF1 Full Duplex Edit Resource/Owner Timeout: 60
CHANNEL 2 (SYSTEM) - Driver: DF1 Full Duplex Passthru Link ID: 1
CHANNEL 2 (SYSTEM) - Driver: DF1 Full Duplex Write Protected: No
CHANNEL 2 (SYSTEM) - Driver: DF1 Full Duplex Comms Servicing Selection: Yes
CHANNEL 2 (SYSTEM) - Driver: DF1 Full Duplex Message Servicing Selection: Yes
CHANNEL 2 (SYSTEM) - Driver: DF1 Full Duplex 1st AWA Append Character: \d
CHANNEL 2 (SYSTEM) - Driver: DF1 Full Duplex 2nd AWA Append Character: \a

Source ID: 1 (decimal)
Baud: 19200
Parity: NONE
Control Line : No Handshaking
Error Detection: CRC
Embedded Responses: Auto Detect
Duplicate Packet Detect: Yes
ACK Timeout(x20 ms): 50
NAK Retries: 3
ENQ Retries: 3

Program File List

Name	Number	Type	Rungs	Debug	Bytes
[SYSTEM]	0	SYS	0	No	0
	1	SYS	0	No	0
	2	LADDER	62	No	4897
CHANGE ADD	3	LADDER	5	No	318
CHG_ADD_1	4	LADDER	7	No	337
DATA_TRANS	5	LADDER	5	No	318
DATA_TXR_1	6	LADDER	7	No	337
DEFAULT	7	LADDER	5	No	318
DEFAULT_1	8	LADDER	7	No	316
SOFTWARE	9	LADDER	6	No	475
SOFTWARE_1	10	LADDER	7	No	316
CONFIG	11	LADDER	6	No	385
CONFIG_1	12	LADDER	7	No	316
KEY LOCK	13	LADDER	5	No	318
KEY LOCK_1	14	LADDER	7	No	337
STORAGE	15	LADDER	5	No	318
STORAGE_1	16	LADDER	7	No	316
COLOR VECT	17	LADDER	7	No	1517
CLR VECT_1	18	LADDER	7	No	325

Data File List

Name	Number	Type	Scope	Debug	Words	Elements	Last
OUTPUT	0	O	Global	No	18	6	O:5
INPUT	1	I	Global	No	24	8	I:7
STATUS	2	S	Global	No	0	66	S:65
BINARY	3	B	Global	No	10	10	B3:9
TIMER	4	T	Global	No	117	39	T4:38
COUNTER	5	C	Global	No	3	1	C5:0
CONTROL	6	R	Global	No	72	24	R6:23
INTEGER	7	N	Global	No	82	82	N7:81
FLOAT	8	F	Global	No	2	1	F8:0
ADDRESS	9	ST	Global	No	210	5	ST9:4
CHANGE ADD	10	ST	Global	No	294	7	ST10:6
DATA TRANS	11	ST	Global	No	294	7	ST11:6
DEFAULT	12	ST	Global	No	252	6	ST12:5
SOFTWARE	13	ST	Global	No	462	11	ST13:10
CONFIG	14	ST	Global	No	294	7	ST14:6
KEY LOCK	15	ST	Global	No	294	7	ST15:6
STORAGE	16	ST	Global	No	252	6	ST16:5
CHECKSUM	17	ST	Global	No	210	5	ST17:4
COLOR VECT	18	ST	Global	No	462	11	ST18:10
CLR VALUES	19	N	Global	No	19	19	N19:18
NODE1_CH1	20	N	Global	No	6	6	N20:5
NODE1_CH2	21	N	Global	No	6	6	N21:5
NODE1_CH3	22	N	Global	No	6	6	N22:5
NODE1_CH4	23	N	Global	No	6	6	N23:5
NODE1_CH5	24	N	Global	No	6	6	N24:5
NODE2_CH1	25	N	Global	No	6	6	N25:5
NODE2_CH2	26	N	Global	No	6	6	N26:5
NODE2_CH3	27	N	Global	No	6	6	N27:5
NODE2_CH4	28	N	Global	No	6	6	N28:5
NODE2_CH5	29	N	Global	No	6	6	N29:5

Node Address

Select the sensor address that will be commanded by activating/toggling Bits 1/0-1/4 for node addresses 1-5. For set-up configurations, toggle only one sensor and instruction command (Rungs 5-15). Multiple sensors can be addressed during operation after set-up.

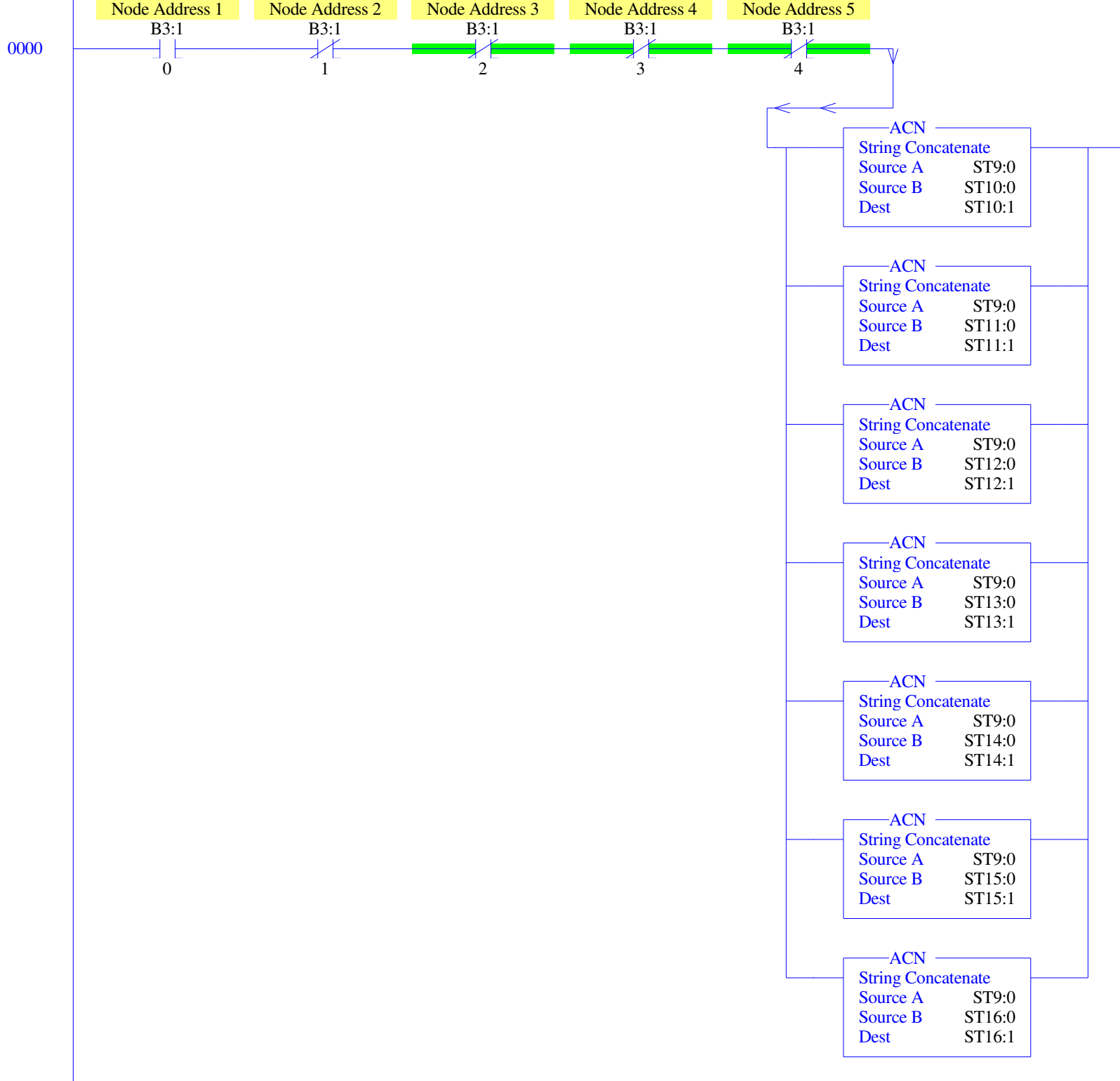
Bit 1/0 (B3:1/0) for Node Address 1

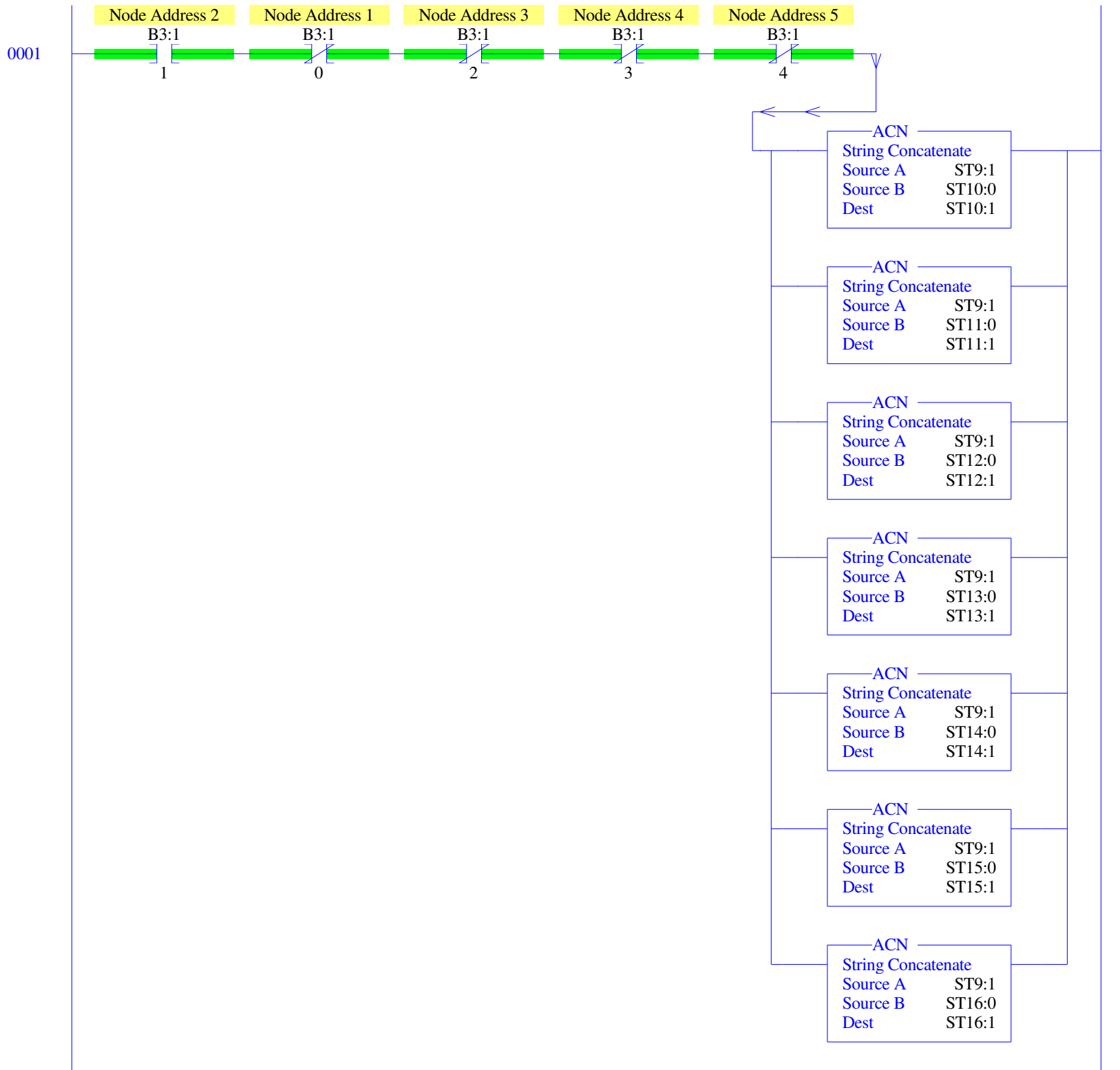
Bit 1/1 (B3:1/1) for Node Address 2

Bit 1/2 (B3:1/2) for Node Address 3

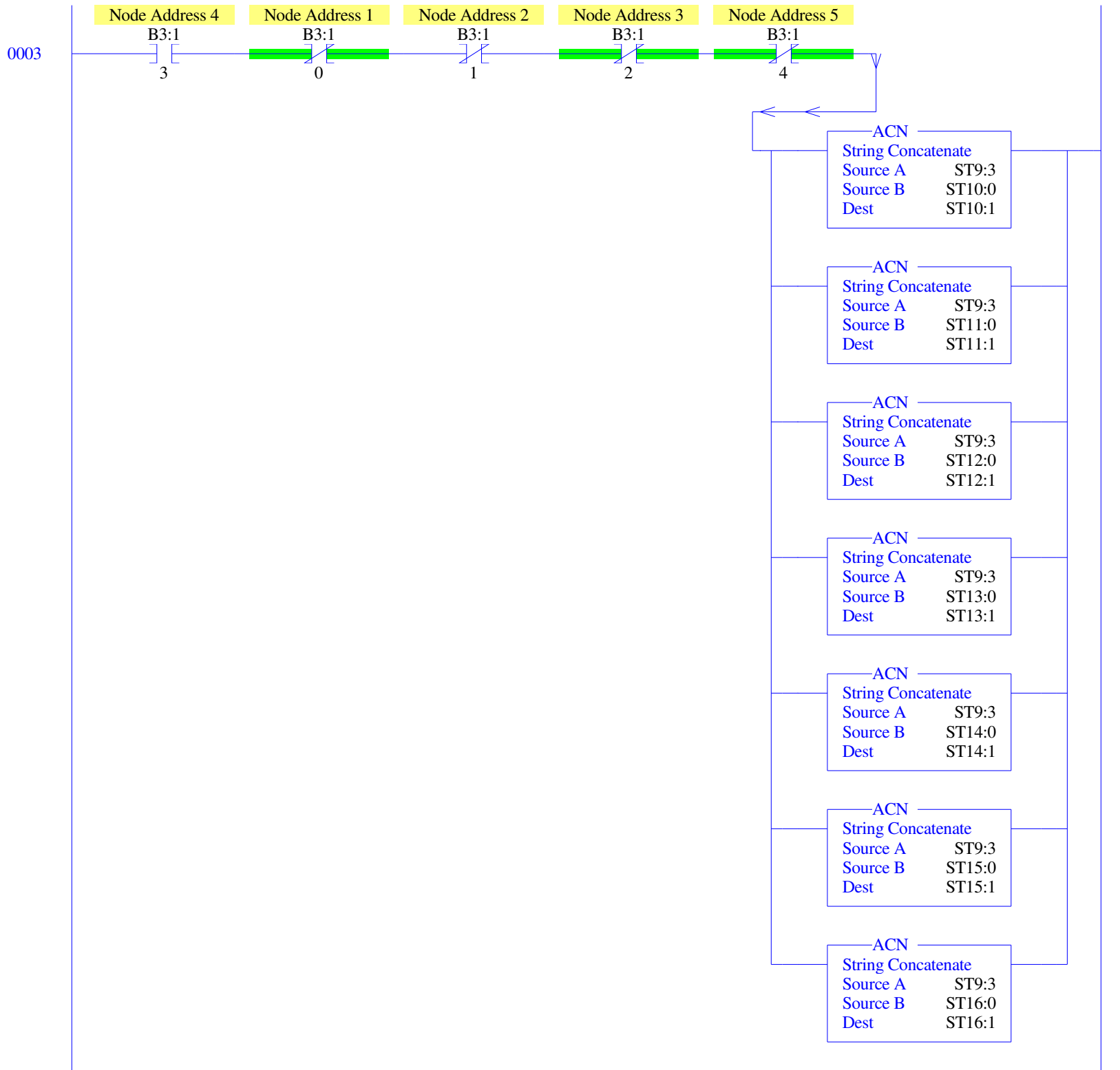
Bit 1/3 (B3:1/3) for Node Address 4

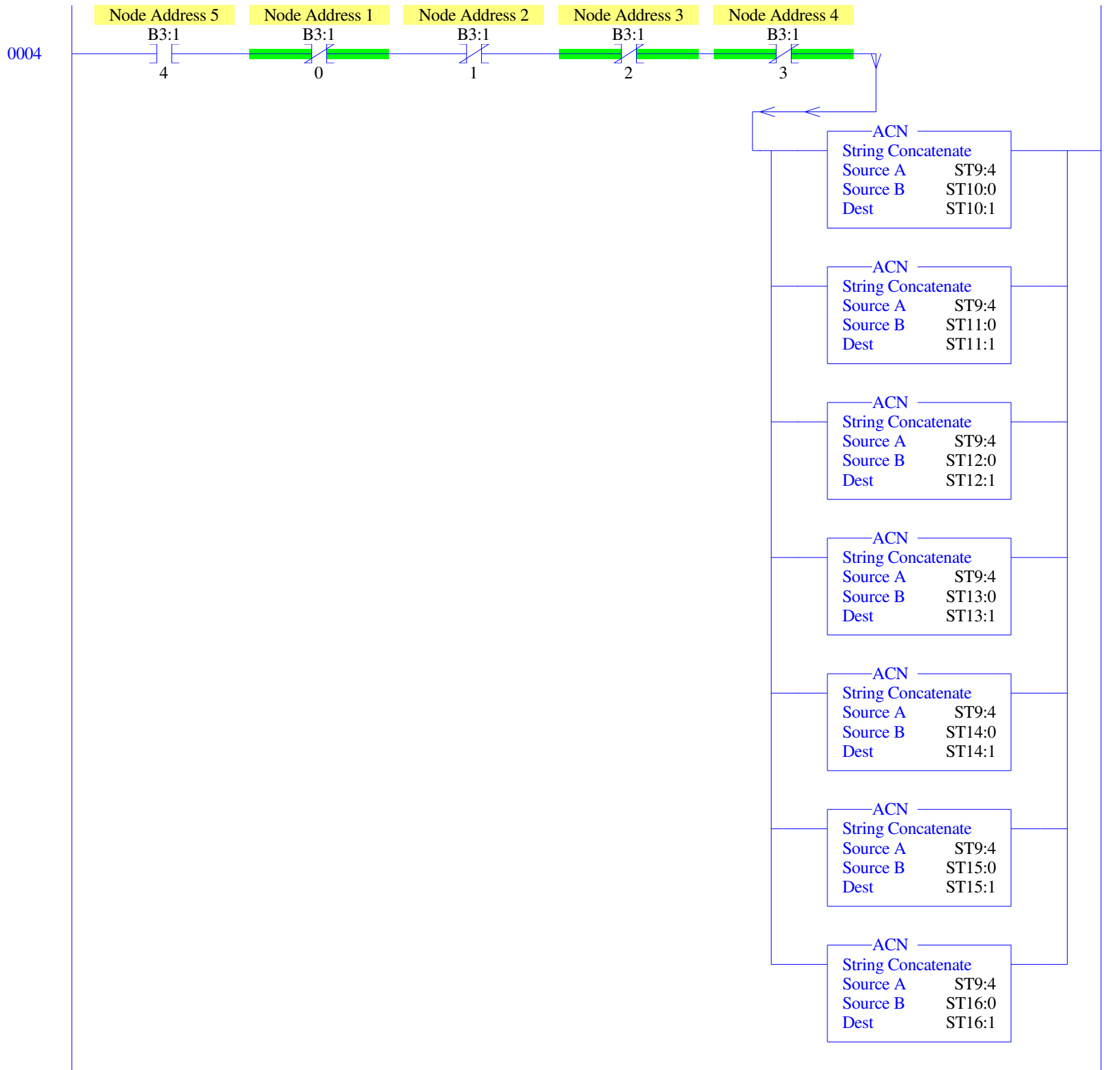
Bit 1/4 (B3:1/4) for Node Address 5











Change the Sensor's Address

When Bit 0/0 (B3:0/0) is activated this command causes the selected sensor in rungs 0000-00004 to take a new node address. This command changes your sensor address from the default value of 1 to a user defined selection of 2-5. The new desired address needs to be manually entered into the Source field of N7:4 within the MOV command along Rung 0005. Leave address 1 open for additional sensors that will be added to the network for the first time.

When B3:0/0 is activated by the user, the node address selected in rungs 0000-0004 takes the new address that is user defined in N7:4

When N7:4 is 1, the selected sensor (B3:1/0-B3:1/4) will be given the new node address of 1, the default value.

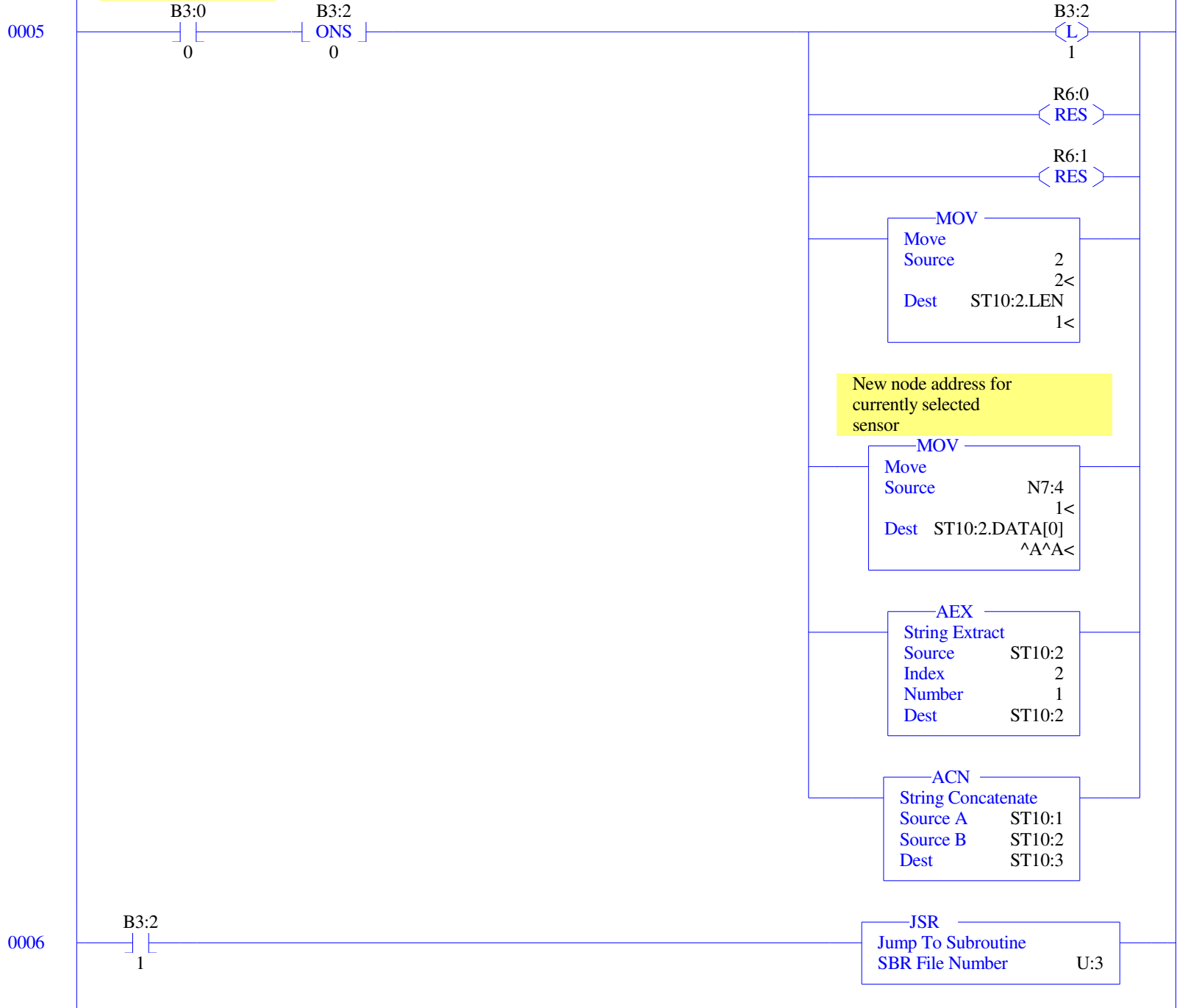
When N7:4 is 2, the selected sensor (B3:1/0-B3:1/4) will be given the new node address of 2.

When N7:4 is 3, the selected sensor (B3:1/0-B3:1/4) will be given the new node address of 3.

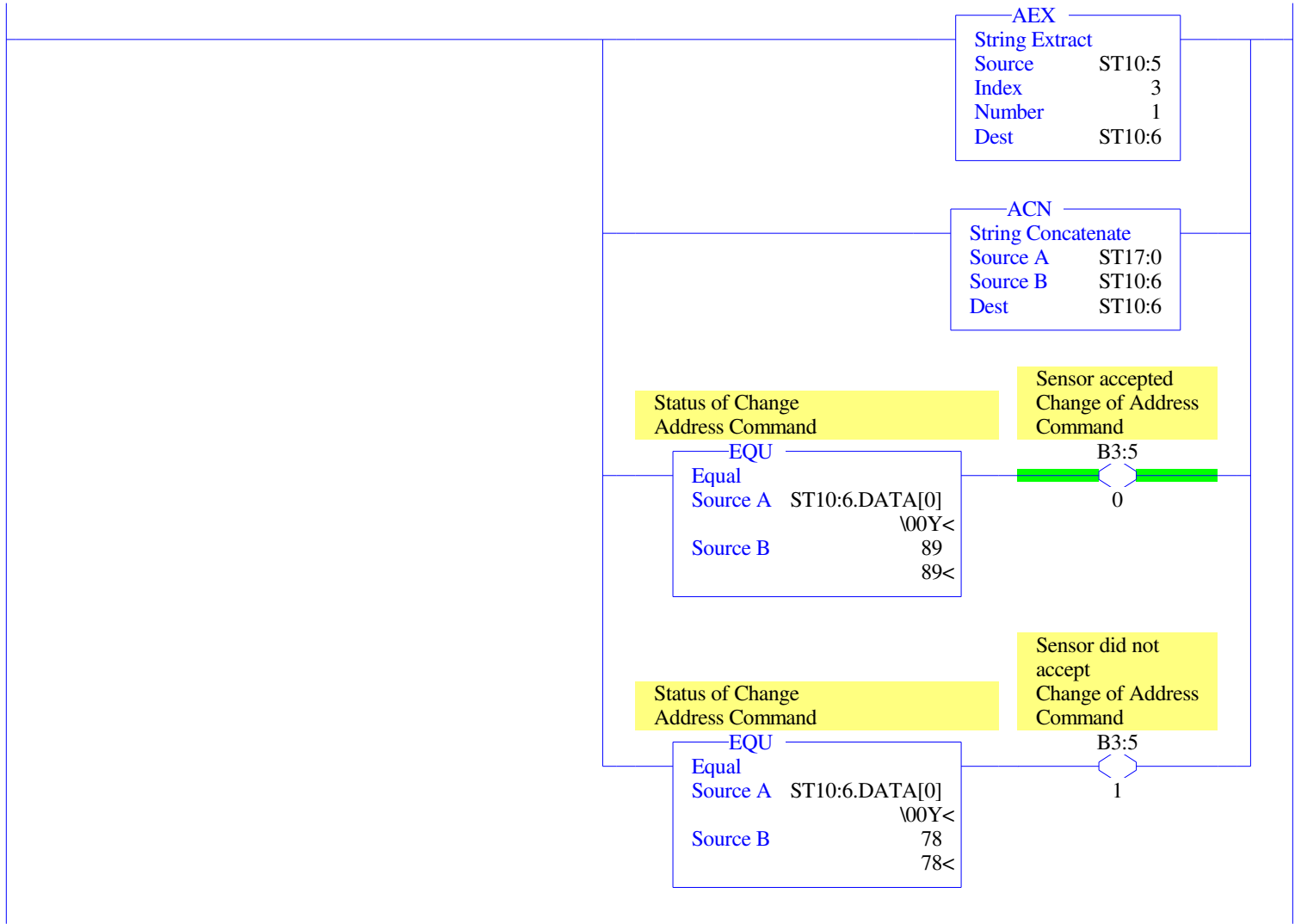
When N7:4 is 4, the selected sensor (B3:1/0-B3:1/4) will be given the new node address of 4.

When N7:4 is 5, the selected sensor (B3:1/0-B3:1/4) will be given the new node address of 5.

Change the sensor's
address



0007



Set Data Transfer Rate

When Bit 0/1 (B3:0/1) is activated this command causes the selected sensor in rungs 0000-00004 to communicate over a different Baud rate. This command changes your Baud rate from the default value of 9600 to a user defined selection of 4600, 19200 and 38400. Change the Baud rate by manually entering a value of 0-3 for N7:5 and toggling Bit 0/1 (B3:0/1).

When B3:0/1 is not activated by the user, the default data transfer rate of 9600 is active

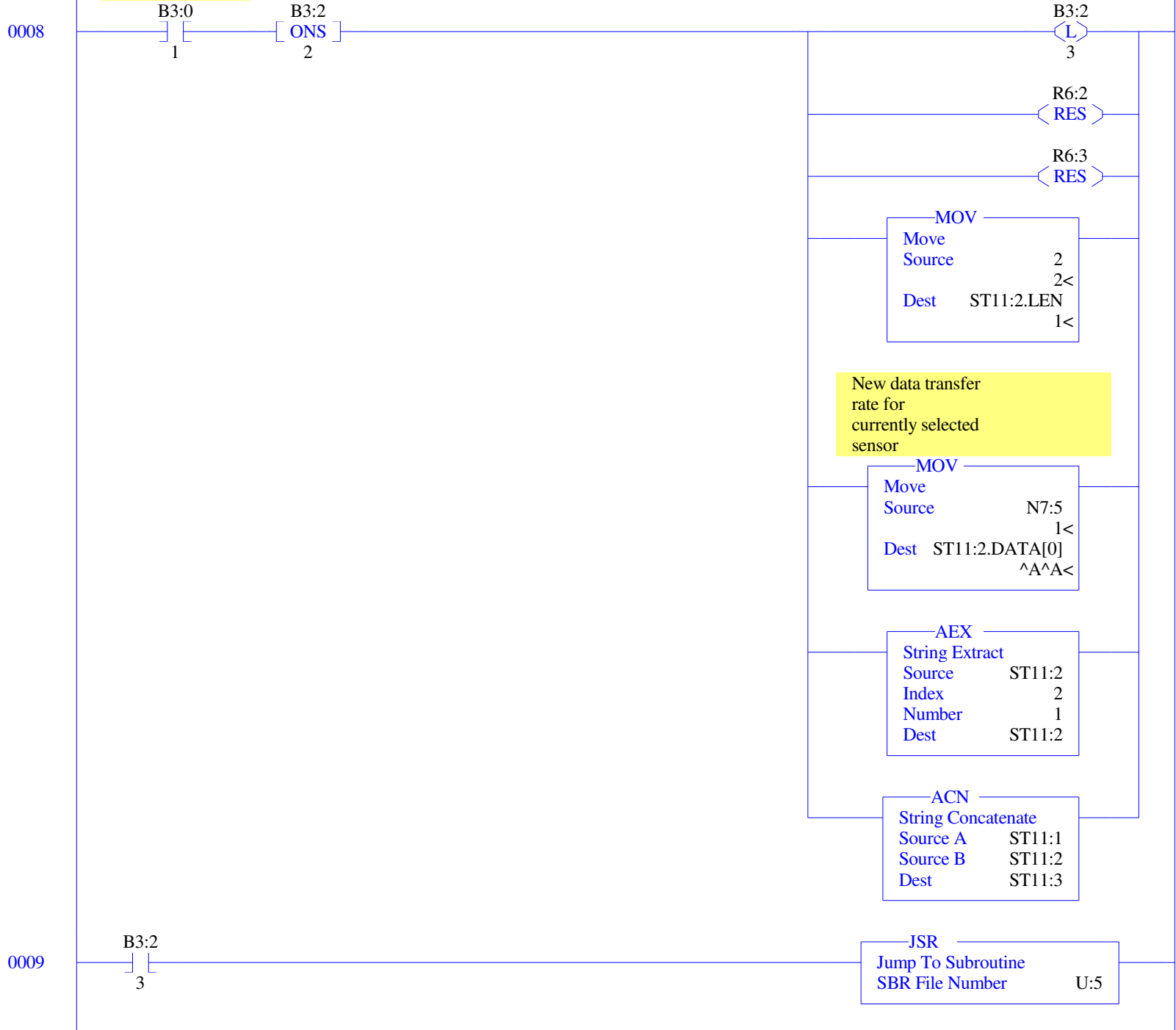
When N7:5 is 0 and B3:0/1 is activated, the selected sensor (B3:0/1-B3:0/4) will be given the new data transfer rate of 4800

When N7:5 is 1 and B3:0/1 is activated, the selected sensor (B3:0/1-B3:0/4) will be given the new data transfer rate of 9600

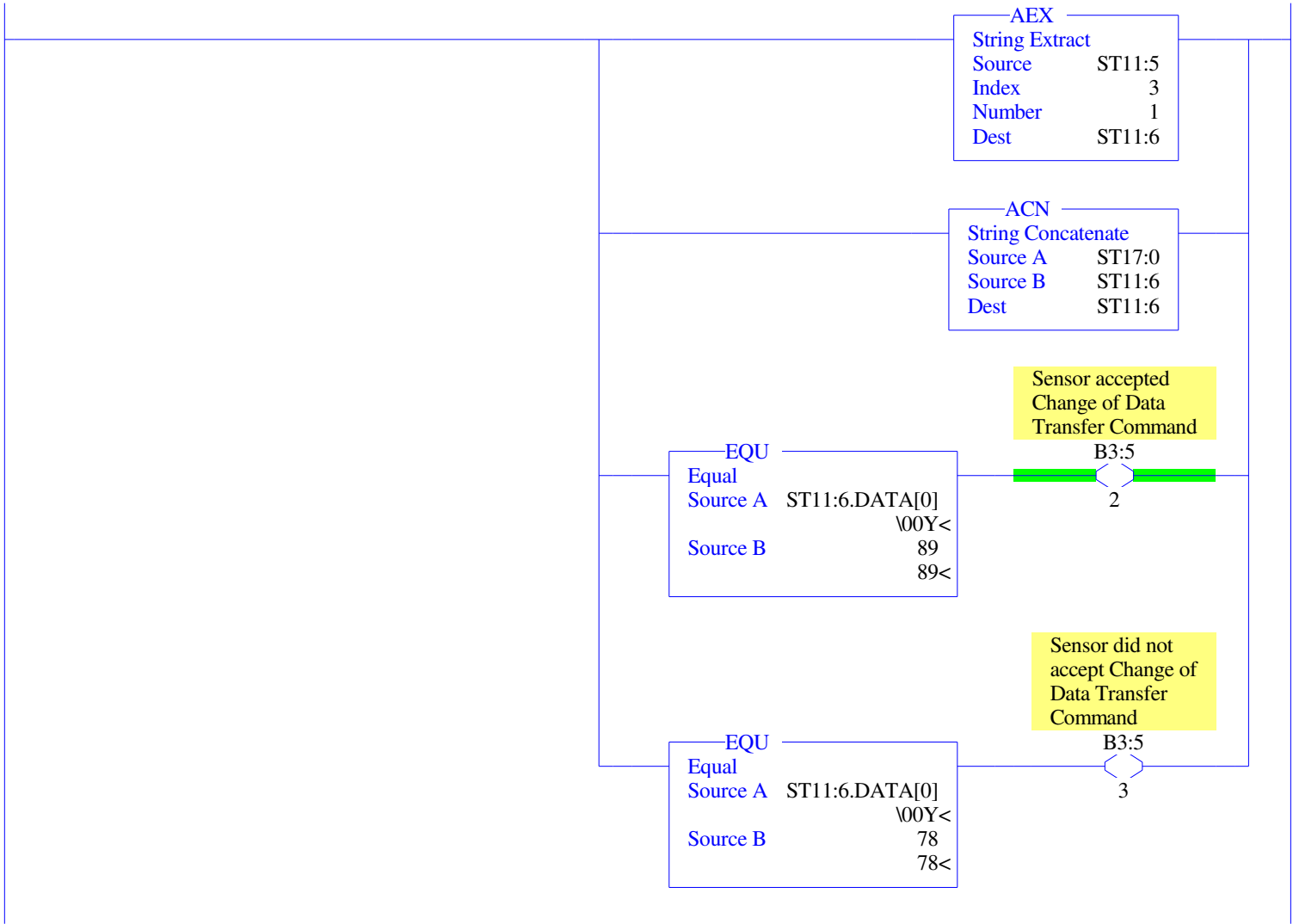
When N7:5 is 2 and B3:0/1 is activated, the selected sensor (B3:0/1-B3:0/4) will be given the new data transfer rate of 19200

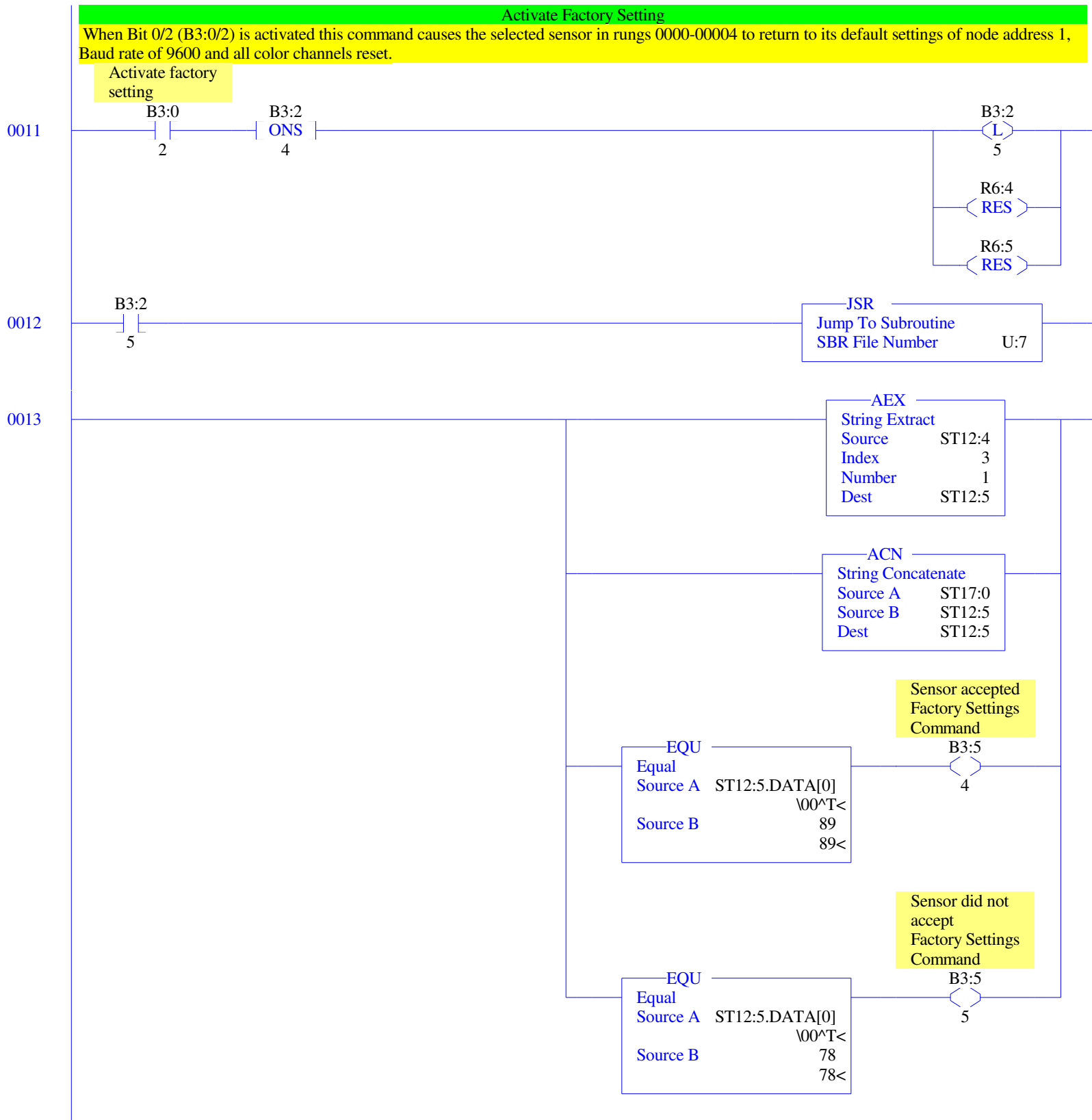
When N7:5 is 3 and B3:0/1 is activated, the selected sensor (B3:0/1-B3:0/4) will be given the new data transfer rate of 38400

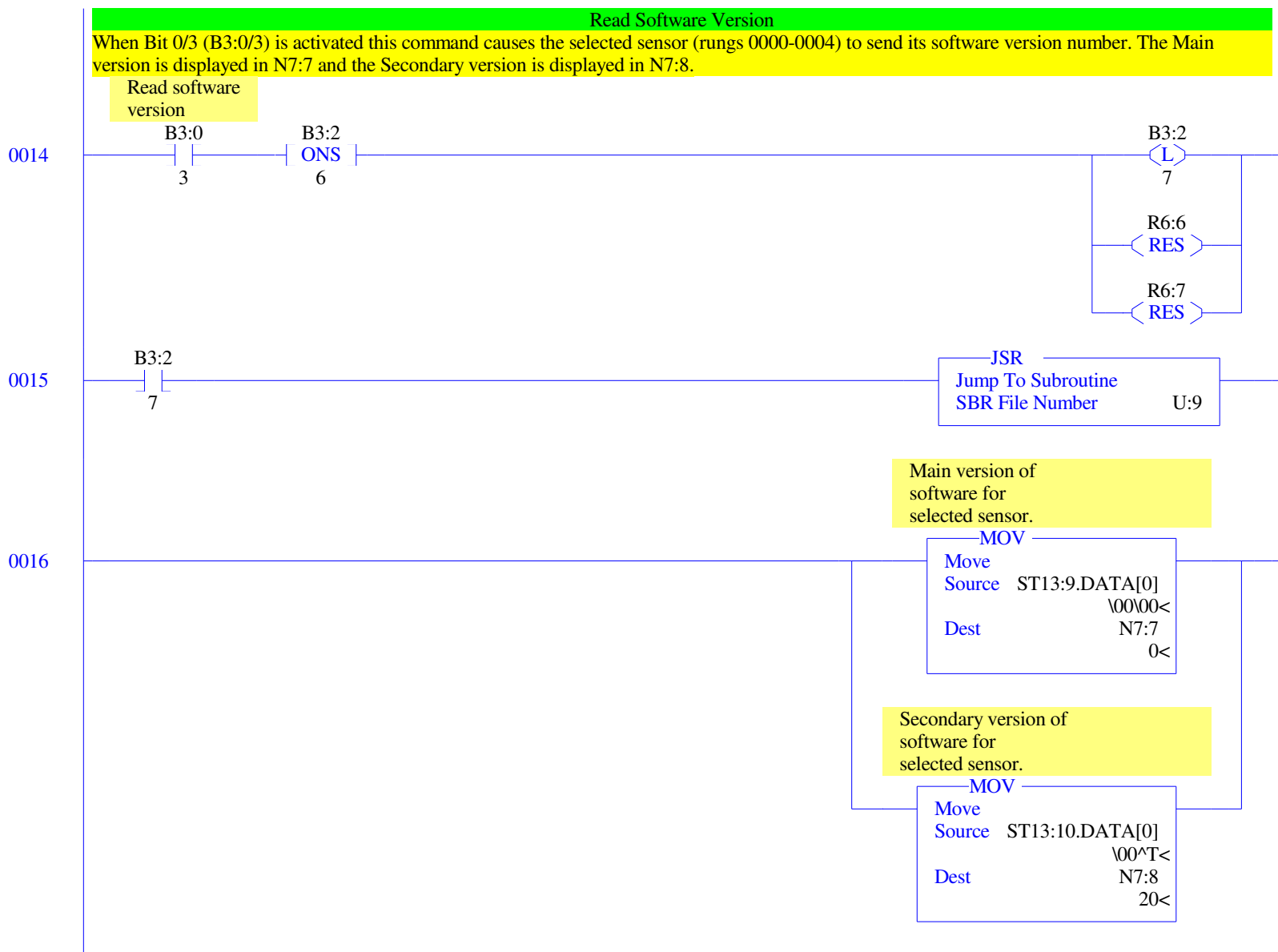
Set data transfer
rate



0010







Lock and Unlock Keypad

When Bit 0/5 (B3:0/5) is activated this command causes the selected sensor in rungs 0000-00004 to either lock or unlock the key pad. This command deactivates the key pad when N7:9 is set to 1. Once the key pad is deactivated, the only way to reactivate the keypad is to set N7:9 to 0 and activate Bit 0/5 (B3:0/5).

The sensor is set from the factory with the key pad active.

Activate Key Pad
Lock

0017

B3:0
5

B3:2
ONS
10

B3:2
11

R6:10
RES

R6:11
RES

MOV
Move
Source 2
2<
Dest ST15:2.LEN
1<

Activate Key Pad
Lock
for Sensor

MOV
Move
Source N7:9
0<
Dest ST15:2.DATA[0]
\\00\\00<

AEX
String Extract
Source ST15:2
Index 2
Number 1
Dest ST15:2

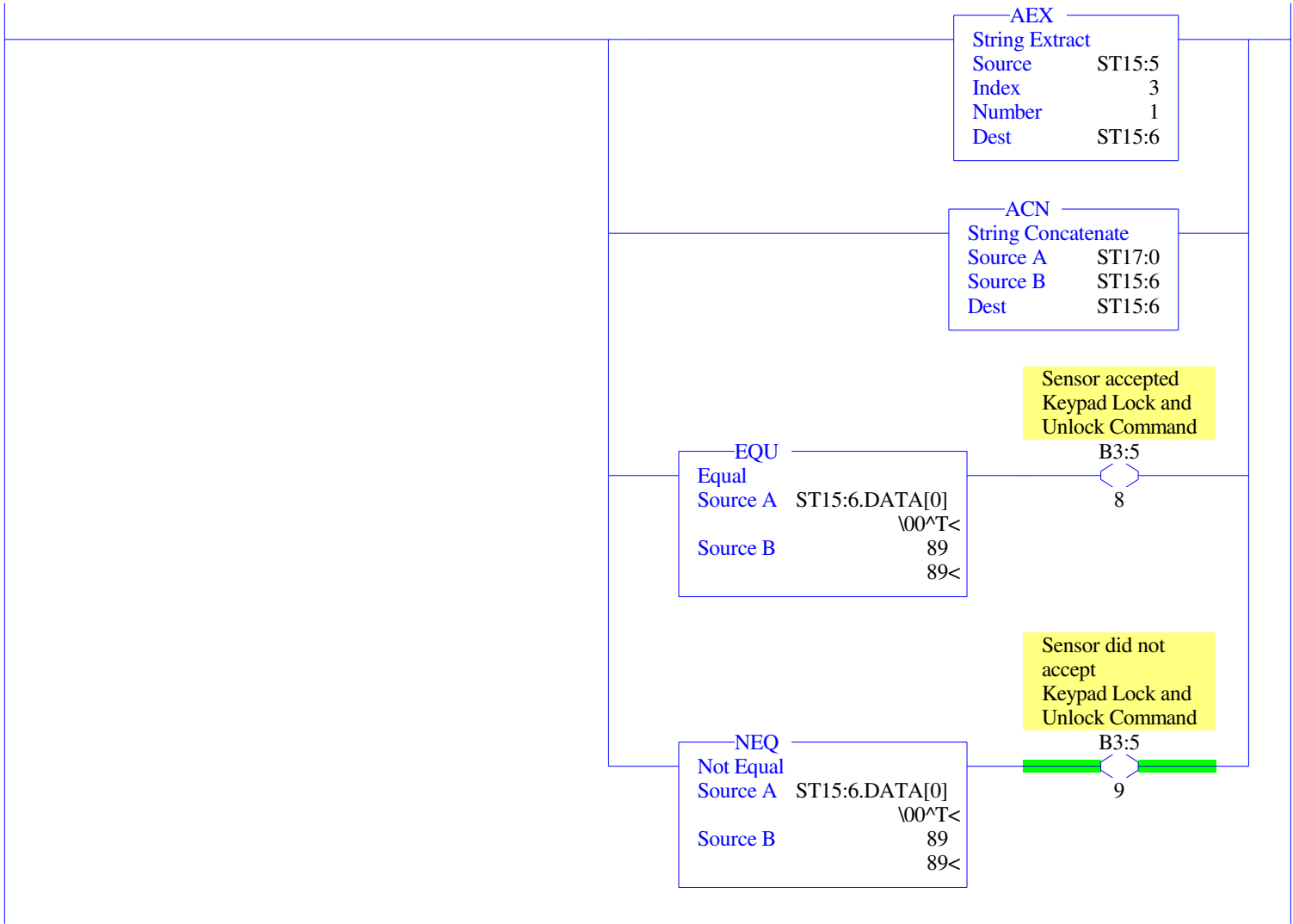
ACN
String Concatenate
Source A ST15:1
Source B ST15:2
Dest ST15:3

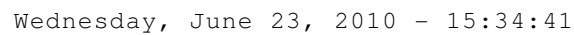
0018

B3:2
11

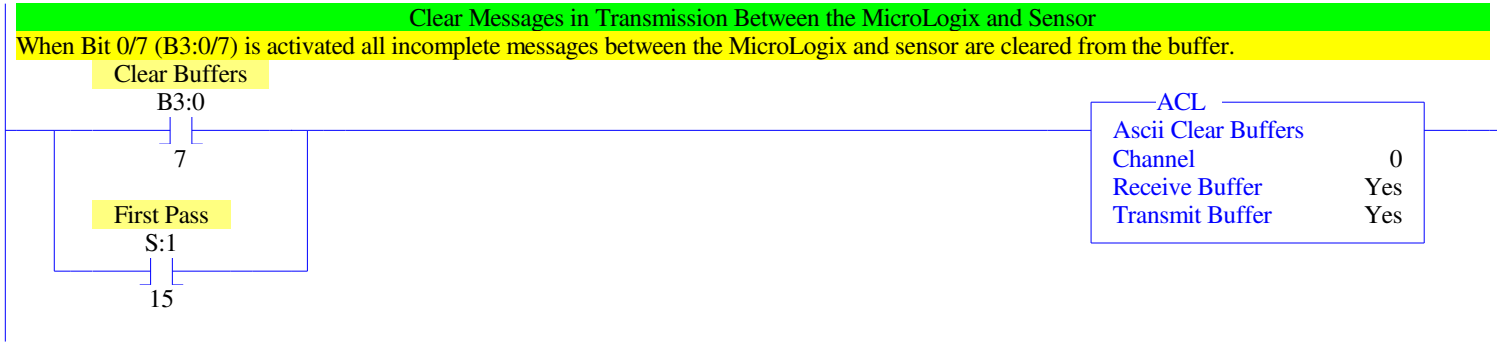
JSR
Jump To Subroutine
SBR File Number U:13

0019



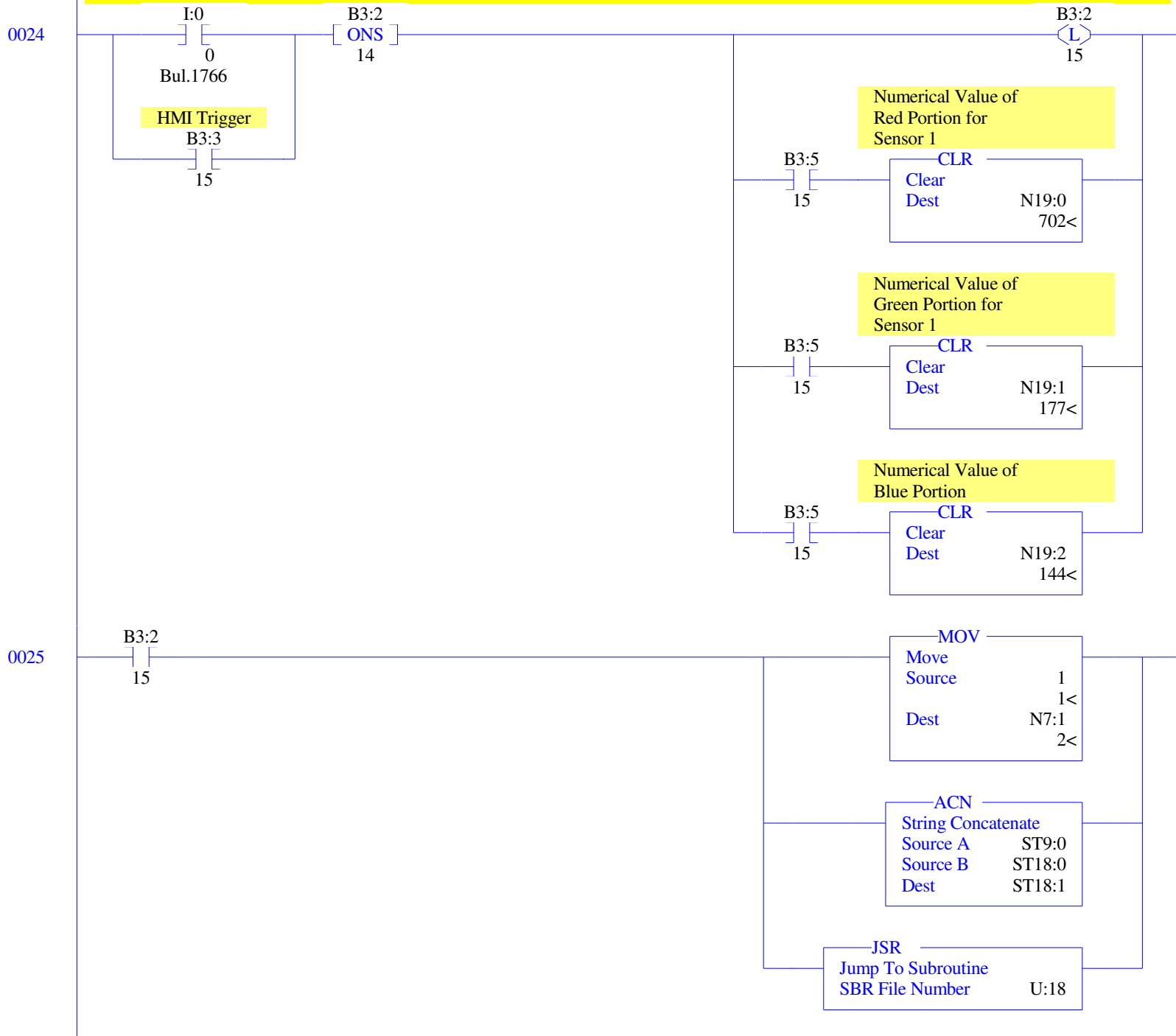


0023



Node Address 1: Read Color Vector

Once input 0 (I:0/0) is activated this commands the sensor addressed as 1, to read the object that is presently in front of the sensor. The color of the object gets transferred into a numerical vector for the red, green and intensity portions. These values are displayed in data file N19:0, N19:1 and N19:3 . When these data values are displayed the user can set a high and low tolerance for each portion. If the object's color vector is within the tolerance of the red, green and intensity portions then the rung output will be true. THIS INSTRUCTION SET READS THE EXACT COLOR VECTOR OF THE OBJECT AND DOES NOT HAVE AN AUTOMATIC TOLERANCE RANGE. THE UPPER AND LOWER TOLERANCE WILL NEED TO BE MANUALLY ENTERED INTO THE PROGRAM.



Node Address 1: Red, Green, Blue and Intensity Portions for Channel 1

Color Channel 1: The Integer addresses N19:0, N19:1, N19:2 and N19:3 display the true Red, Green, Blue and Intensity values for the color vector of the object that the sensor detects. The sum of the Red, Green and Blue portions has to equal 1023 and all integers have to be positive. All three portions, Red, Green and Intensity need to be simultaneously within the acceptable user-defined tolerance to make Output 1 become true.

Tolerances for the Red, Green and Intensity portions are user-defined.

Red Portion:

-Low Limit, N20:0

-High Limit, N20:1

Green Portion:

-Low Limit, N20:2

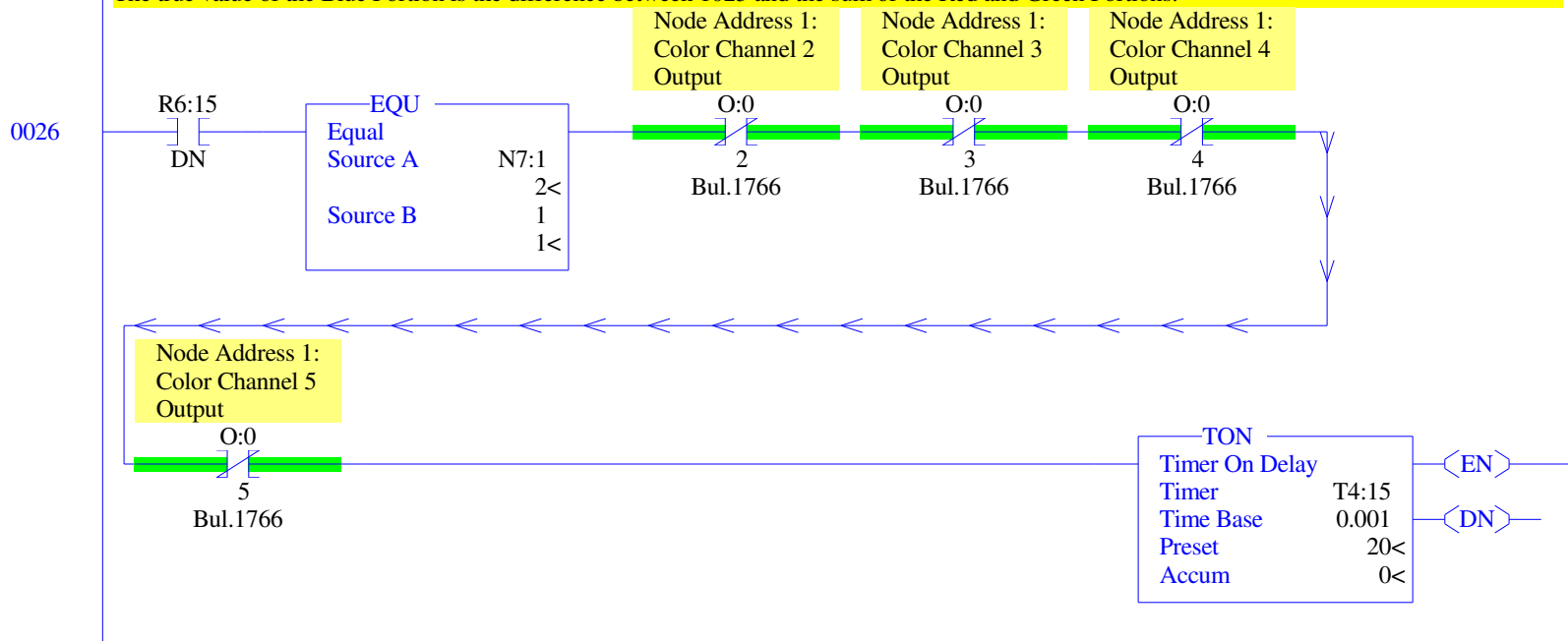
-High Limit, N20:3

Intensity Portion:

-Low Limit, N20:4

-High Limit, N20:5

The true value of the Blue Portion is the difference between 1023 and the sum of the Red and Green Portions.



0027

T4:15
DN

Numerical Value of
Red Portion for
Sensor 1

LIM	
Limit Test	
Low Lim	N20:0
	365<
Test	N19:0
	702<
High Lim	N20:1
	410<

B3:3
L
0

Numerical Value of
Green Portion for
Sensor 1

LIM	
Limit Test	
Low Lim	N20:2
	350<
Test	N19:1
	177<
High Lim	N20:3
	375<

B3:3
L
1

Numerical Value of
Blue Portion

ADD	
Add	
Source A	N19:0
	702<
Source B	N19:1
	177<
Dest	N19:2
	144<

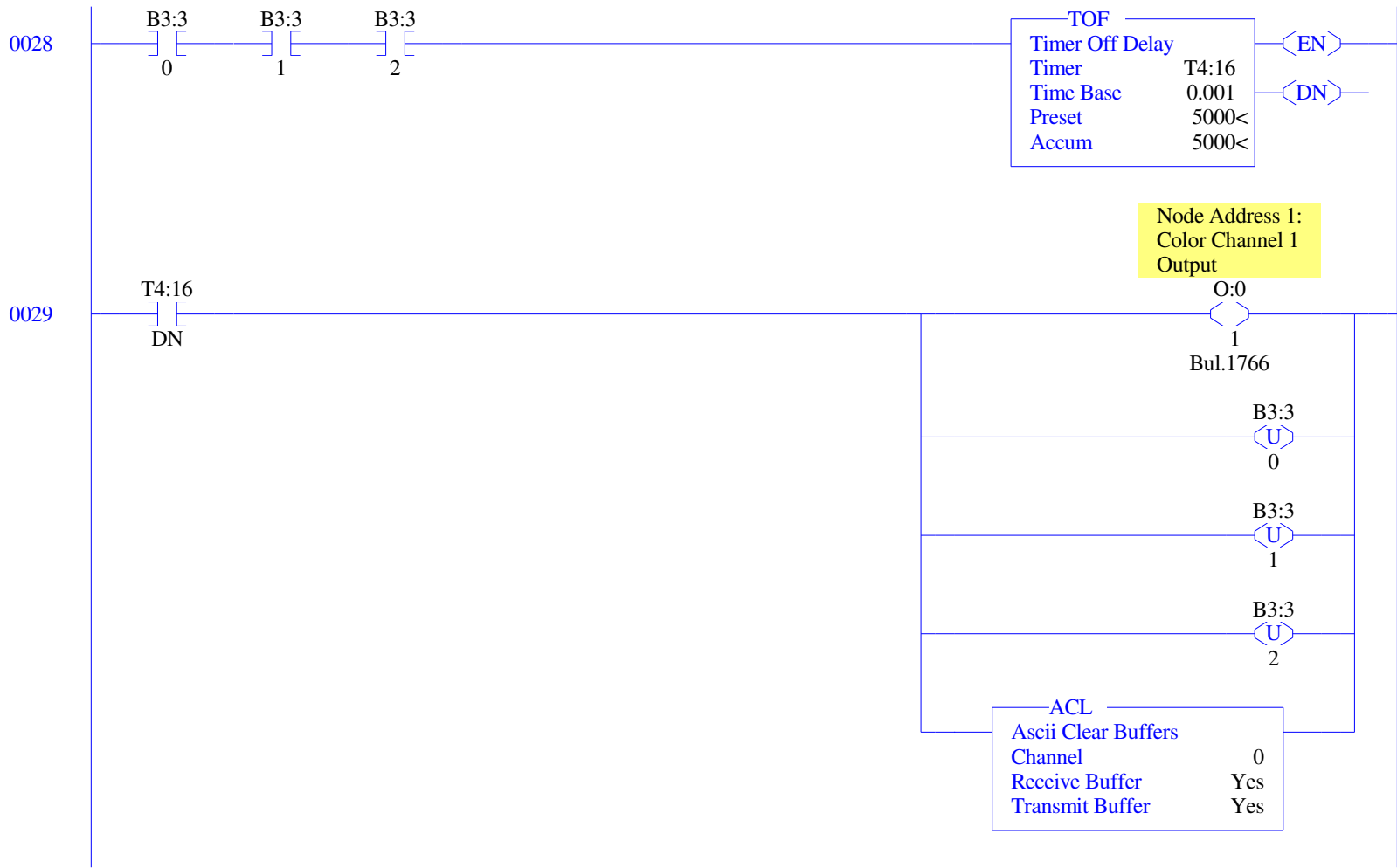
Numerical Value of
Blue Portion

SUB	
Subtract	
Source A	1023
	1023<
Source B	N19:2
	144<
Dest	N19:2
	144<

Numerical Value of
Intensity Portion
for Sensor 1

LIM	
Limit Test	
Low Lim	N20:4
	400<
Test	N19:3
	155<
High Lim	N20:5
	575<

B3:3
L
2



Node Address 1: Red, Green, Blue and Intensity Portions for Channel 2

Color Channel 2: The Integer files N19:0, N19:1, N19:2 and N19:3 respectively display the true Red, Green, Blue and Intensity values for the color vector of the object that the sensor detects. The sum of the Red, Green and Blue portions has to equal 1023 and all integers have to be positive. All three portions, Red, Green and Intensity need to be simultaneously within the acceptable user-defined tolerance to make Output 2 become true.

Tolerances for the Red, Green and Intensity portions are user-defined for Channel 2.

Red Portion:

-Low Limit, N21:0

-High Limit, N21:1

Green Portion:

-Low Limit, N21:2

-High Limit, N21:3

Intensity Portion:

-Low Limit, N21:4

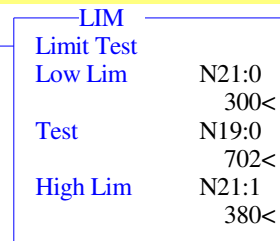
-High Limit, N21:5

The true value of the Blue Portion is the difference between 1023 and the sum of the Red and Green Portions.

0030

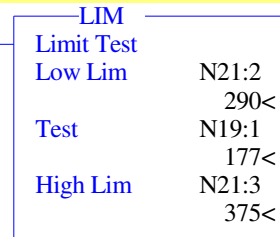
T4:15
DN

Numerical Value of
Red Portion for
Sensor 1



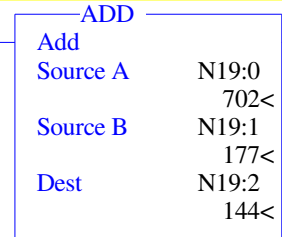
B3:3
3

Numerical Value of
Green Portion for
Sensor 1

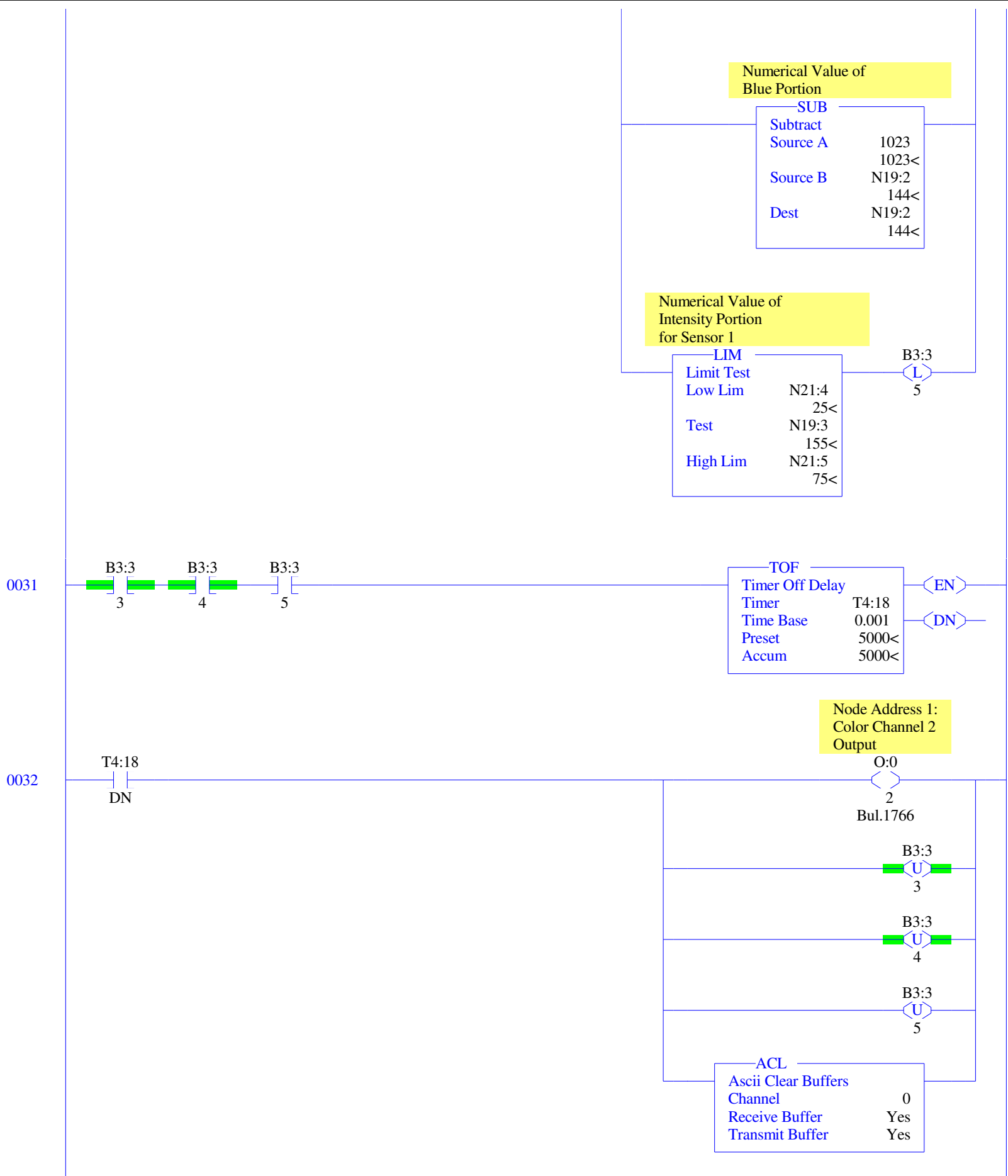


B3:3
4

Numerical Value of
Blue Portion



LAD 2 - --- Total Rungs in File = 62



Node Address 1: Red, Green, Blue and Intensity Portions for Channel 3

Color Channel 3: The Integer files N19:0, N19:1, N19:2 and N19:3 respectively display the true Red, Green, Blue and Intensity values for the color vector of the object that the sensor detects. The sum of the Red, Green and Blue portions has to equal 1023 and all integers have to be positive. All three portions, Red, Green and Intensity need to be simultaneously within the acceptable user-defined tolerance to make Output 3 become true.

Tolerances for the Red, Green and Intensity portions are user-defined.

Red Portion:

-Low Limit, N22:0

-High Limit, N22:1

Green Portion:

-Low Limit, N22:2

-High Limit, N22:3

Intensity Portion:

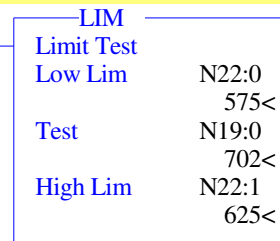
-Low Limit, N22:4

-High Limit, N22:5

The true value of the Blue Portion is the difference between 1023 and the sum of the Red and Green Portions.

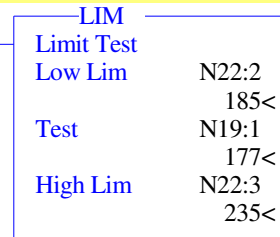
Numerical Value of
Red Portion for
Sensor 1

T4:15
DN



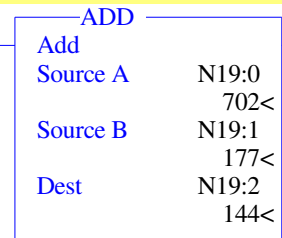
B3:3
L
6

Numerical Value of
Green Portion for
Sensor 1

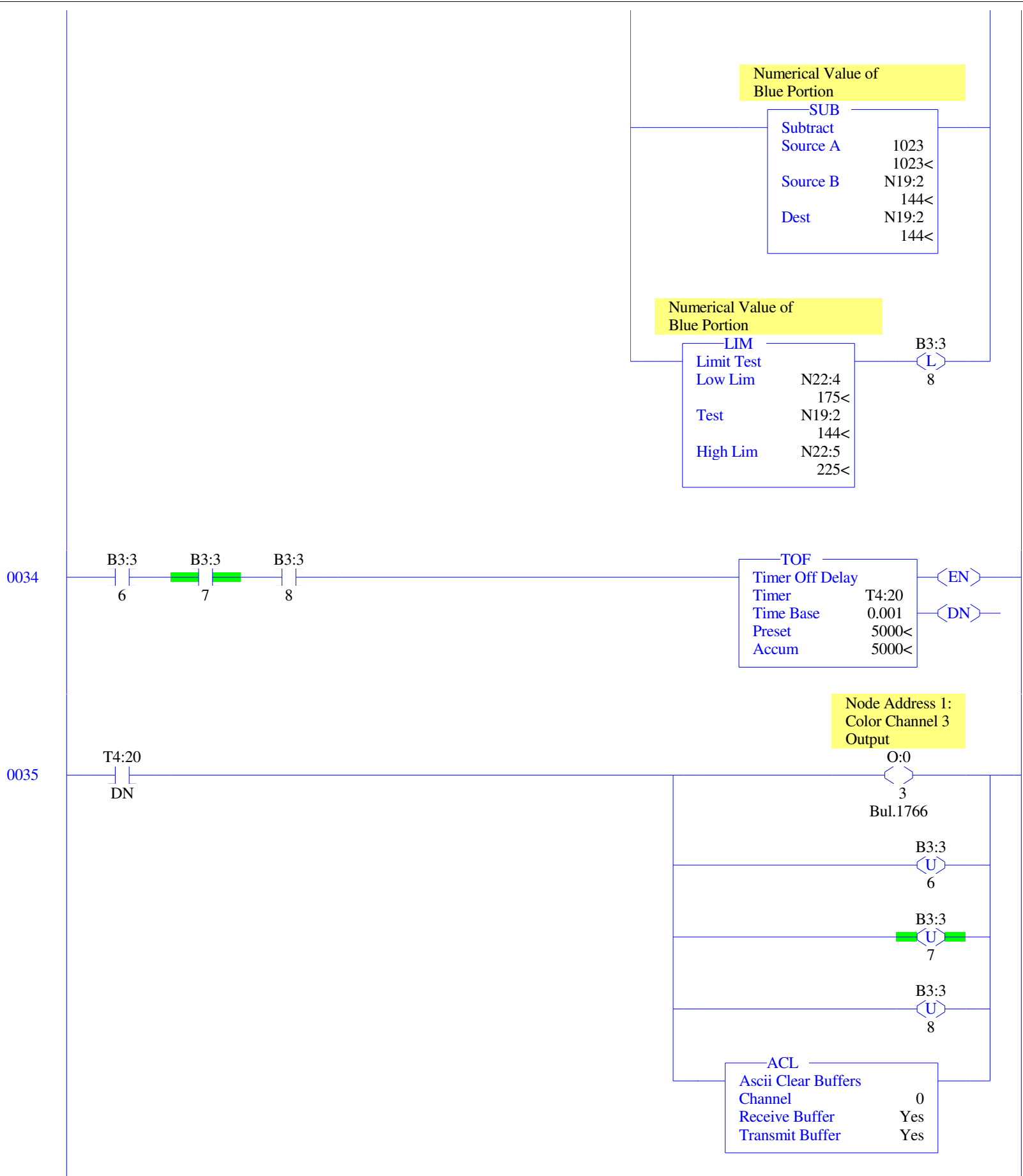


B3:3
L
7

Numerical Value of
Blue Portion



0033



Node Address 1: Red, Green, Blue and Intensity Portions for Channel 4

Color Channel 4: The Integer files N19:0, N19:1, N19:2 and N19:3 respectively display the true Red, Green, Blue and Intensity values for the color vector of the object that the sensor detects. The sum of the Red, Green and Blue portions has to equal 1023 and all integers have to be positive. All three portions, Red, Green and Intensity need to be simultaneously within the acceptable user-defined tolerance to make Output 4 become true.

Tolerances for the Red, Green and Intensity portions are user-defined.

Red Portion:

-Low Limit, N23:0

-High Limit, N23:1

Green Portion:

-Low Limit, N23:2

-High Limit, N23:3

Intensity Portion:

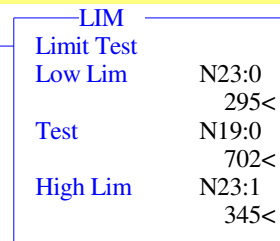
-Low Limit, N23:4

-High Limit, N23:5

The true value of the Blue Portion is the difference between 1023 and the sum of the Red and Green Portions.

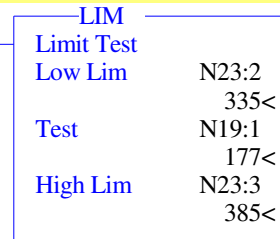
Numerical Value of
Red Portion for
Sensor 1

T4:15
DN



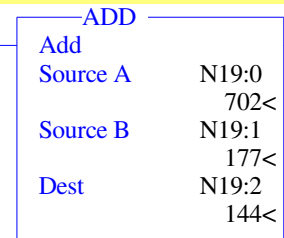
B3:3
L
9

Numerical Value of
Green Portion for
Sensor 1

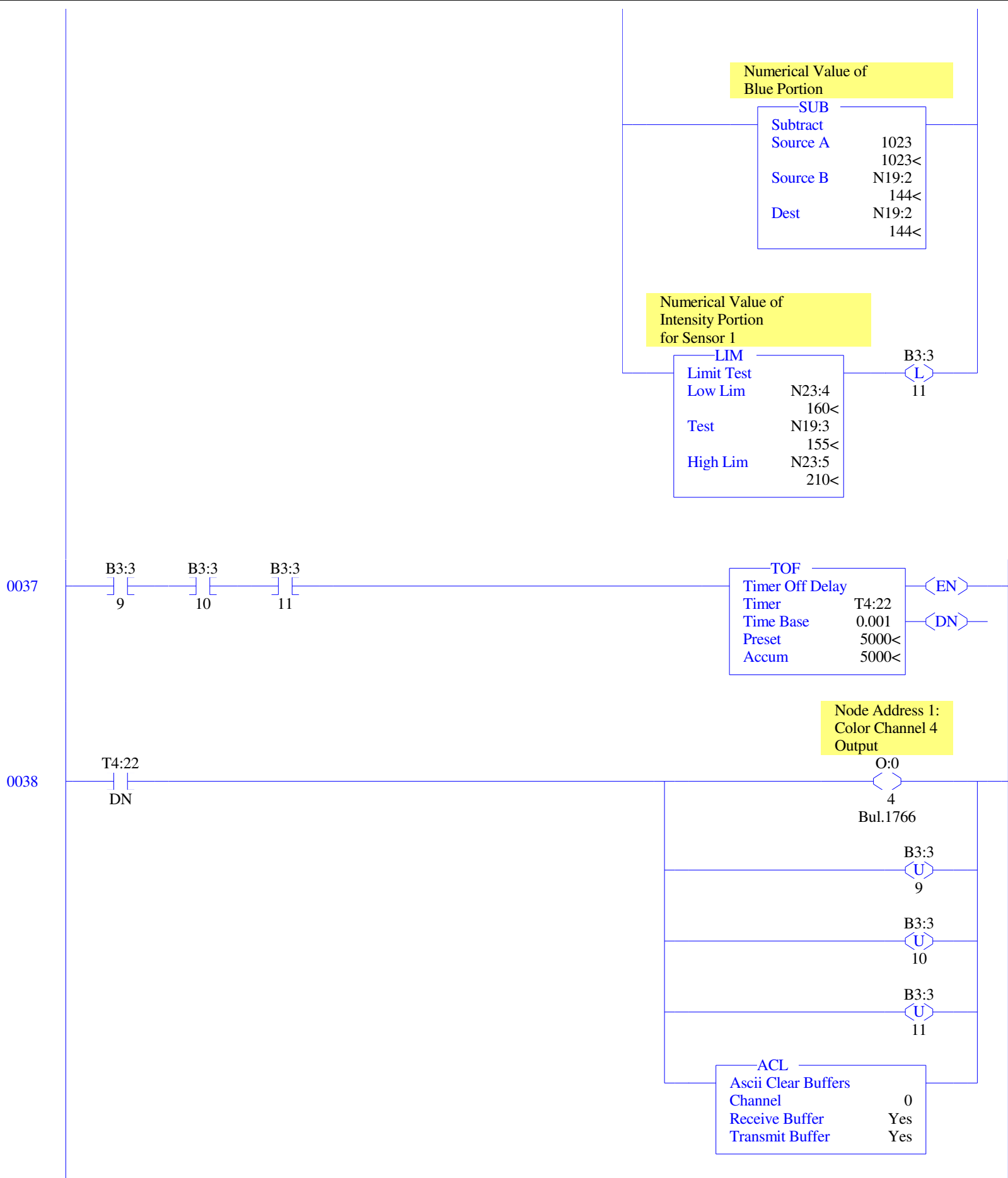


B3:3
L
10

Numerical Value of
Blue Portion



0036



Node Address 2: Red, Green, Blue and Intensity Portions for Channel 5

Color Channel 5: The Integer files N19:0, N19:1, N19:2 and N19:3 respectively display the true Red, Green, Blue and Intensity values for the color vector of the object that the sensor detects. The sum of the Red, Green and Blue portions has to equal 1023 and all integers have to be positive. All three portions, Red, Green and Intensity need to be simultaneously within the acceptable user-defined tolerance to make Output 5 become true.

Tolerances for the Red, Green and Intensity portions are user-defined.

Red Portion:

-Low Limit, N29:0

-High Limit, N29:1

Green Portion:

-Low Limit, N29:2

-High Limit, N29:3

Intensity Portion:

-Low Limit, N29:4

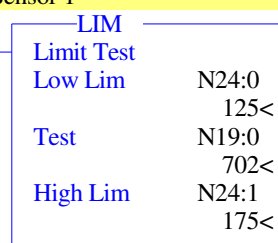
-High Limit, N29:5

The true value of the Blue Portion is the difference between 1023 and the sum of the Red and Green Portions.

0039

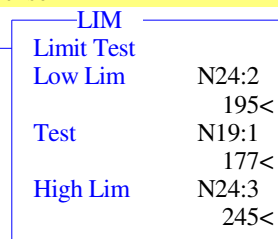
T4:15
DN

Numerical Value of
Red Portion for
Sensor 1



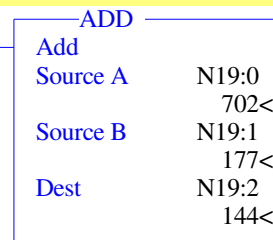
B3:3
12

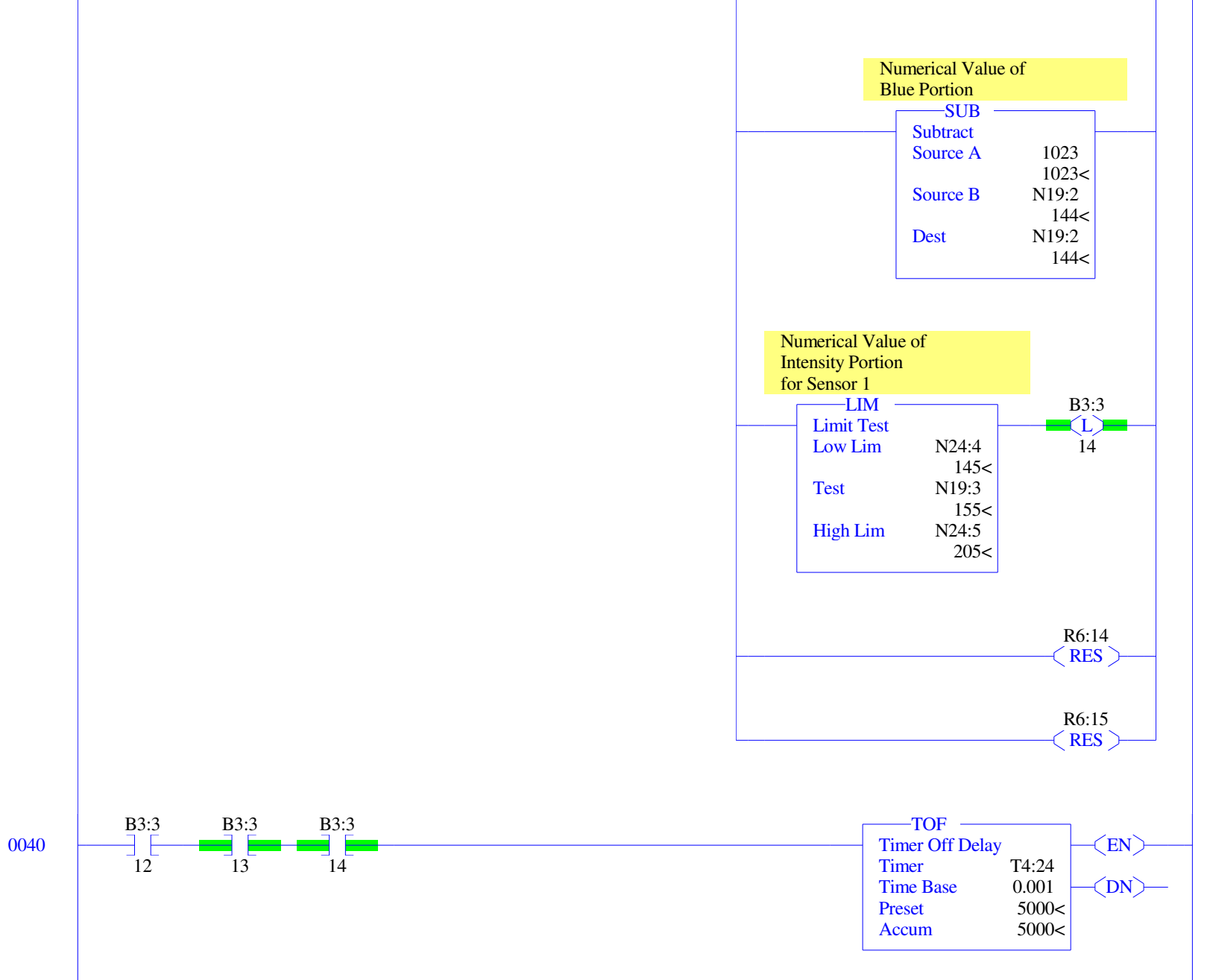
Numerical Value of
Green Portion for
Sensor 1

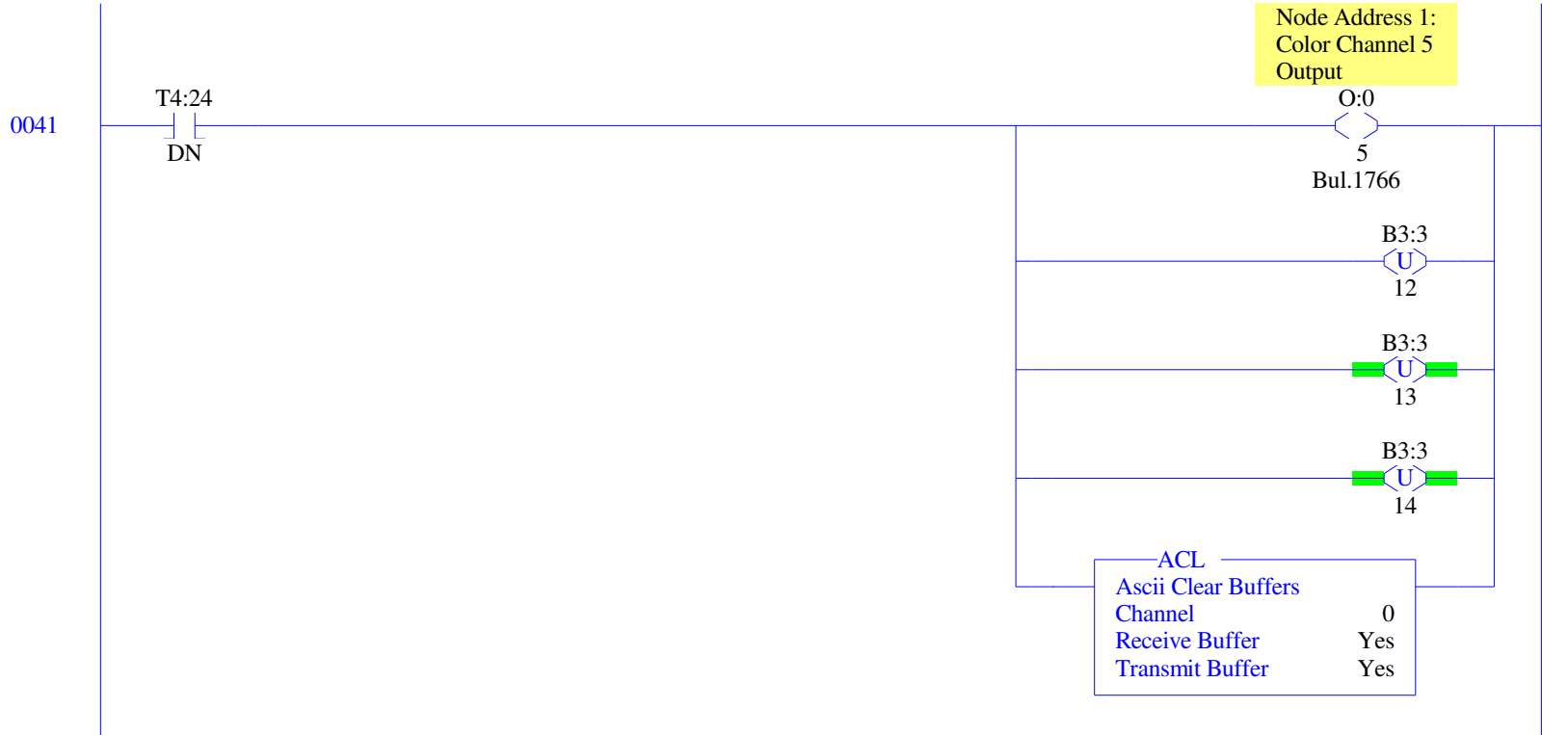


B3:3
13

Numerical Value of
Blue Portion

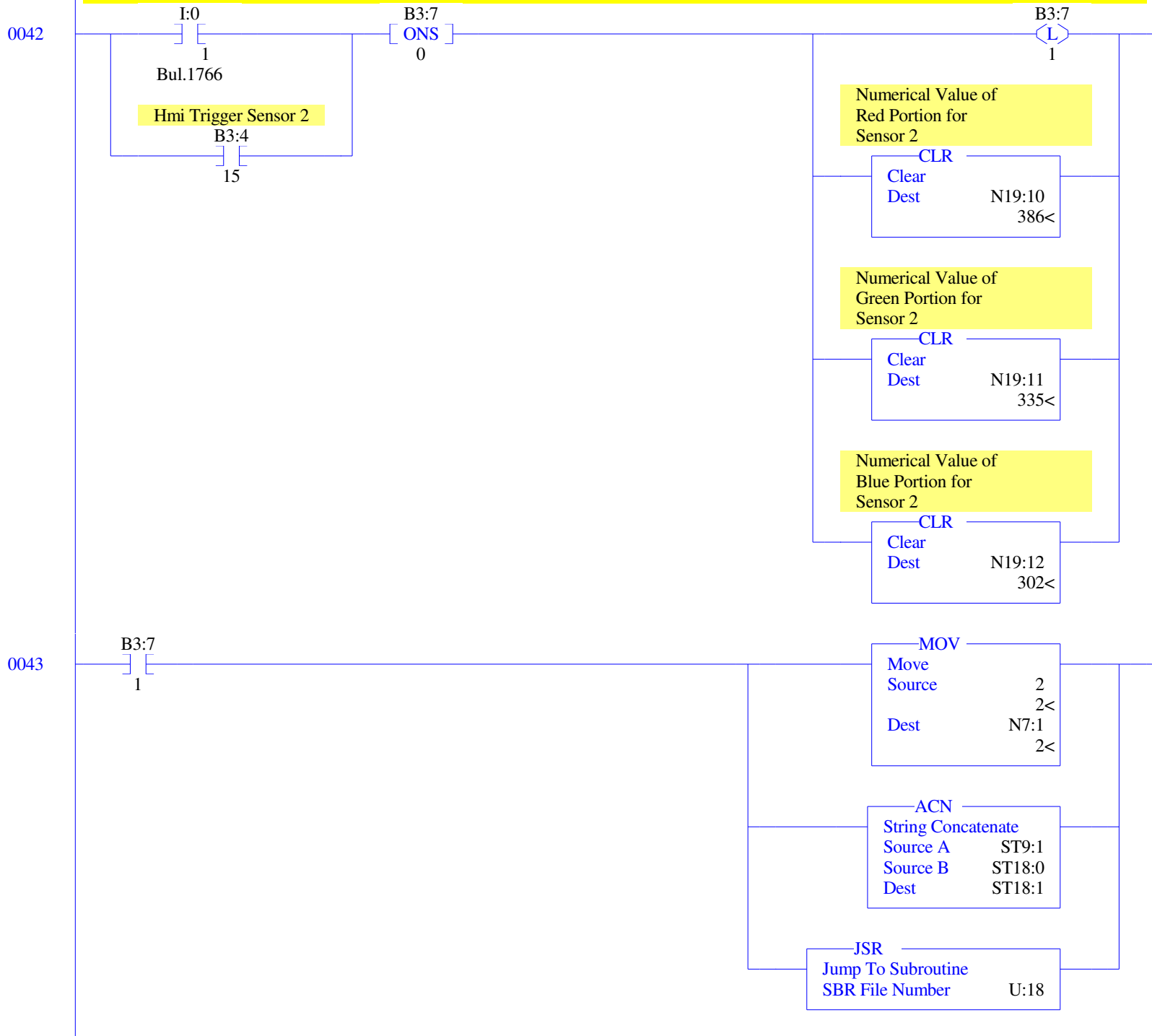






Node Address 2: Read Color Vector

Once input 1 (I:0/1) is activated this commands the sensor to read the object that is presently in front of the sensor. The color of the object gets transferred into a numerical vector for the red, green and intensity portions. These values are displayed in data file N19:0, N19:1 and N19:3 . When these data values are displayed the user can set a high and low tolerance for each portion. If the object's color vector is within the tolerance of the red, green and intensity portions then the rung output will be true. THIS INSTRUCTION SET READS THE EXACT COLOR VECTOR OF THE OBJECT AND DOES NOT HAVE AN AUTOMATIC TOLERANCE RANGE. THE UPPER AND LOWER TOLERANCE WILL NEED TO BE MANUALLY ENTERED INTO THE PROGRAM.



Node Address 2: Red, Green, Blue and Intensity Portions for Channel 1

Color Channel 1: The Integer addresses N19:0, N19:1, N19:2 and N19:3 display the true Red, Green, Blue and Intensity values for the color vector of the object that the sensor detects. The sum of the Red, Green and Blue portions has to equal 1023 and all integers have to be positive. All three portions, Red, Green and Intensity need to be simultaneously within the acceptable user-defined tolerance to make Output 1 become true.

Tolerances for the Red, Green and Intensity portions are user-defined.

Red Portion:

-Low Limit, N25:0

-High Limit, N25:1

Green Portion:

-Low Limit, N25:2

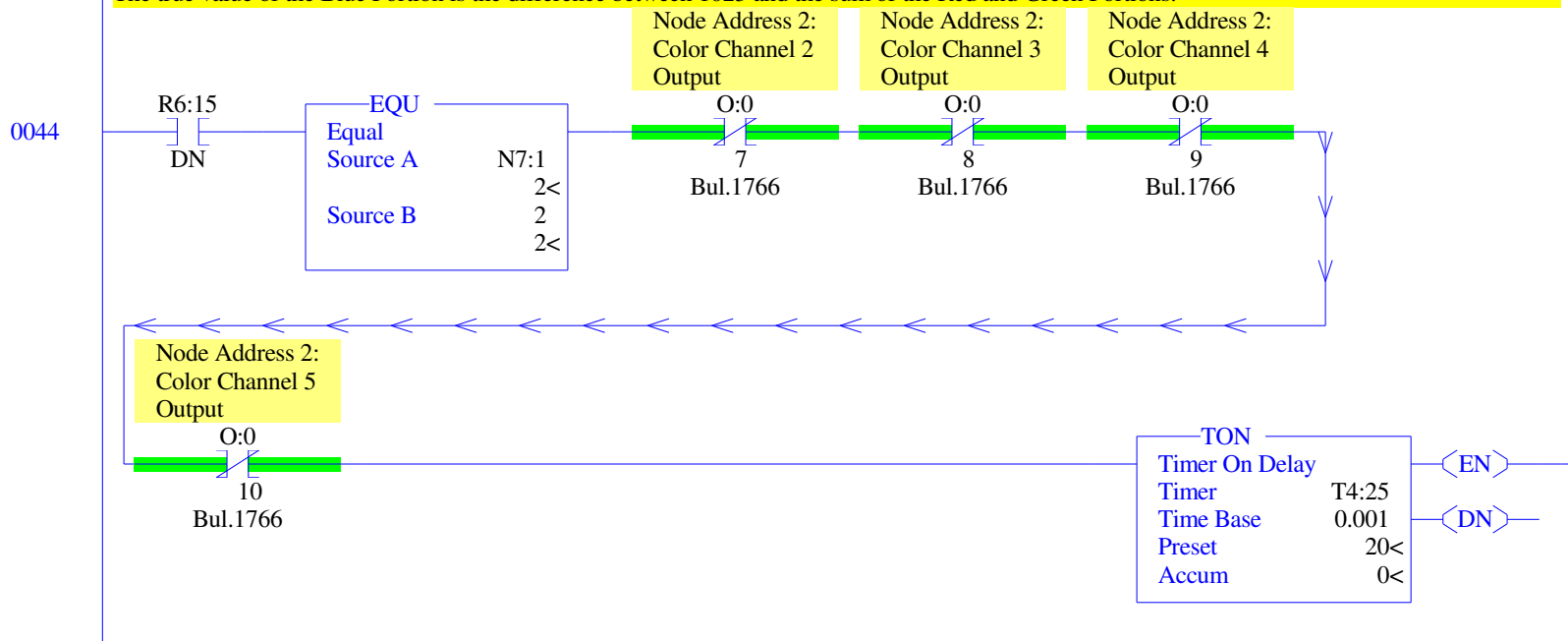
-High Limit, N25:3

Intensity Portion:

-Low Limit, N25:4

-High Limit, N25:5

The true value of the Blue Portion is the difference between 1023 and the sum of the Red and Green Portions.



0045

T4:25
DN

Numerical Value of
Red Portion for
Sensor 2

LIM	
Limit Test	
Low Lim	N25:0
	365<
Test	N19:10
	386<
High Lim	N25:1
	410<

B3:8
(L)
0

Numerical Value of
Green Portion for
Sensor 2

LIM	
Limit Test	
Low Lim	N25:2
	320<
Test	N19:11
	335<
High Lim	N25:3
	375<

B3:8
(L)
1

Numerical Value of
Blue Portion for
Sensor 2

ADD	
Add	
Source A	N19:10
	386<
Source B	N19:11
	335<
Dest	N19:12
	302<

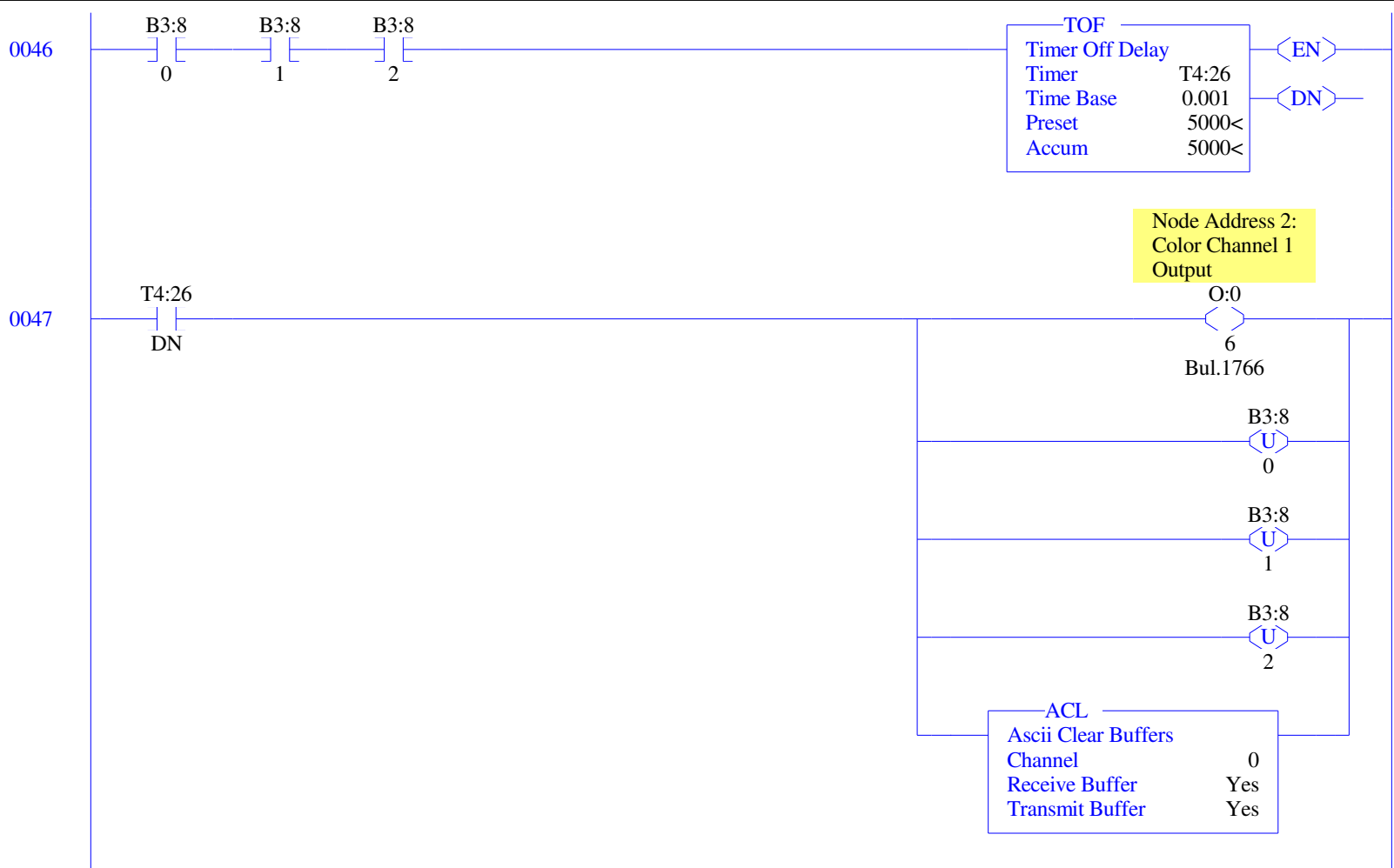
Numerical Value of
Blue Portion for
Sensor 2

SUB	
Subtract	
Source A	1023
	1023<
Source B	N19:12
	302<
Dest	N19:12
	302<

Numerical Value of
Intensity Portion
for Sensor 2

LIM	
Limit Test	
Low Lim	N25:4
	400<
Test	N19:13
	563<
High Lim	N25:5
	575<

B3:8
(L)
2



Node Address 2: Red, Green, Blue and Intensity Portions for Channel 2

Color Channel 2: The Integer files N19:0, N19:1, N19:2 and N19:3 respectively display the true Red, Green, Blue and Intensity values for the color vector of the object that the sensor detects. The sum of the Red, Green and Blue portions has to equal 1023 and all integers have to be positive. All three portions, Red, Green and Intensity need to be simultaneously within the acceptable user-defined tolerance to make Output 2 become true.

Tolerances for the Red, Green and Intensity portions are user-defined for Channel 2.

Red Portion:

-Low Limit, N26:0

-High Limit, N26:1

Green Portion:

-Low Limit, N26:2

-High Limit, N26:3

Intensity Portion:

-Low Limit, N26:4

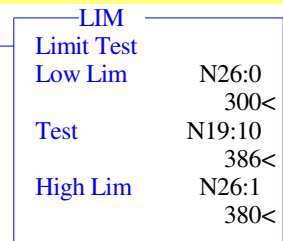
-High Limit, N26:5

The true value of the Blue Portion is the difference between 1023 and the sum of the Red and Green Portions.

0048

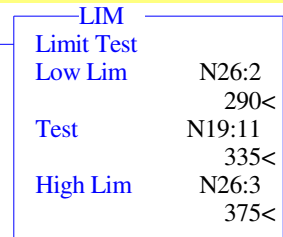
T4:25
DN

Numerical Value of
Red Portion for
Sensor 2



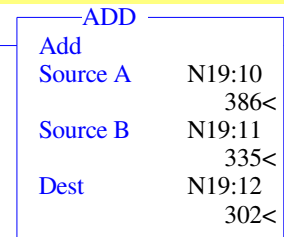
B3:8
3

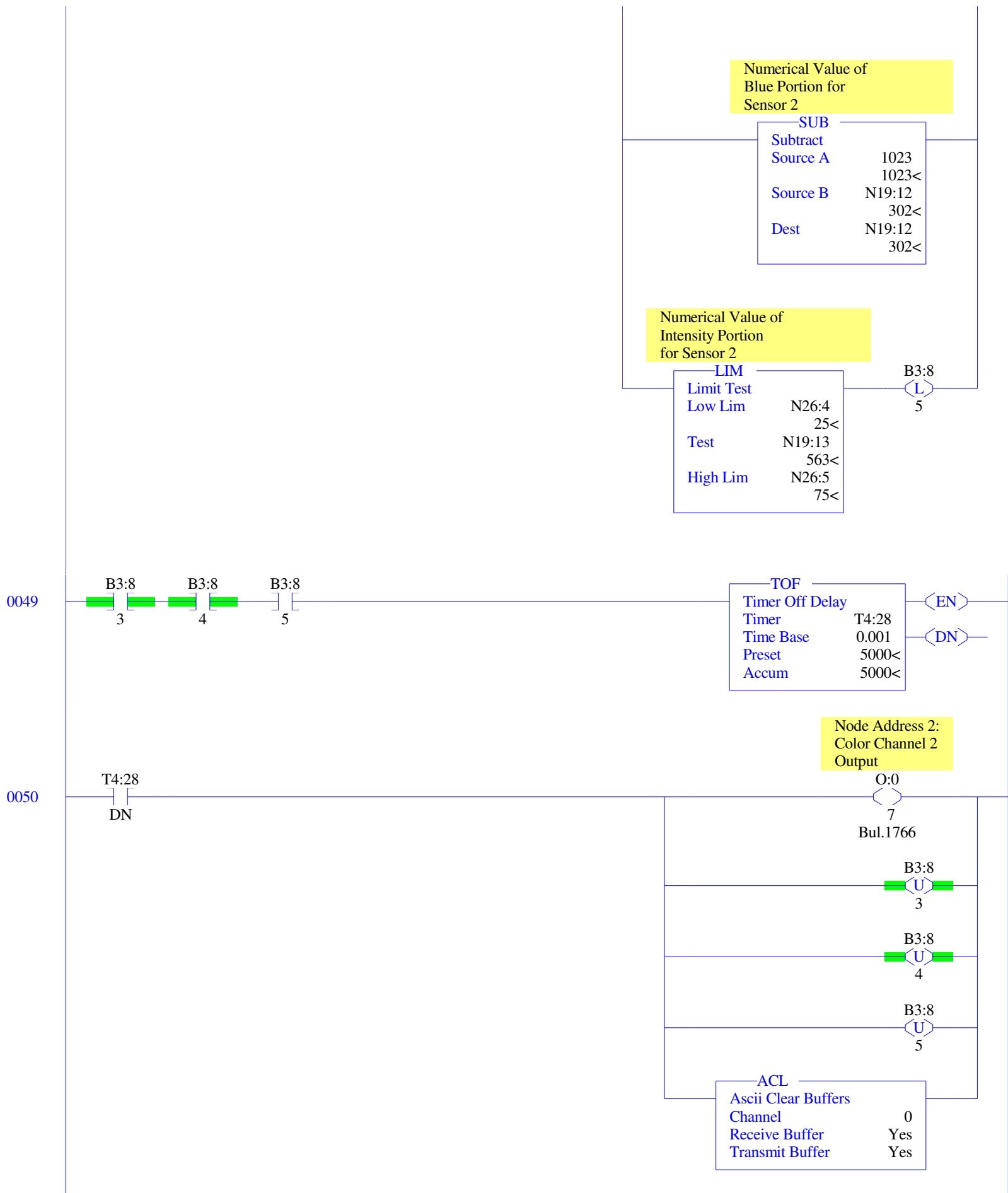
Numerical Value of
Green Portion for
Sensor 2



B3:8
4

Numerical Value of
Blue Portion for
Sensor 2





Node Address 2: Red, Green, Blue and Intensity Portions for Channel 3

Color Channel 3: The Integer files N19:0, N19:1, N19:2 and N19:3 respectively display the true Red, Green, Blue and Intensity values for the color vector of the object that the sensor detects. The sum of the Red, Green and Blue portions has to equal 1023 and all integers have to be positive. All three portions, Red, Green and Intensity need to be simultaneously within the acceptable user-defined tolerance to make Output 3 become true.

Tolerances for the Red, Green and Intensity portions are user-defined.

Red Portion:

-Low Limit, N27:0

-High Limit, N27:1

Green Portion:

-Low Limit, N27:2

-High Limit, N27:3

Intensity Portion:

-Low Limit, N27:4

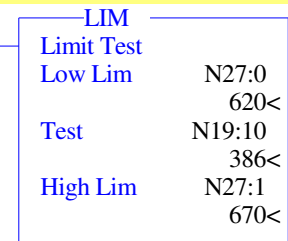
-High Limit, N27:5

The true value of the Blue Portion is the difference between 1023 and the sum of the Red and Green Portions.

0051

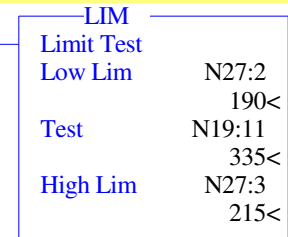
T4:25
DN

Numerical Value of
Red Portion for
Sensor 2



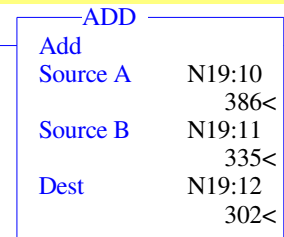
B3:8
L
6

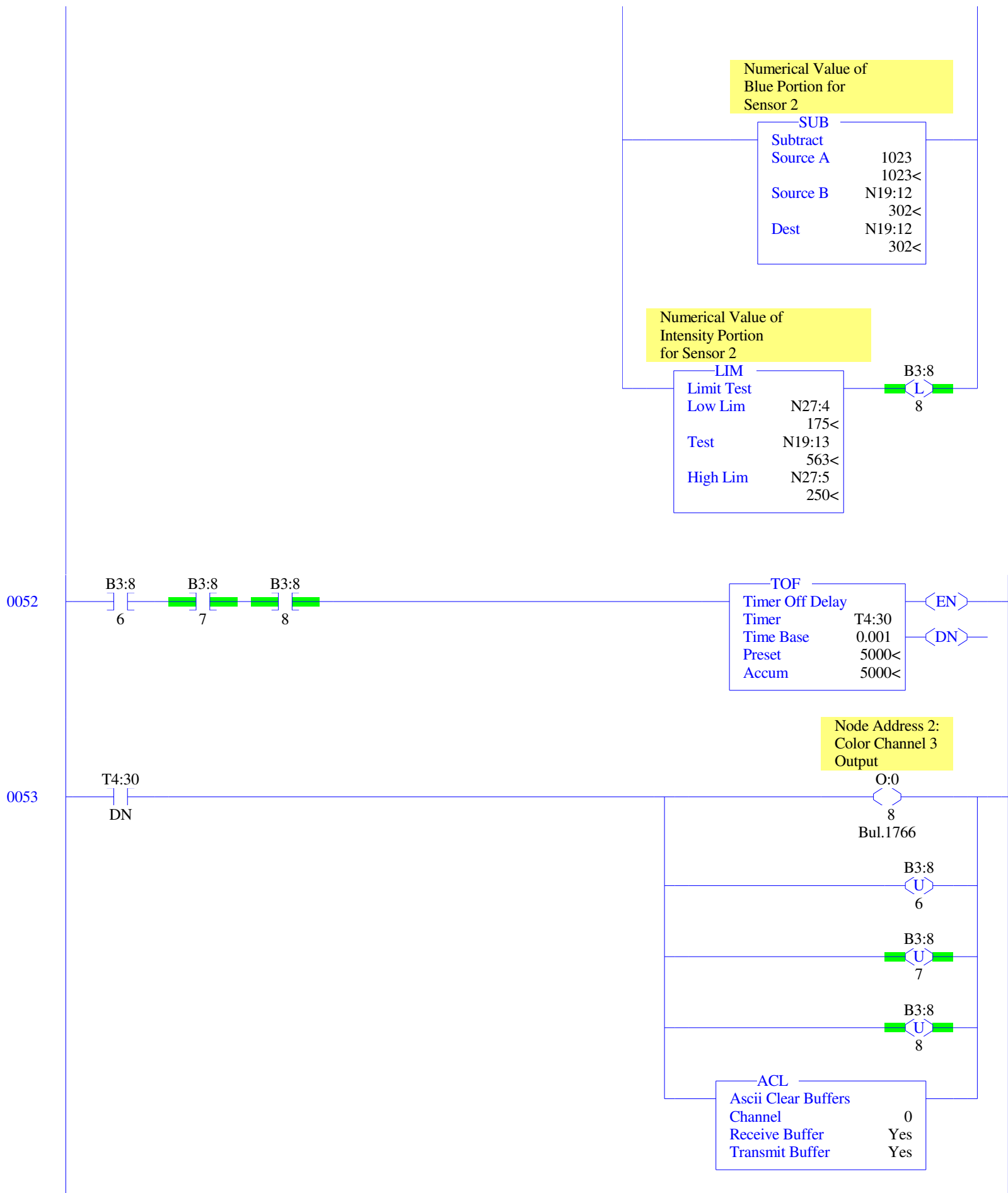
Numerical Value of
Green Portion for
Sensor 2



B3:8
L
7

Numerical Value of
Blue Portion for
Sensor 2





Node Address 2: Red, Green, Blue and Intensity Portions for Channel 4

Color Channel 4: The Integer files N19:0, N19:1, N19:2 and N19:3 respectively display the true Red, Green, Blue and Intensity values for the color vector of the object that the sensor detects. The sum of the Red, Green and Blue portions has to equal 1023 and all integers have to be positive. All three portions, Red, Green and Intensity need to be simultaneously within the acceptable user-defined tolerance to make Output 4 become true.

Tolerances for the Red, Green and Intensity portions are user-defined.

Red Portion:

-Low Limit, N28:0

-High Limit, N28:1

Green Portion:

-Low Limit, N28:2

-High Limit, N28:3

Intensity Portion:

-Low Limit, N28:4

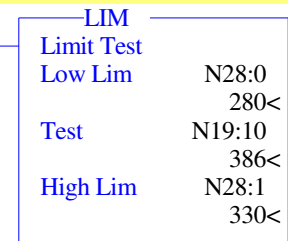
-High Limit, N28:5

The true value of the Blue Portion is the difference between 1023 and the sum of the Red and Green Portions.

0054

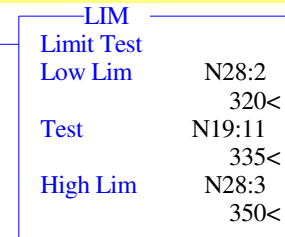
T4:25
DN

Numerical Value of
Red Portion for
Sensor 2



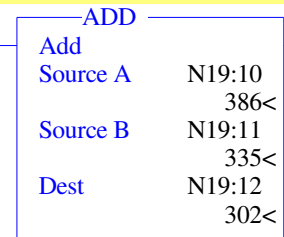
B3:8
L
9

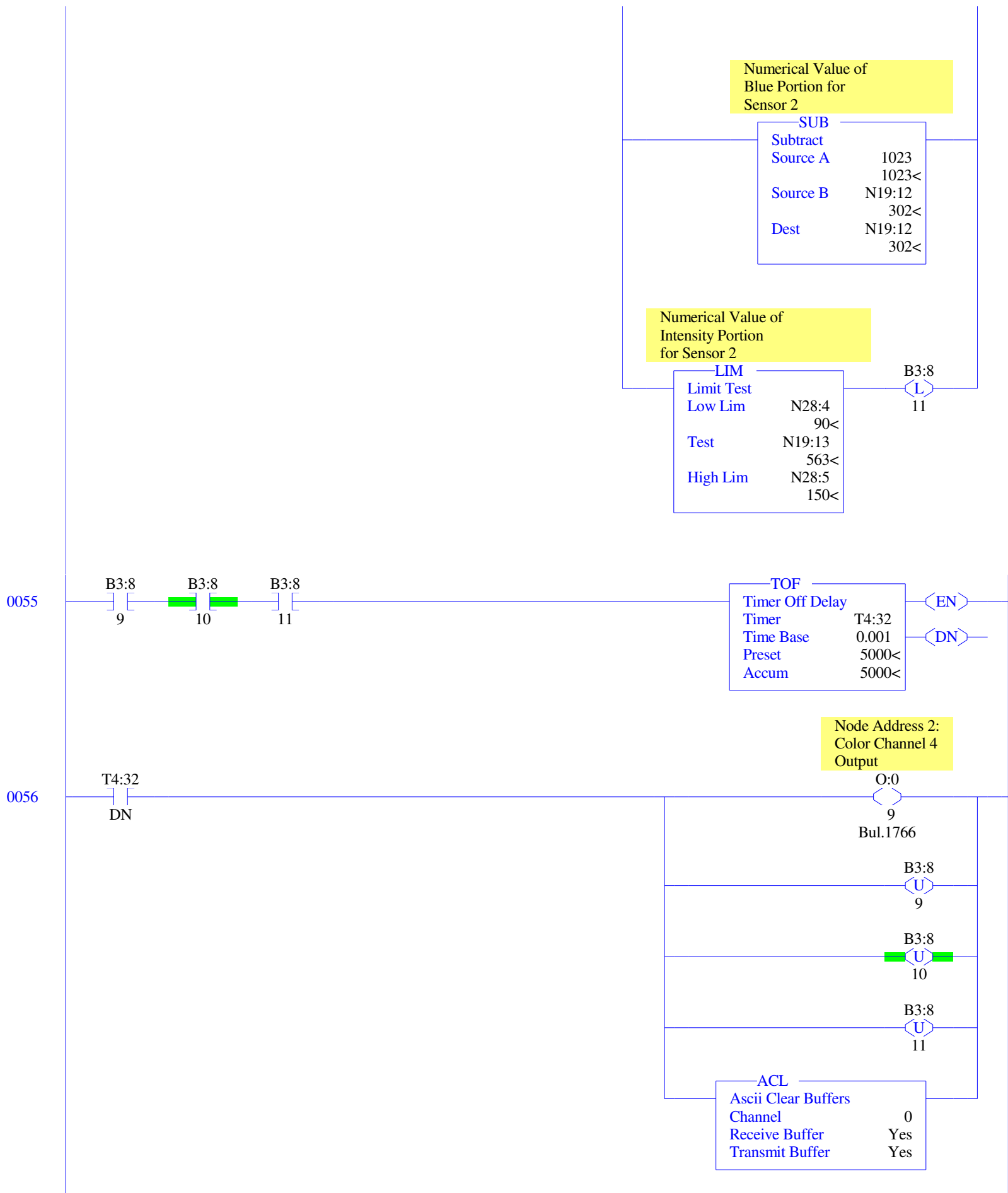
Numerical Value of
Green Portion for
Sensor 2



B3:8
L
10

Numerical Value of
Blue Portion for
Sensor 2





Node Address 2: Red, Green, Blue and Intensity Portions for Channel 5

Color Channel 5: The Integer files N19:0, N19:1, N19:2 and N19:3 respectively display the true Red, Green, Blue and Intensity values for the color vector of the object that the sensor detects. The sum of the Red, Green and Blue portions has to equal 1023 and all integers have to be positive. All three portions, Red, Green and Intensity need to be simultaneously within the acceptable user-defined tolerance to make Output 5 become true.

Tolerances for the Red, Green and Intensity portions are user-defined.

Red Portion:

-Low Limit, N29:0

-High Limit, N29:1

Green Portion:

-Low Limit, N29:2

-High Limit, N29:3

Intensity Portion:

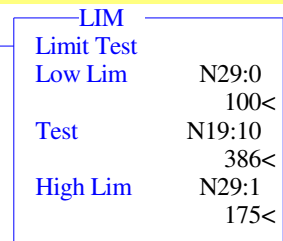
-Low Limit, N29:4

-High Limit, N29:5

The true value of the Blue Portion is the difference between 1023 and the sum of the Red and Green Portions.

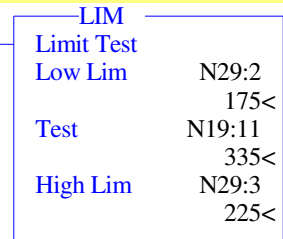
Numerical Value of
Red Portion for
Sensor 2

T4:25
DN



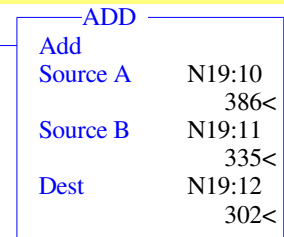
B3:8
12

Numerical Value of
Green Portion for
Sensor 2

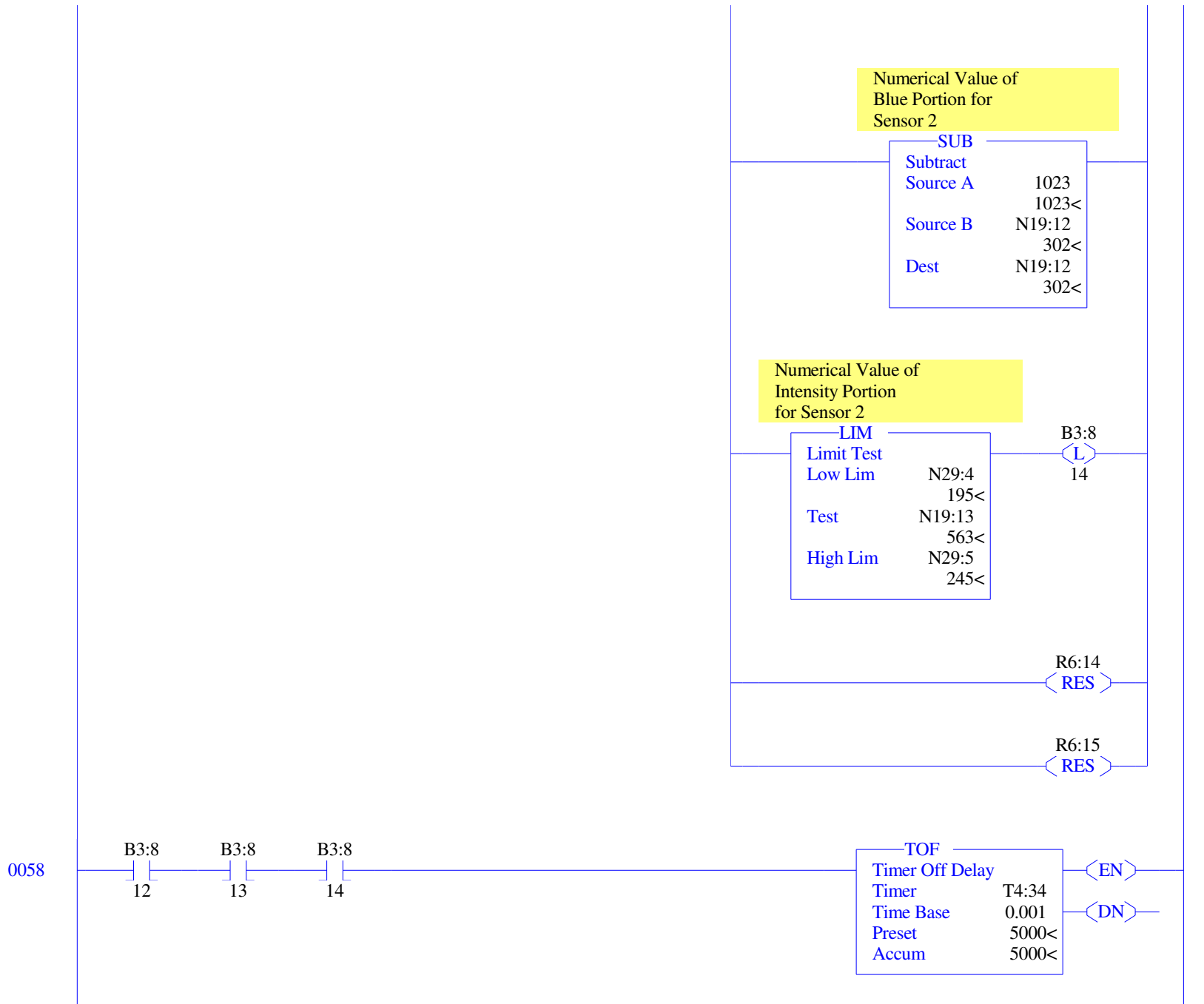


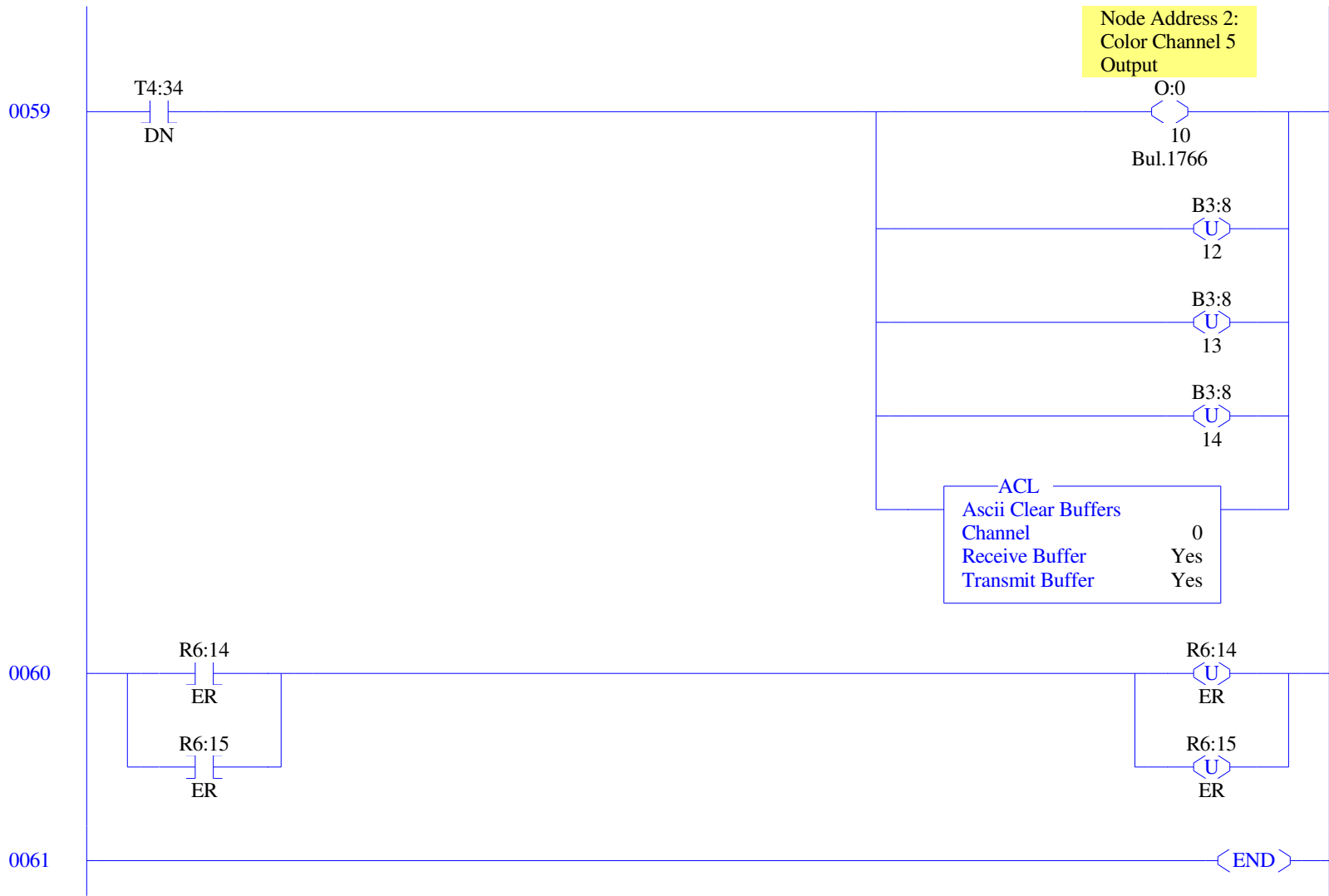
B3:8
13

Numerical Value of
Blue Portion for
Sensor 2



0057





0000

Node Address 1

B3:1
0

JSR
Jump To Subroutine
SBR File Number U:4

MOV
Move
Source 1
1<
Dest N7:1
2<

Node Address 2

B3:1
1

JSR
Jump To Subroutine
SBR File Number U:4

MOV
Move
Source 2
2<
Dest N7:1
2<

Node Address 3

B3:1
2

JSR
Jump To Subroutine
SBR File Number U:4

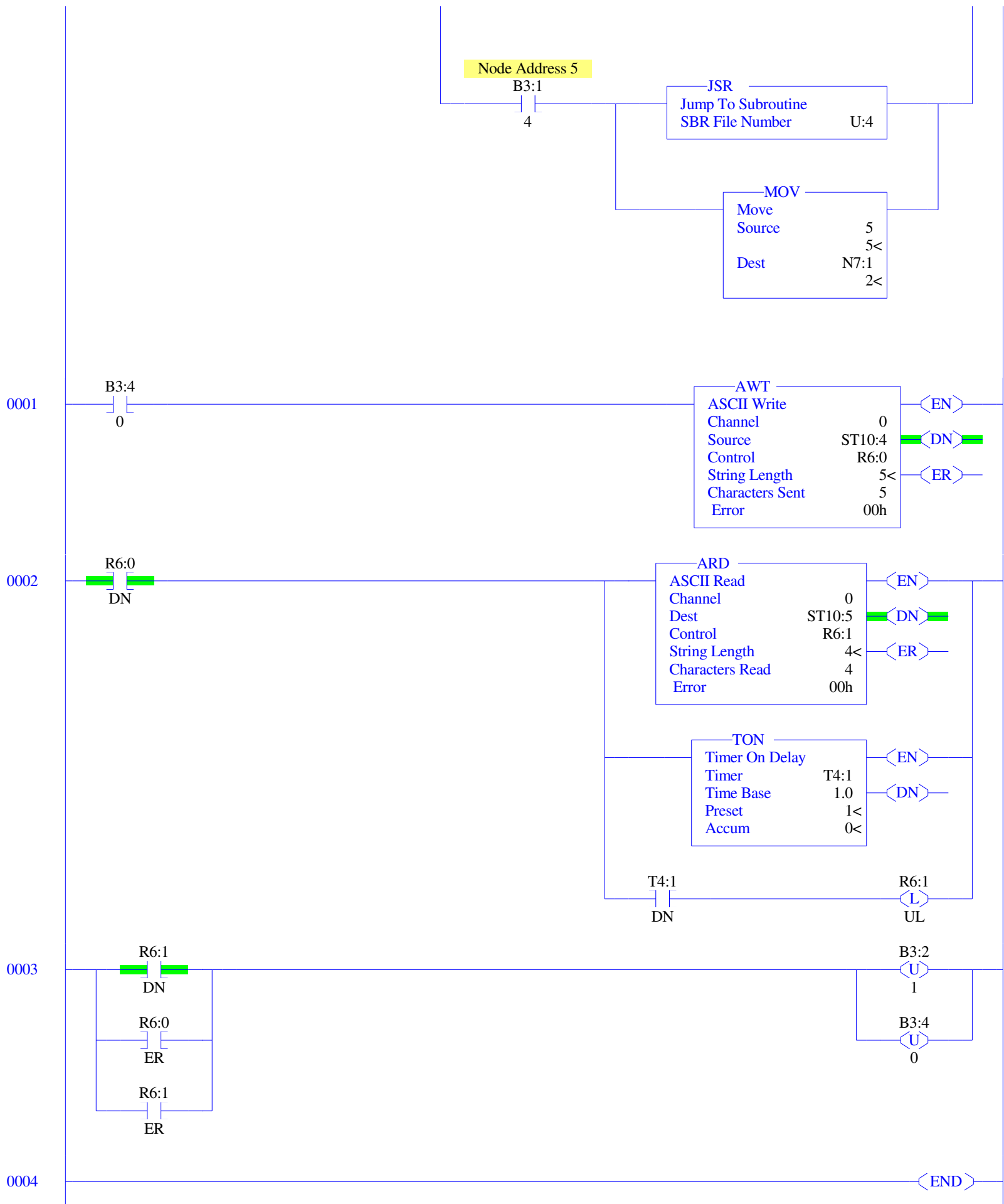
MOV
Move
Source 3
3<
Dest N7:1
2<

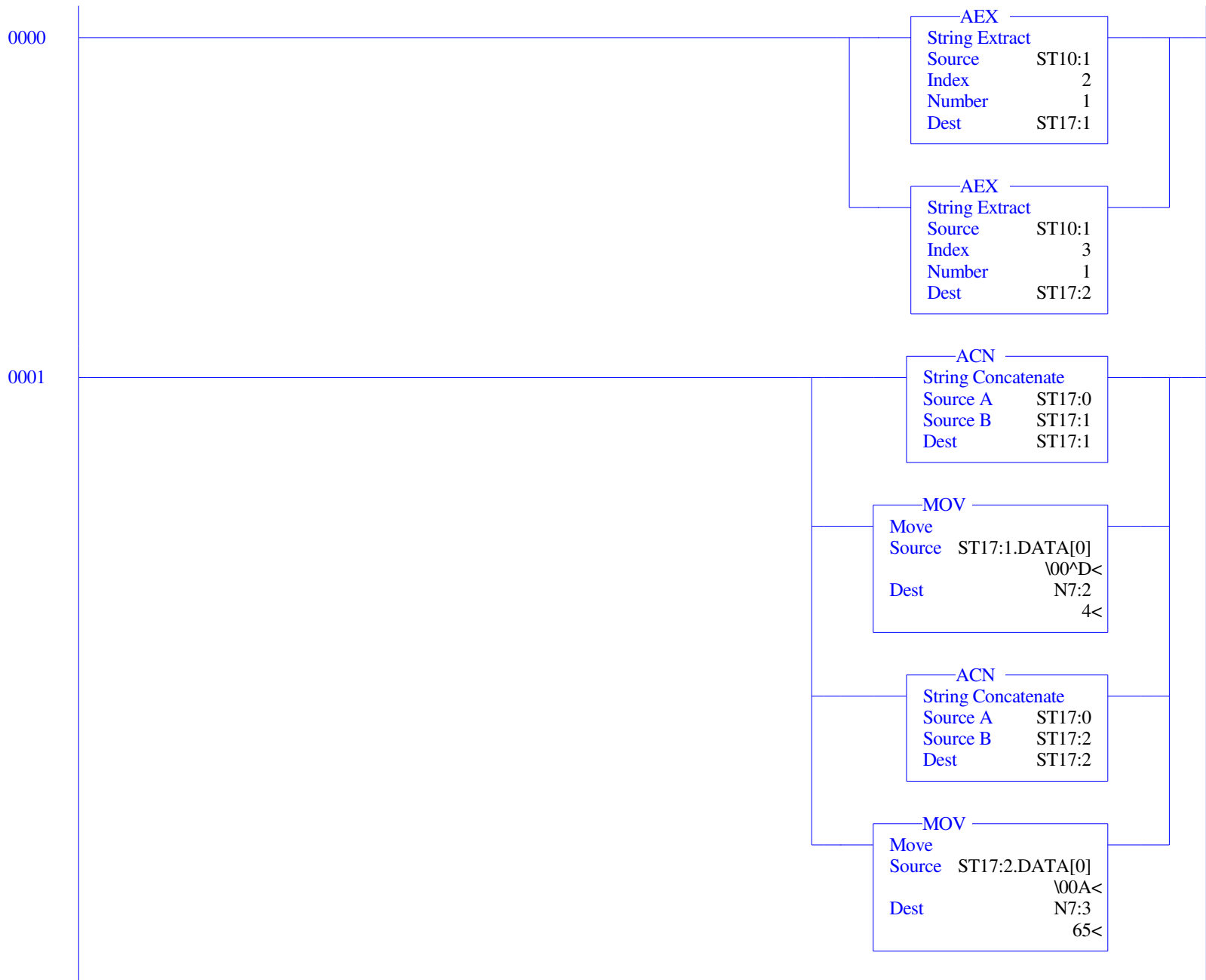
Node Address 4

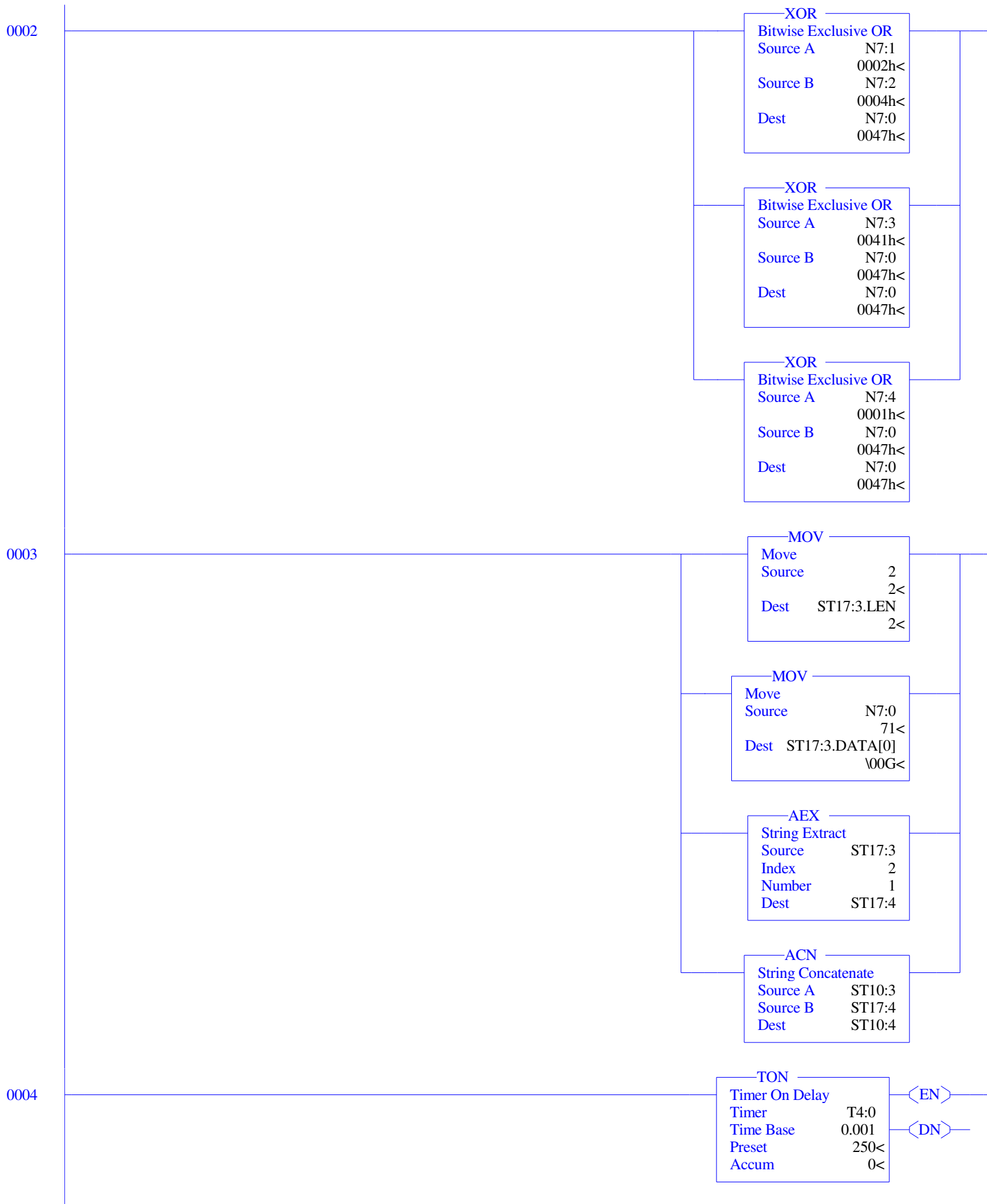
B3:1
3

JSR
Jump To Subroutine
SBR File Number U:4

MOV
Move
Source 4
4<
Dest N7:1
2<









0000

Node Address 1

B3:1
0

JSR
Jump To Subroutine
SBR File Number U:6

MOV
Move
Source 1
1<
Dest N7:1
2<

Node Address 2

B3:1
1

JSR
Jump To Subroutine
SBR File Number U:6

MOV
Move
Source 2
2<
Dest N7:1
2<

Node Address 3

B3:1
2

JSR
Jump To Subroutine
SBR File Number U:6

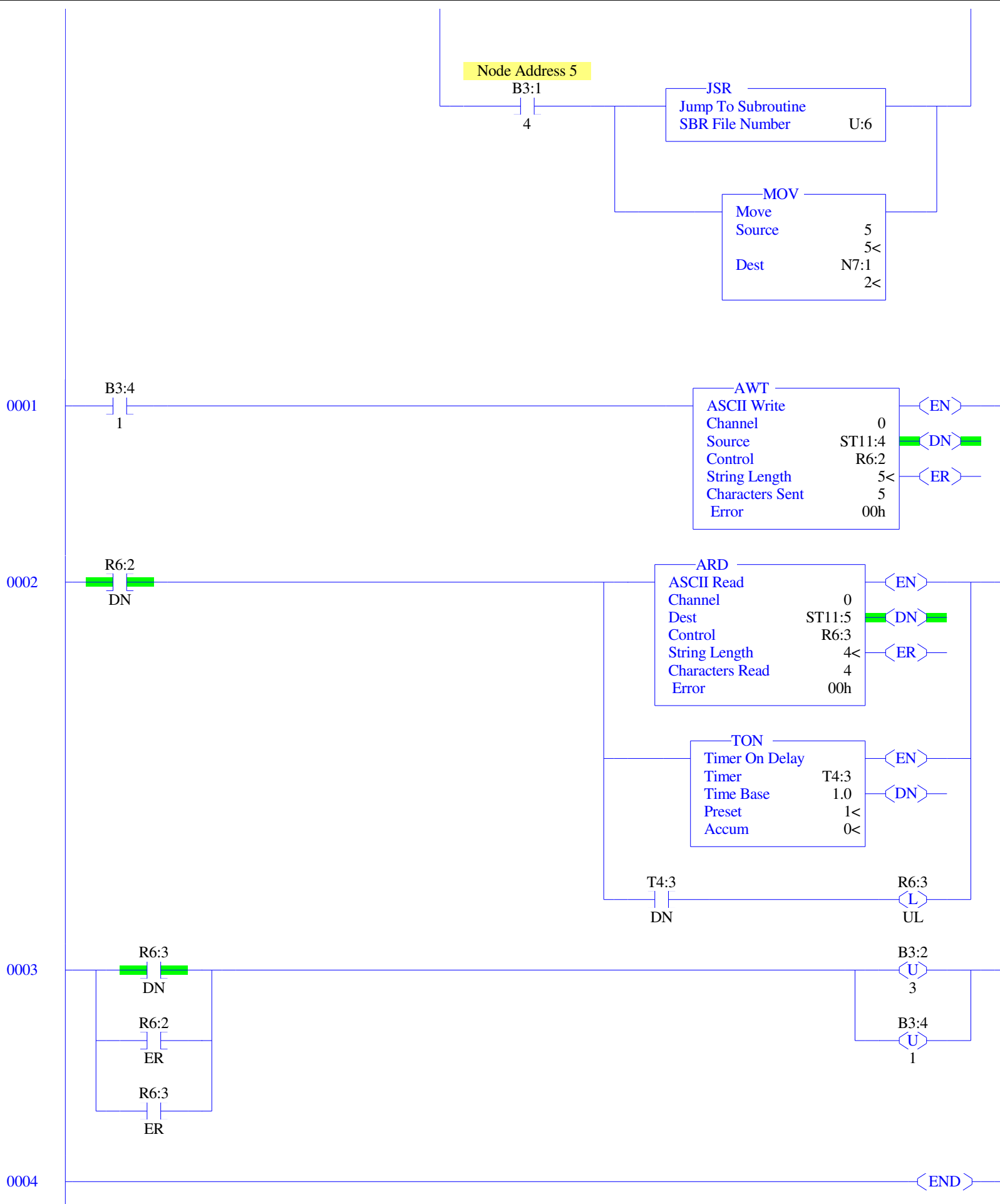
MOV
Move
Source 3
3<
Dest N7:1
2<

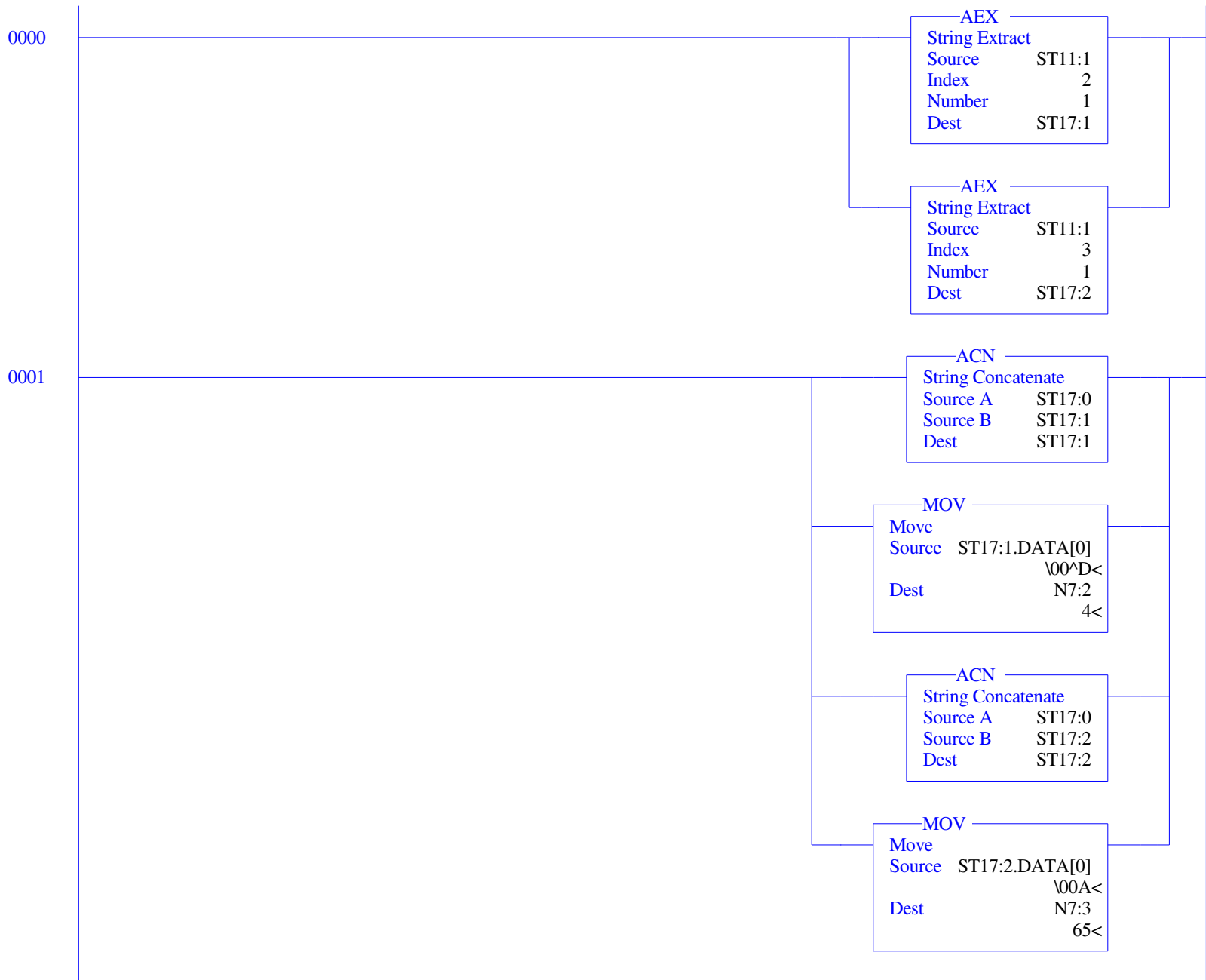
Node Address 4

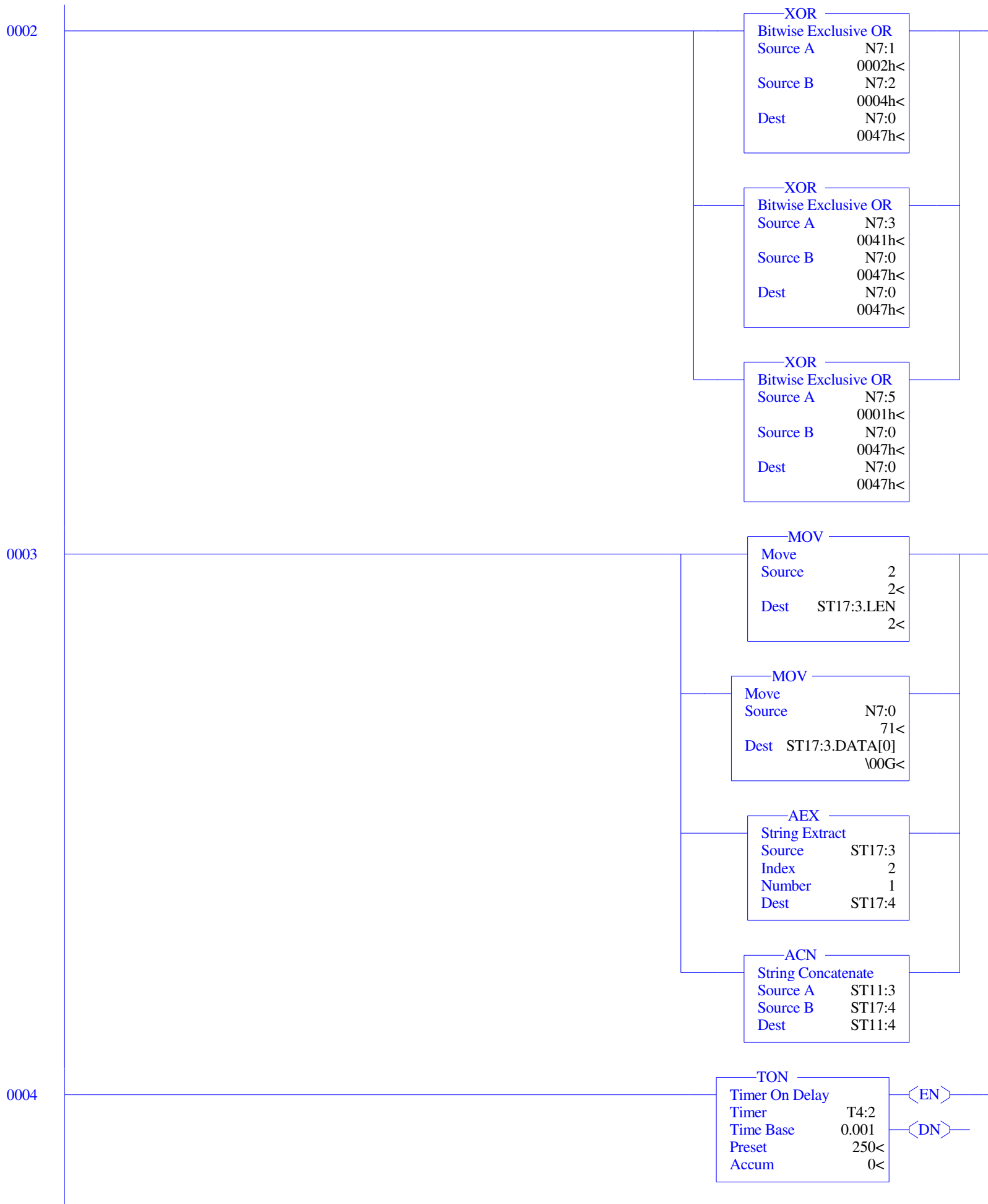
B3:1
3

JSR
Jump To Subroutine
SBR File Number U:6

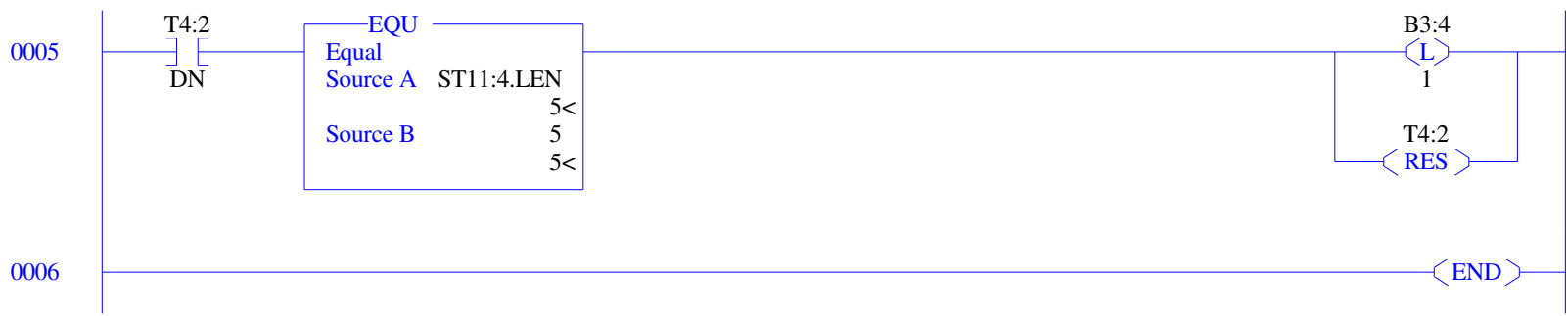
MOV
Move
Source 4
4<
Dest N7:1
2<







LAD 6 - DATA_TXR_1 - Set Data Transfer Rate for Sensor --- Total Rungs in File = 7



0000

Node Address 1

B3:1

0

JSR
Jump To Subroutine
SBR File Number U:8

MOV
Move
Source 1
1<
Dest N7:1
2<

Node Address 2

B3:1

1

JSR
Jump To Subroutine
SBR File Number U:8

MOV
Move
Source 2
2<
Dest N7:1
2<

Node Address 3

B3:1

2

JSR
Jump To Subroutine
SBR File Number U:8

MOV
Move
Source 3
3<
Dest N7:1
2<

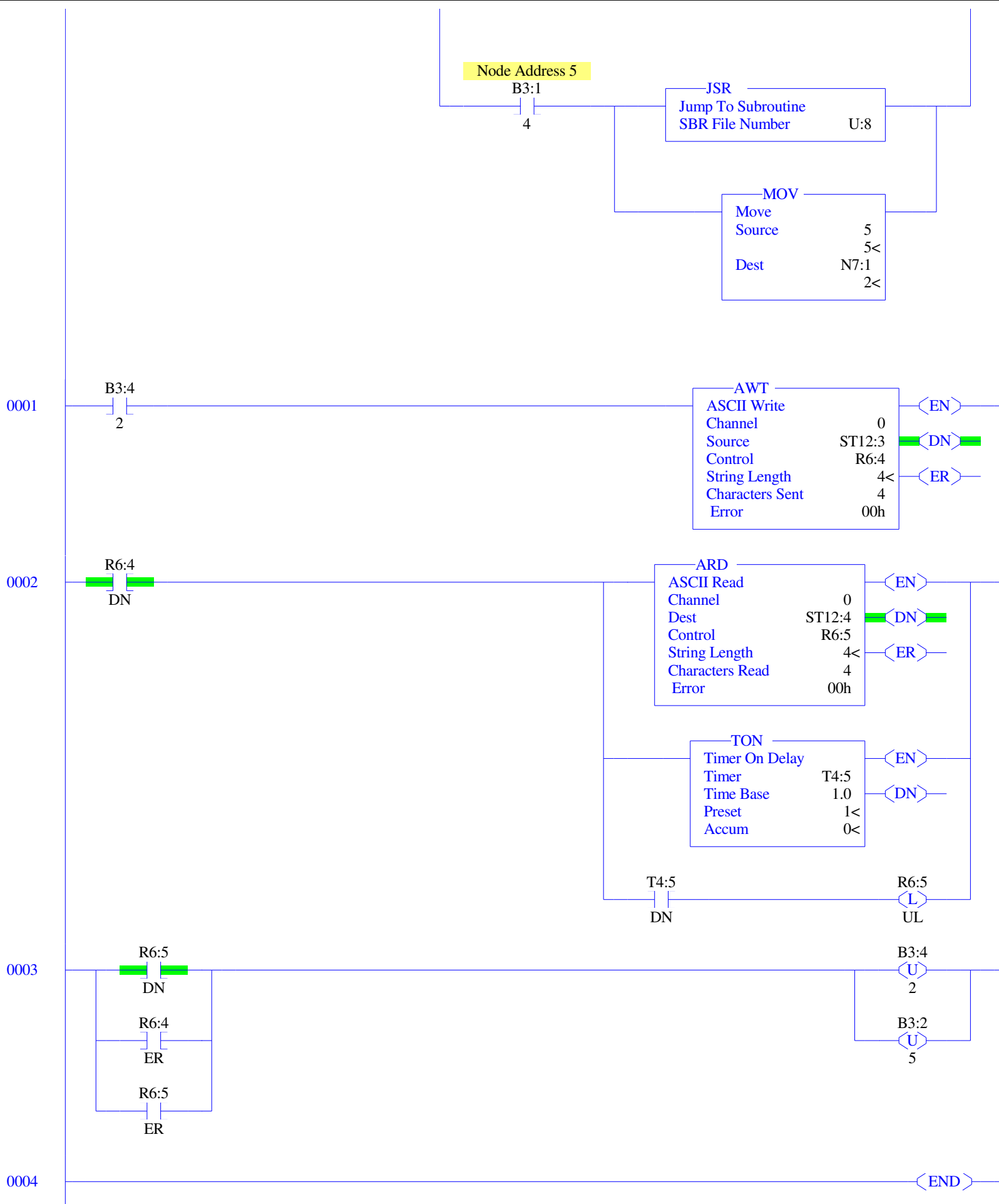
Node Address 4

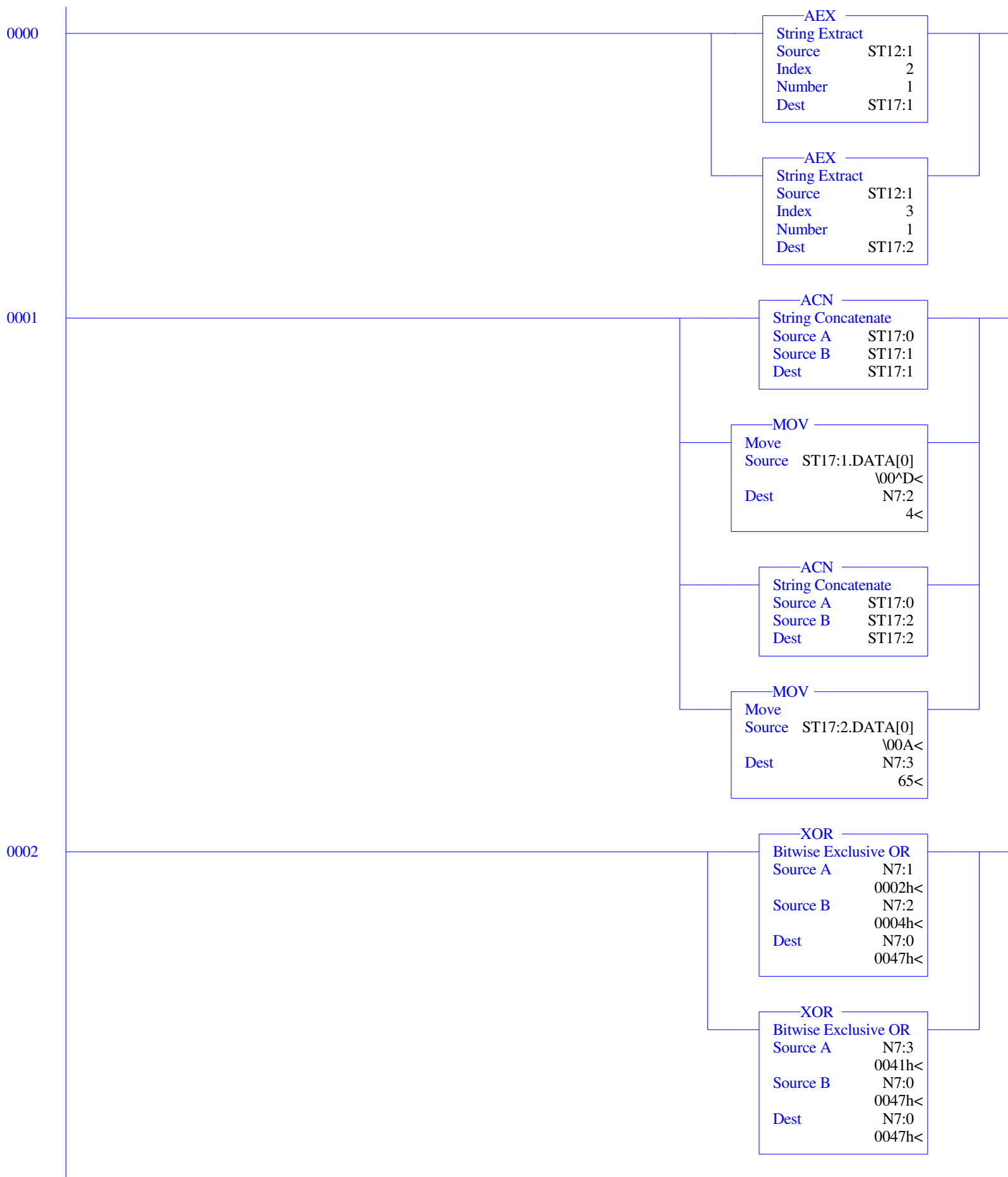
B3:1

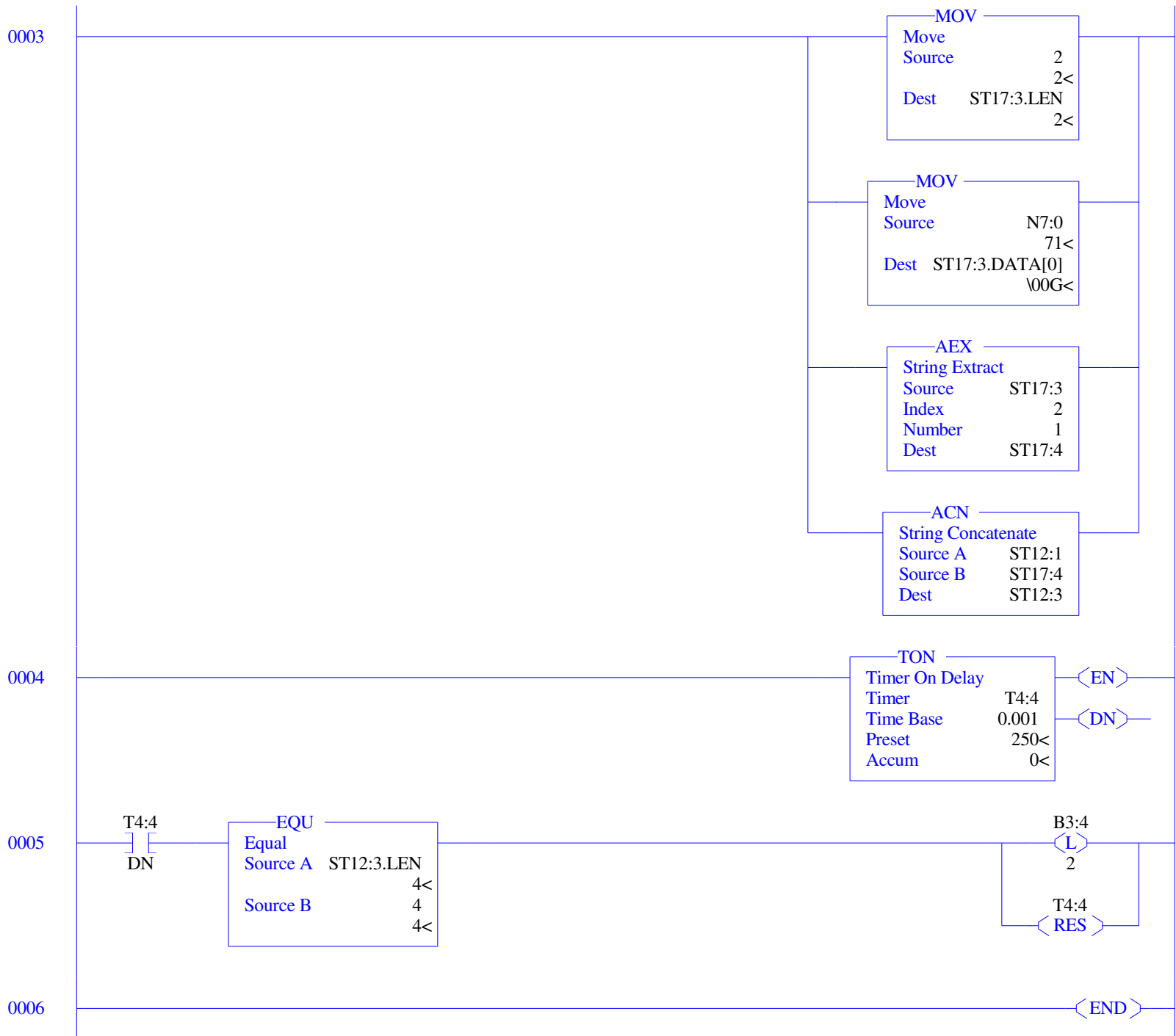
3

JSR
Jump To Subroutine
SBR File Number U:8

MOV
Move
Source 4
4<
Dest N7:1
2<







0000

Node Address 1

B3:1
0

JSR
Jump To Subroutine
SBR File Number U:10

MOV
Move
Source 1
1<
Dest N7:1
2<

Node Address 2

B3:1
1

JSR
Jump To Subroutine
SBR File Number U:10

MOV
Move
Source 2
2<
Dest N7:1
2<

Node Address 3

B3:1
2

JSR
Jump To Subroutine
SBR File Number U:10

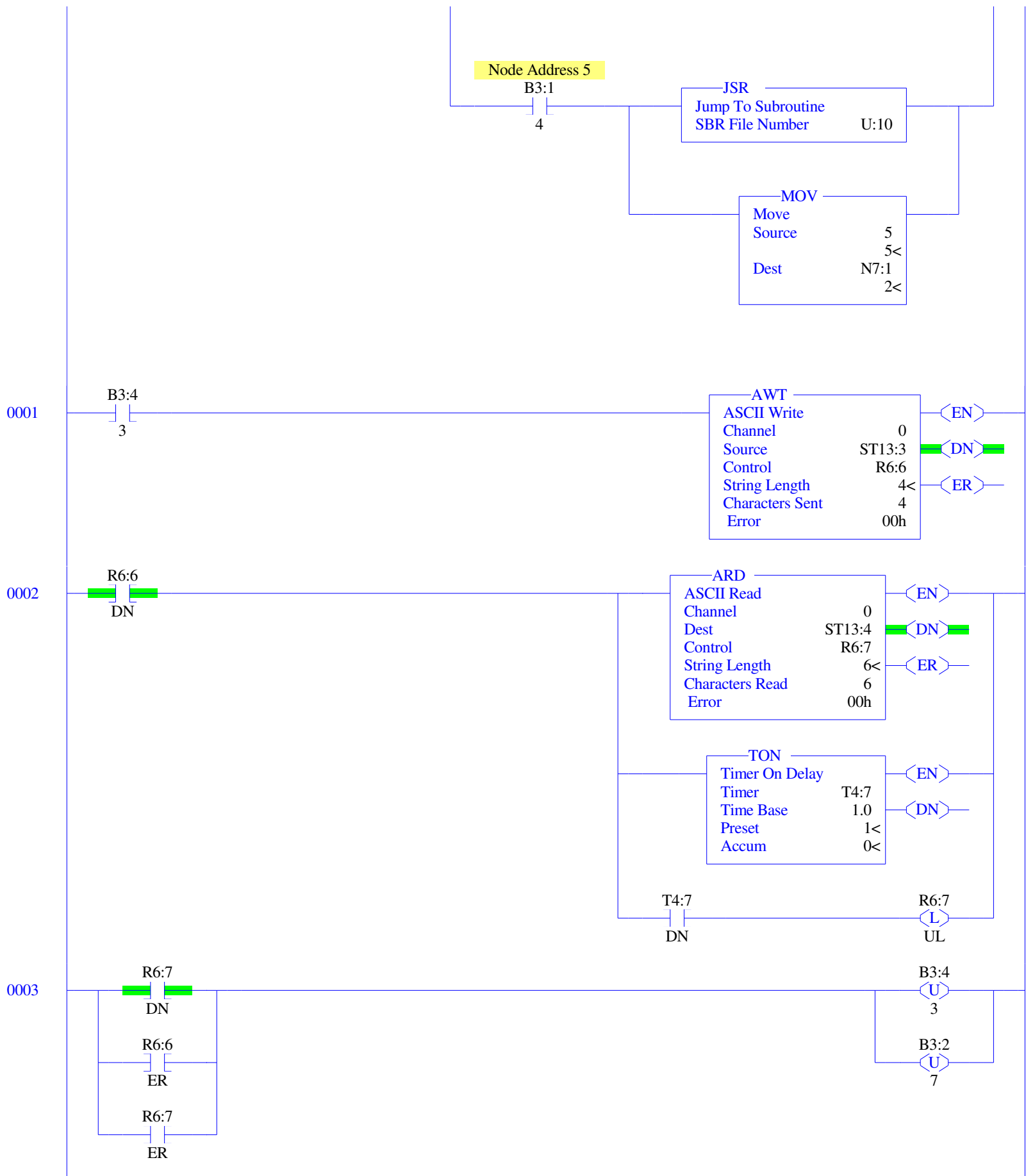
MOV
Move
Source 3
3<
Dest N7:1
2<

Node Address 4

B3:1
3

JSR
Jump To Subroutine
SBR File Number U:10

MOV
Move
Source 4
4<
Dest N7:1
2<



0004

—MOV—
Move
Source 2
2<
Dest ST13:5.LEN
2<

—MOV—
Move
Source N7:6
0<
Dest ST13:5.DATA[0]
\\00\\00<

—AEX—
String Extract
Source ST13:5
Index 2
Number 1
Dest ST13:6

—AEX—
String Extract
Source ST13:4
Index 5
Number 1
Dest ST13:8

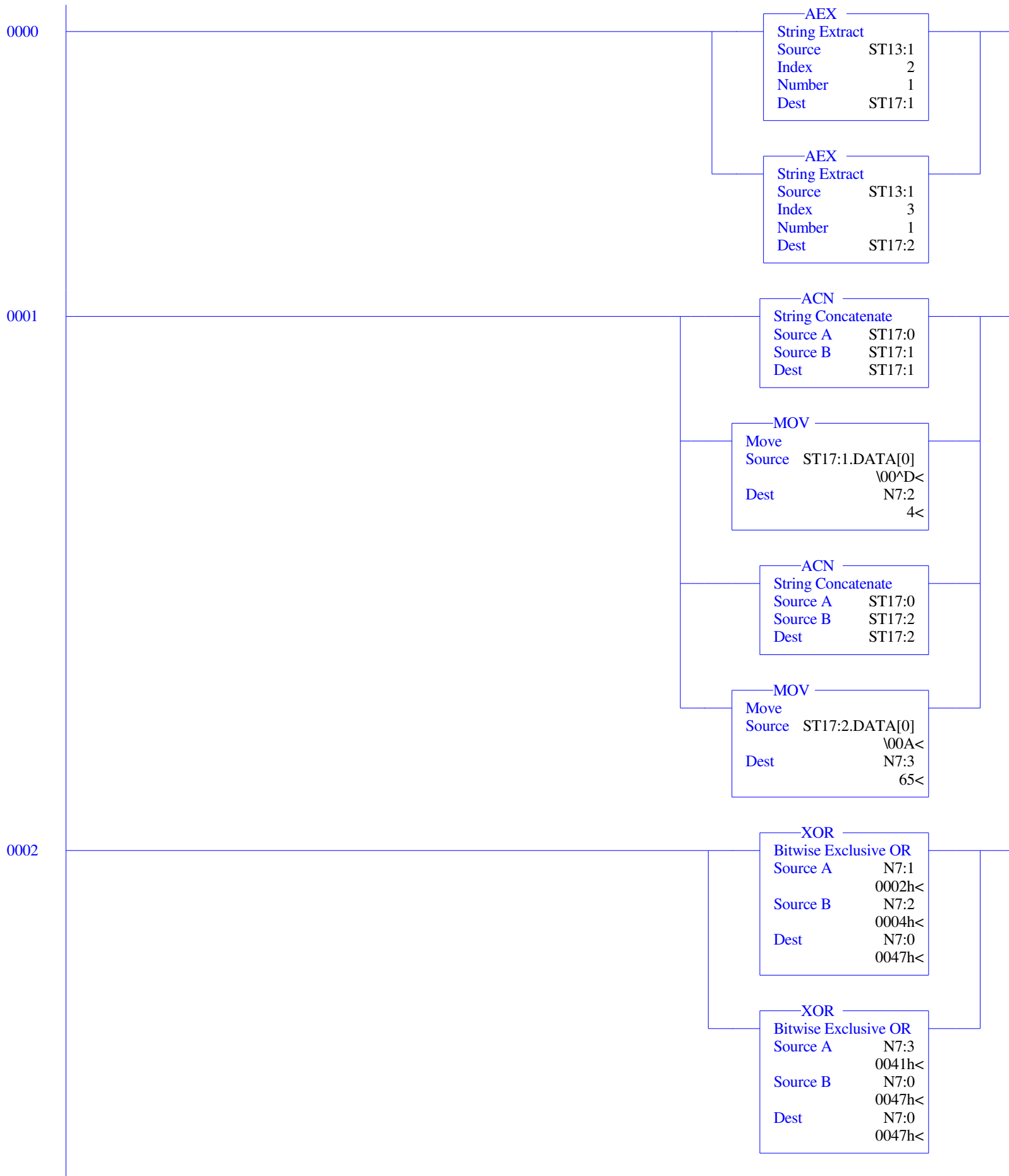
—AEX—
String Extract
Source ST13:4
Index 4
Number 1
Dest ST13:7

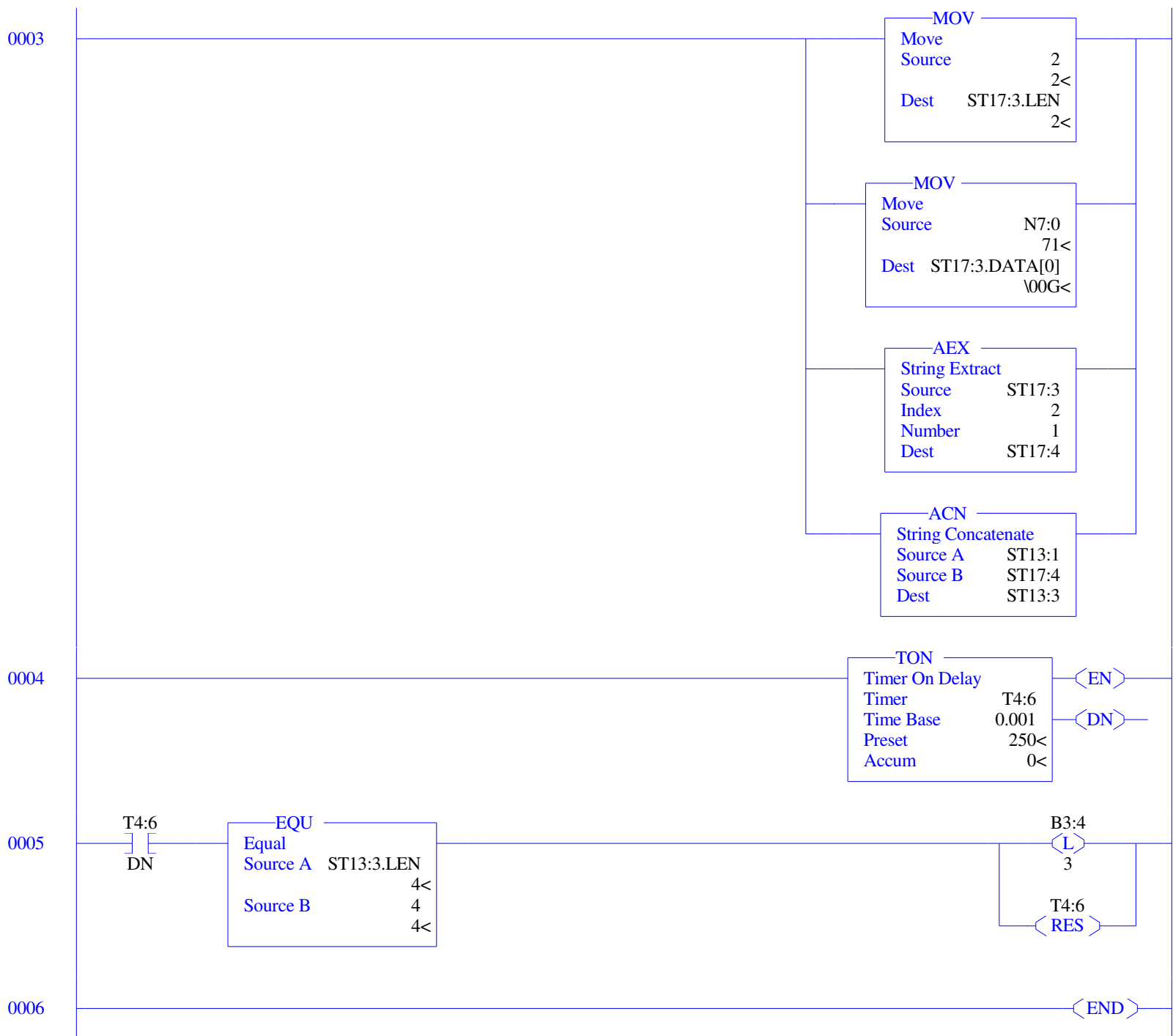
—ACN—
String Concatenate
Source A ST13:6
Source B ST13:7
Dest ST13:9

—ACN—
String Concatenate
Source A ST13:6
Source B ST13:8
Dest ST13:10

0005

⟨END⟩





0000

Node Address 1

B3:1
0

JSR
Jump To Subroutine
SBR File Number U:12

MOV
Move
Source 1
1<
Dest N7:1
2<

Node Address 2

B3:1
1

JSR
Jump To Subroutine
SBR File Number U:12

MOV
Move
Source 2
2<
Dest N7:1
2<

Node Address 3

B3:1
2

JSR
Jump To Subroutine
SBR File Number U:12

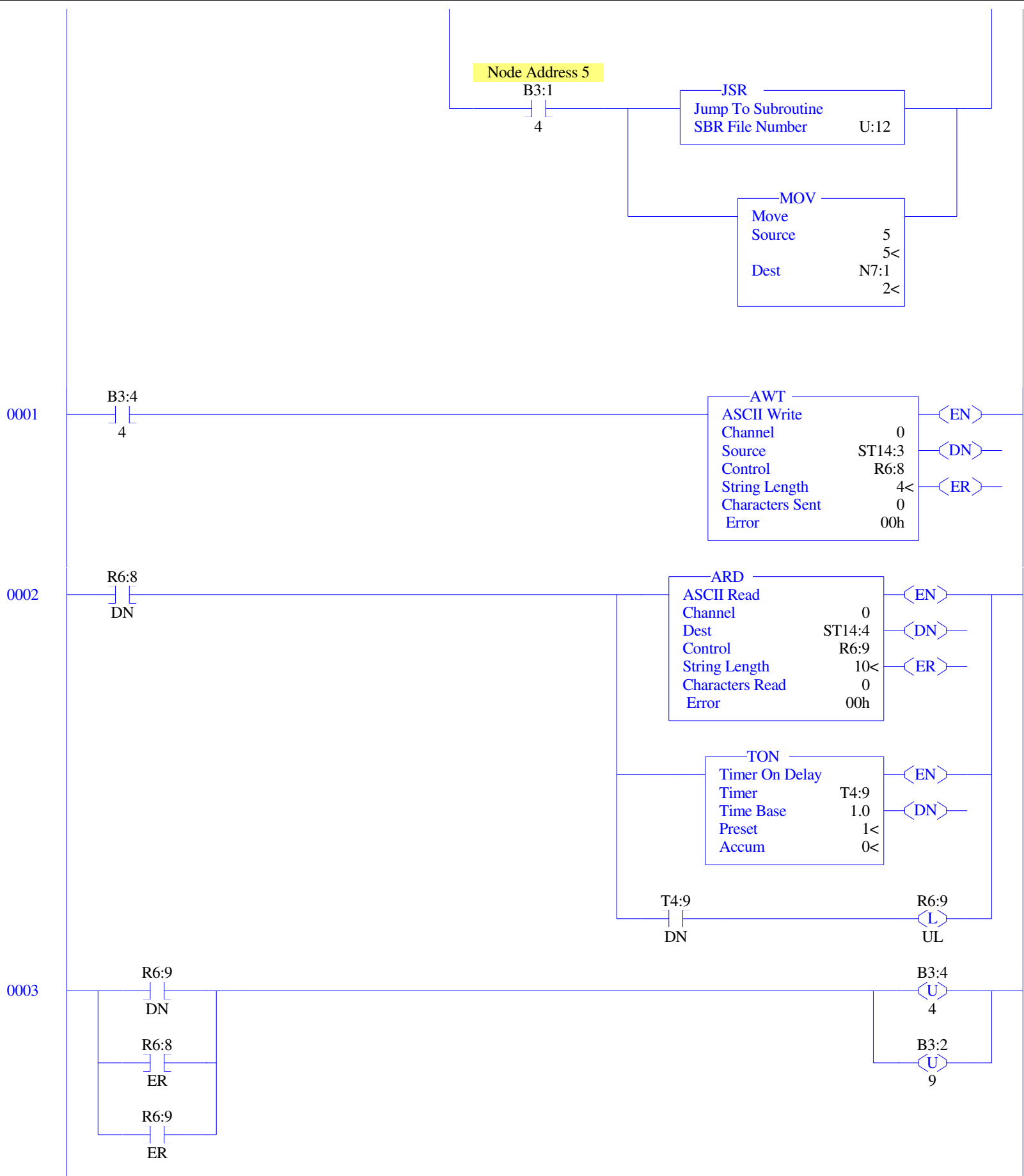
MOV
Move
Source 3
3<
Dest N7:1
2<

Node Address 4

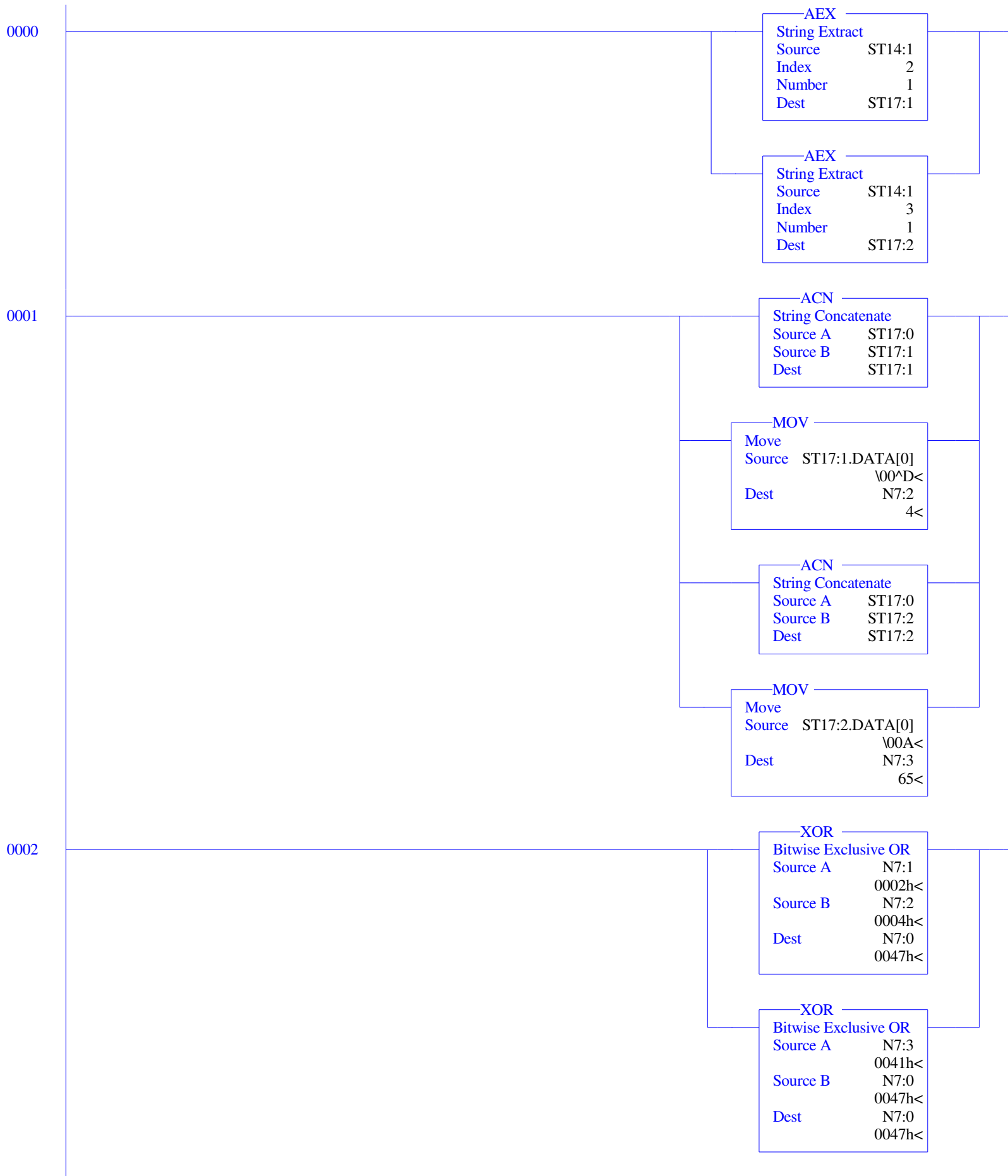
B3:1
3

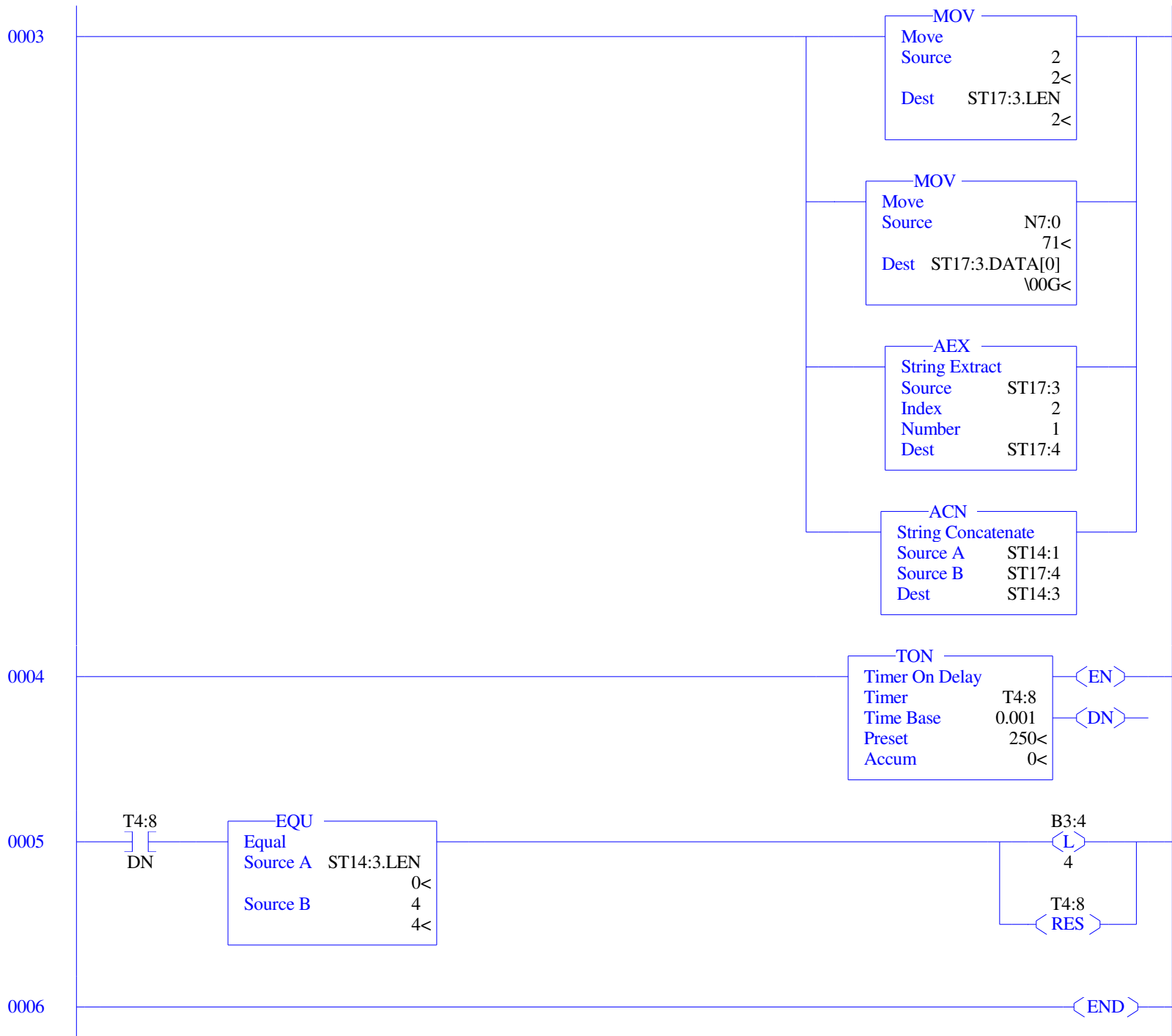
JSR
Jump To Subroutine
SBR File Number U:12

MOV
Move
Source 4
4<
Dest N7:1
2<









0000

Node Address 1

B3:1
0

JSR
Jump To Subroutine
SBR File Number U:14

MOV
Move
Source 1
1<
Dest N7:1
2<

Node Address 2

B3:1
1

JSR
Jump To Subroutine
SBR File Number U:14

MOV
Move
Source 2
2<
Dest N7:1
2<

Node Address 3

B3:1
2

JSR
Jump To Subroutine
SBR File Number U:14

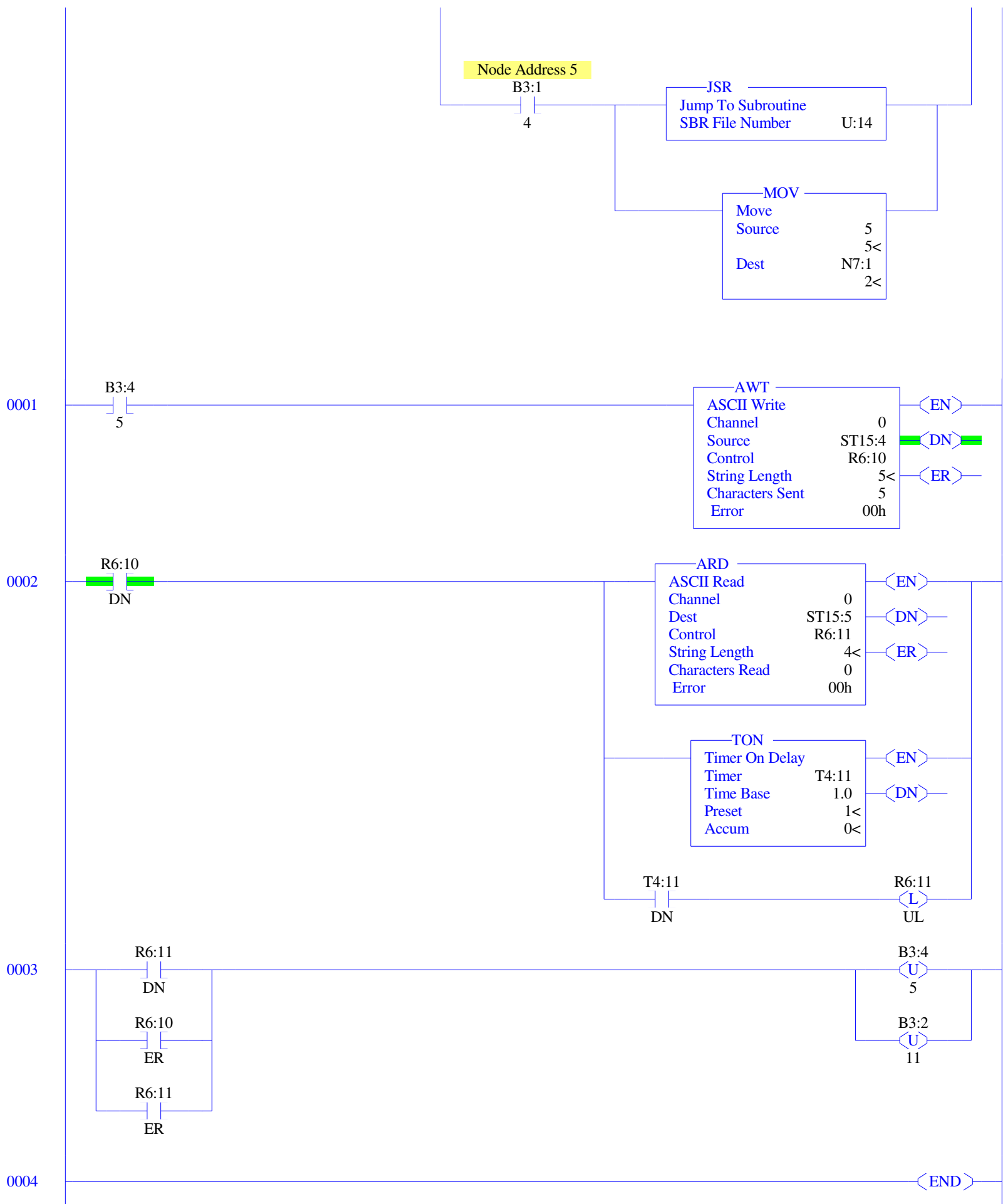
MOV
Move
Source 3
3<
Dest N7:1
2<

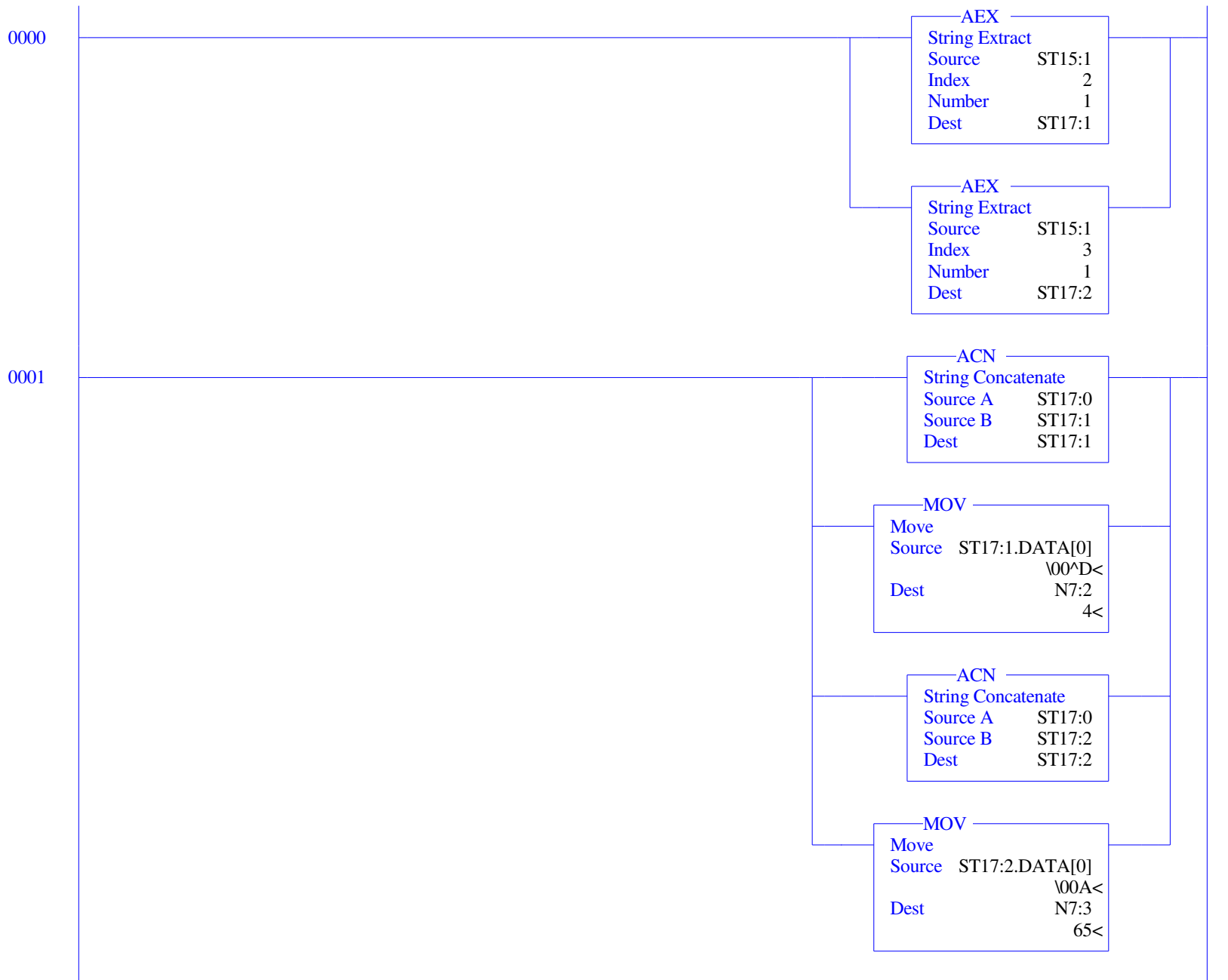
Node Address 4

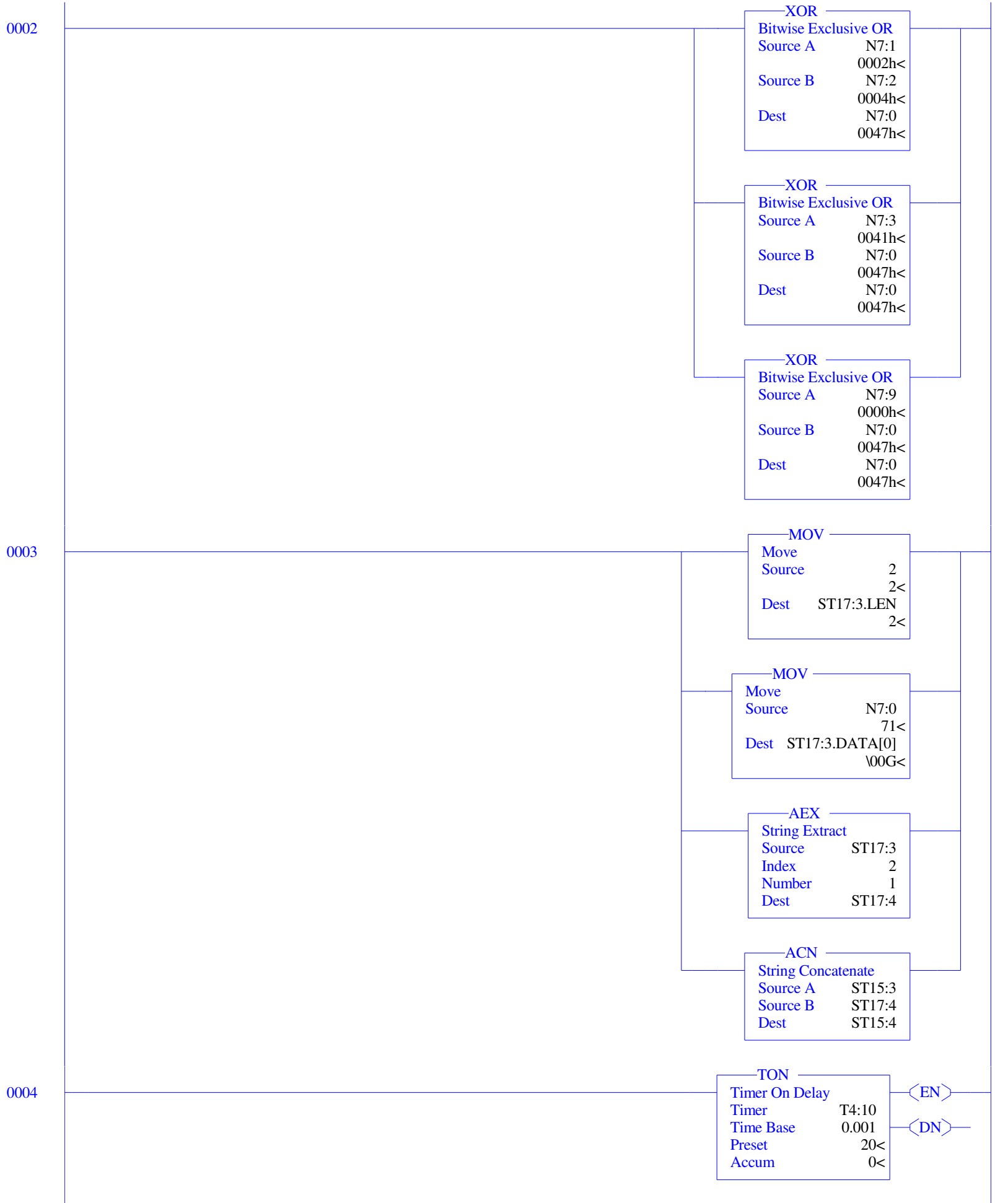
B3:1
3

JSR
Jump To Subroutine
SBR File Number U:14

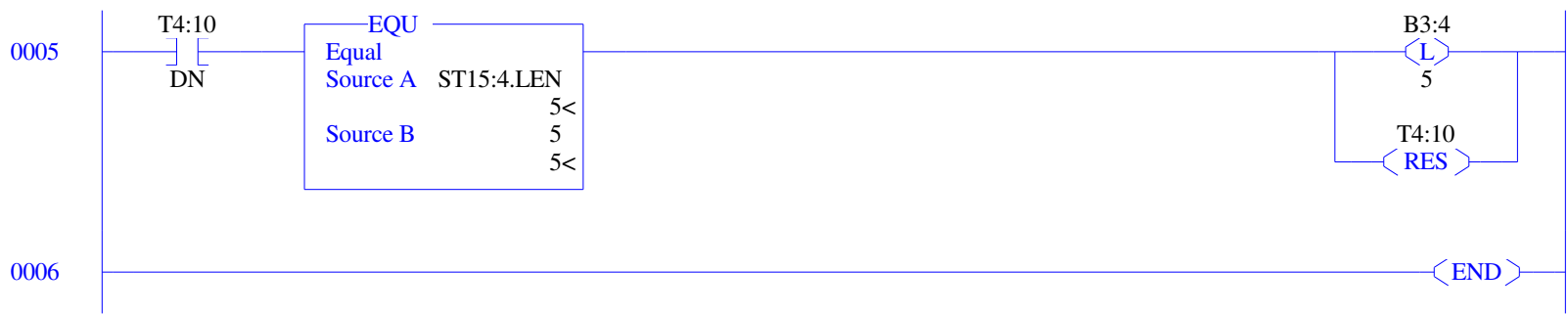
MOV
Move
Source 4
4<
Dest N7:1
2<







LAD 14 - KEY LOCK_1 --- Total Rungs in File = 7



0000

Node Address 1

B3:1
0

JSR
Jump To Subroutine
SBR File Number U:16

MOV
Move
Source 1
1<
Dest N7:1
2<

Node Address 2

B3:1
1

JSR
Jump To Subroutine
SBR File Number U:16

MOV
Move
Source 2
2<
Dest N7:1
2<

Node Address 3

B3:1
2

JSR
Jump To Subroutine
SBR File Number U:16

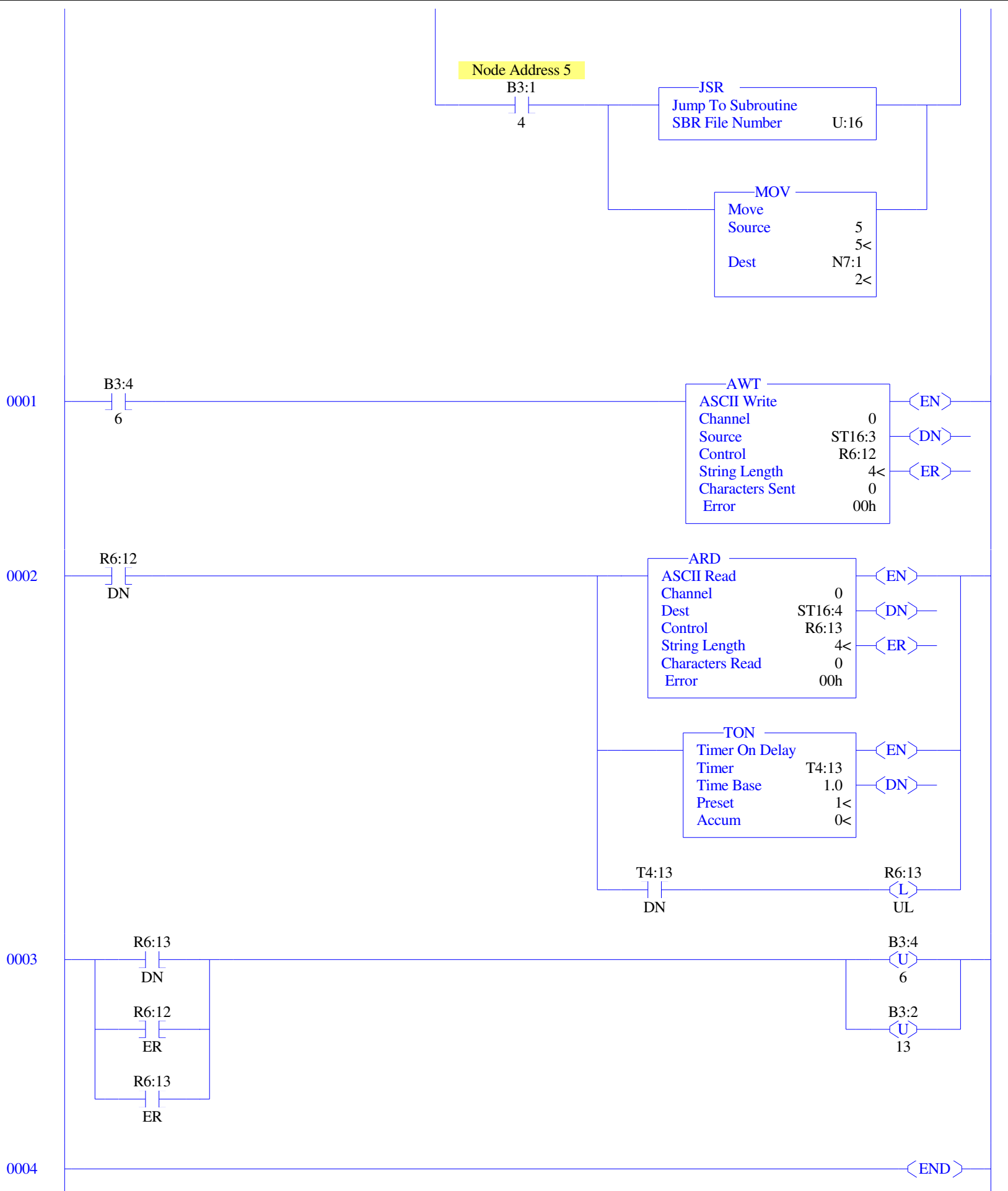
MOV
Move
Source 3
3<
Dest N7:1
2<

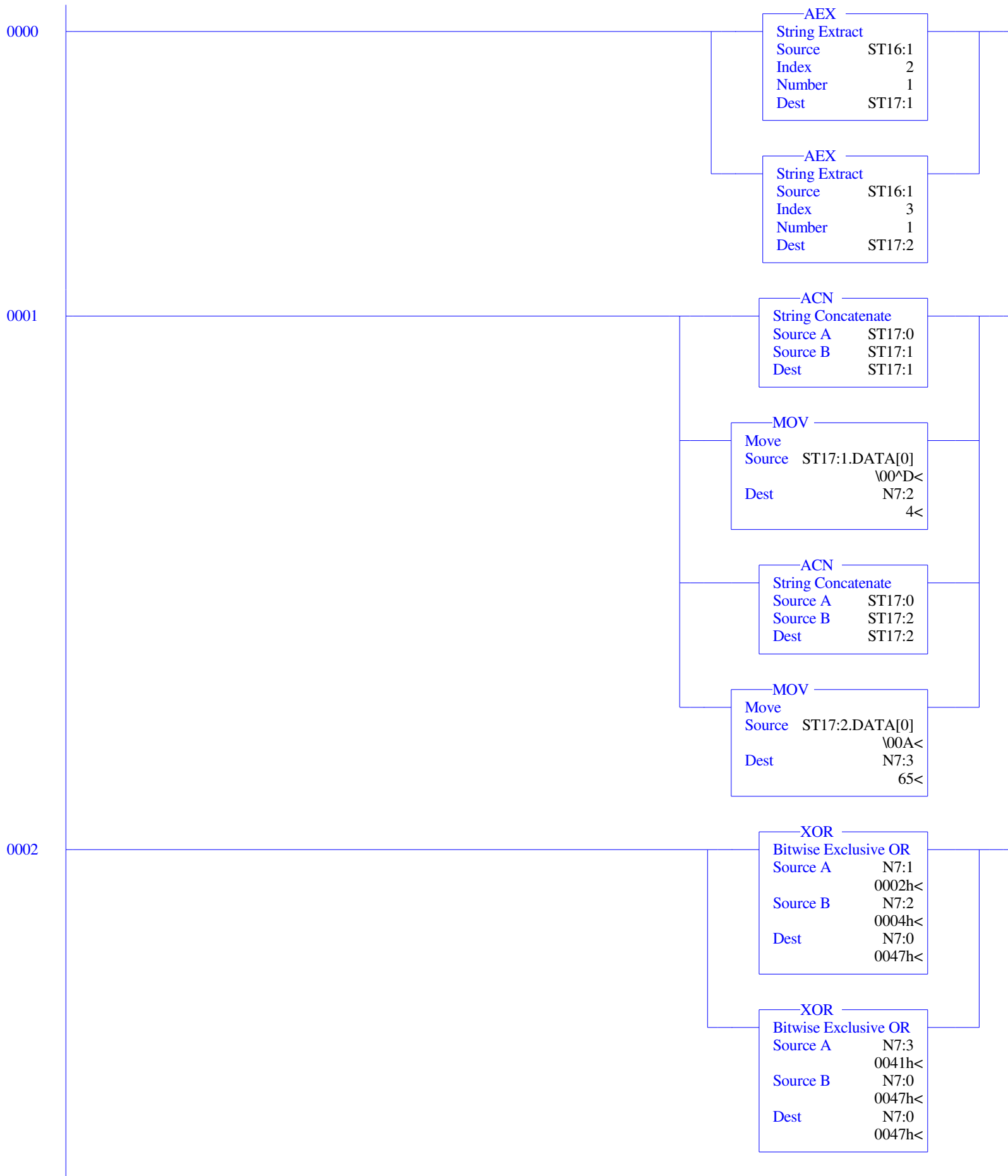
Node Address 4

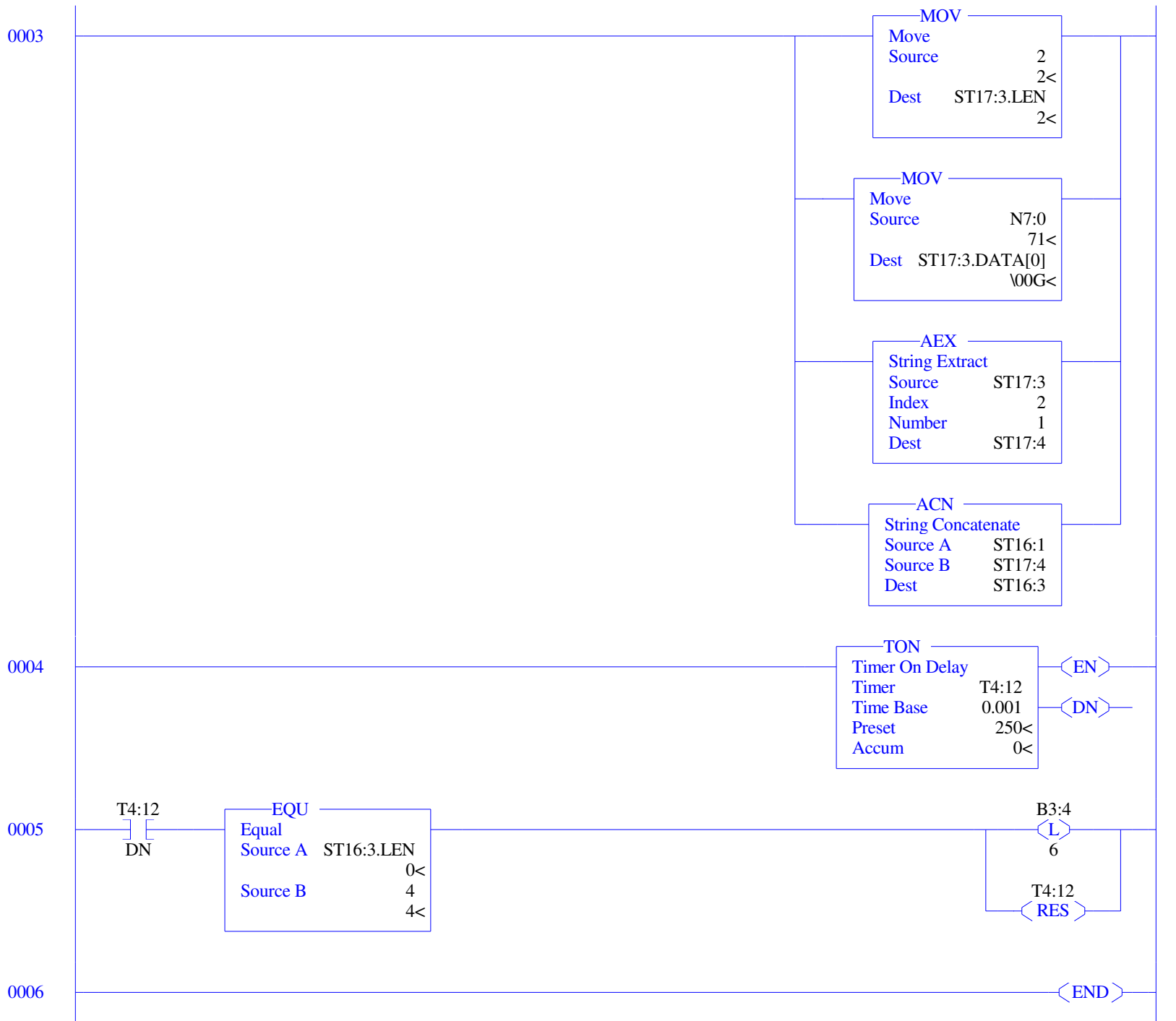
B3:1
3

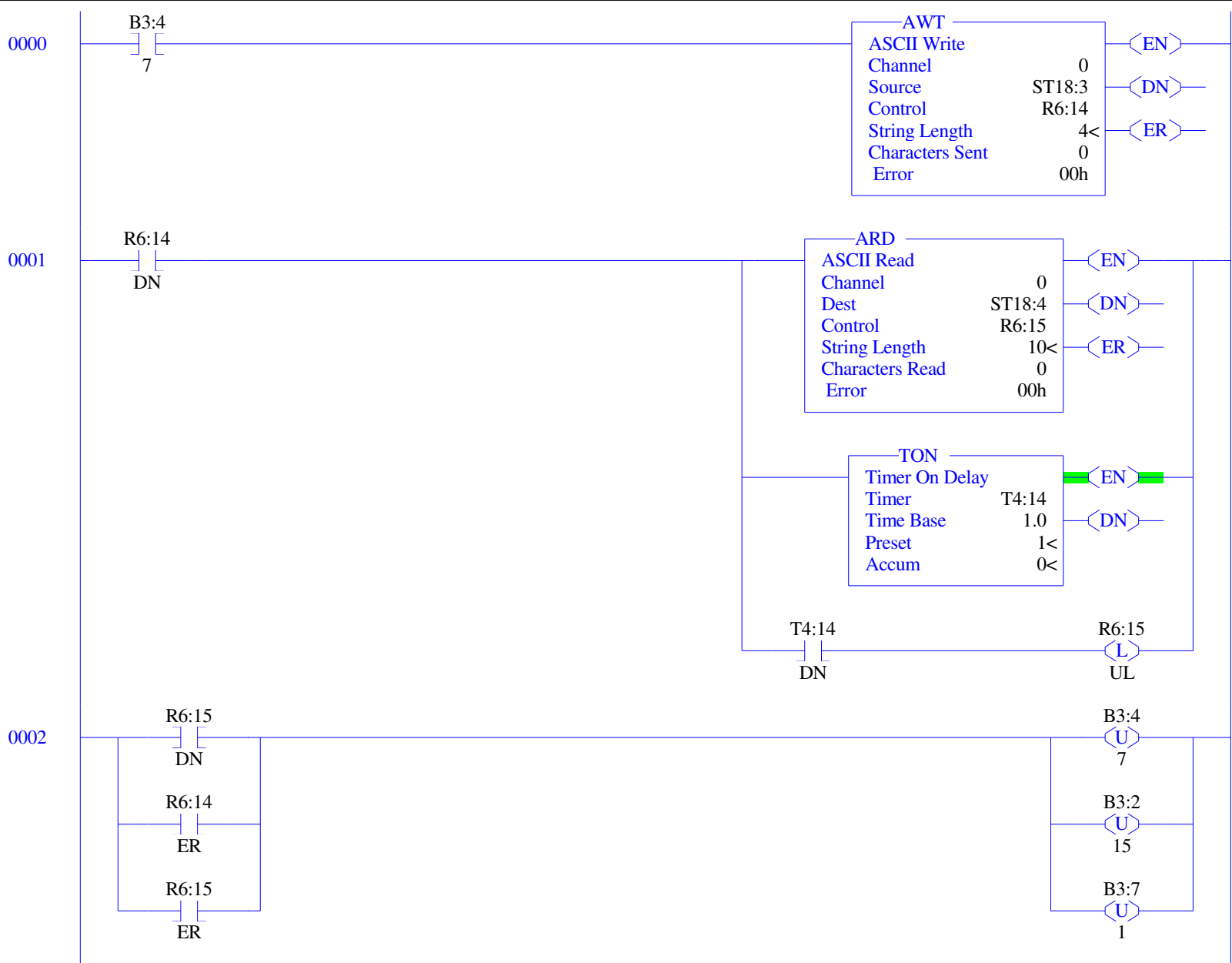
JSR
Jump To Subroutine
SBR File Number U:16

MOV
Move
Source 4
4<
Dest N7:1
2<









0003

Red Color Portion

R6:15

DN

AEX

String Extract

Source ST18:4

Index 4

Number 1

Dest ST18:5

AEX

String Extract

Source ST18:4

Index 5

Number 1

Dest ST18:6

ACN

String Concatenate

Source A ST17:0

Source B ST18:5

Dest ST18:5

I:0

0

Bul.1766

HMI Trigger

B3:3

15

MOV

Move

Source ST18:5.DATA[0]

Dest \00^F<

N19:4

640<

Numerical Value of
Intensity Portion
for Sensor 2

I:0

1

Bul.1766

Hmi Trigger Sensor 2

B3:4

15

MOV

Move

Source ST18:5.DATA[0]

Dest \00^F<

N19:13

563<

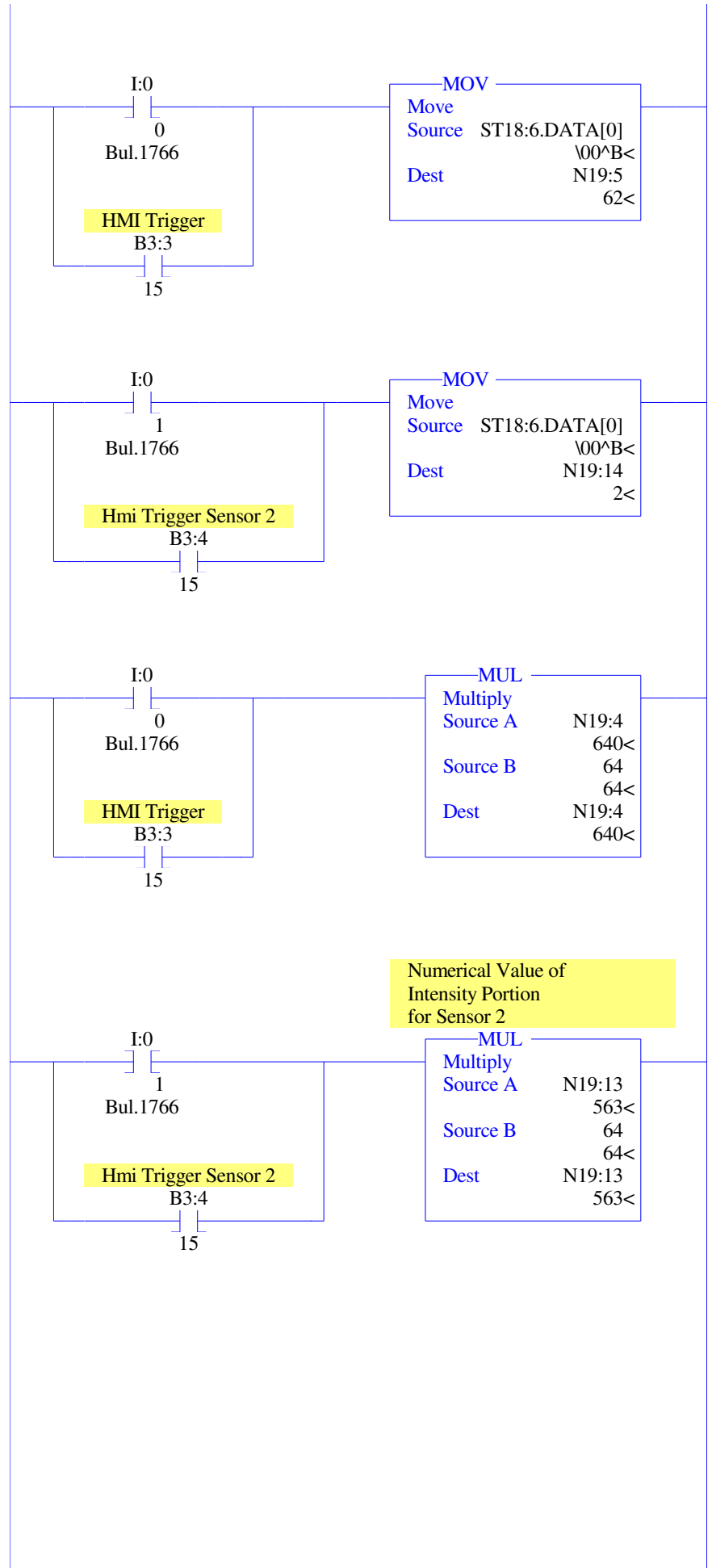
ACN

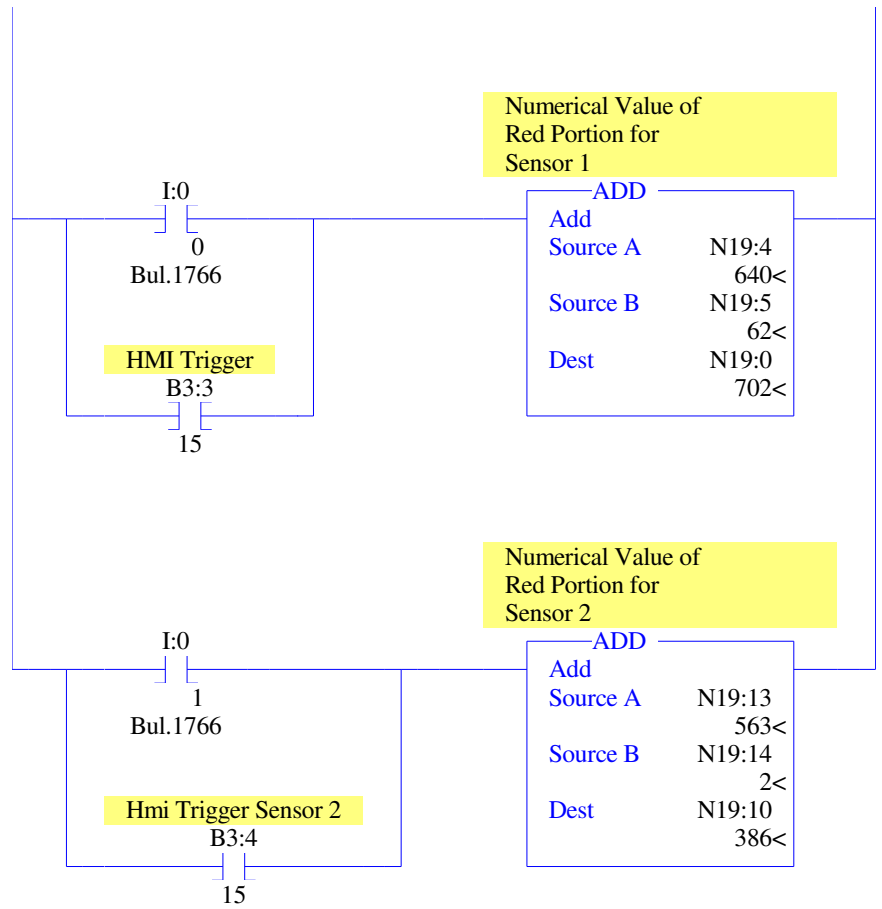
String Concatenate

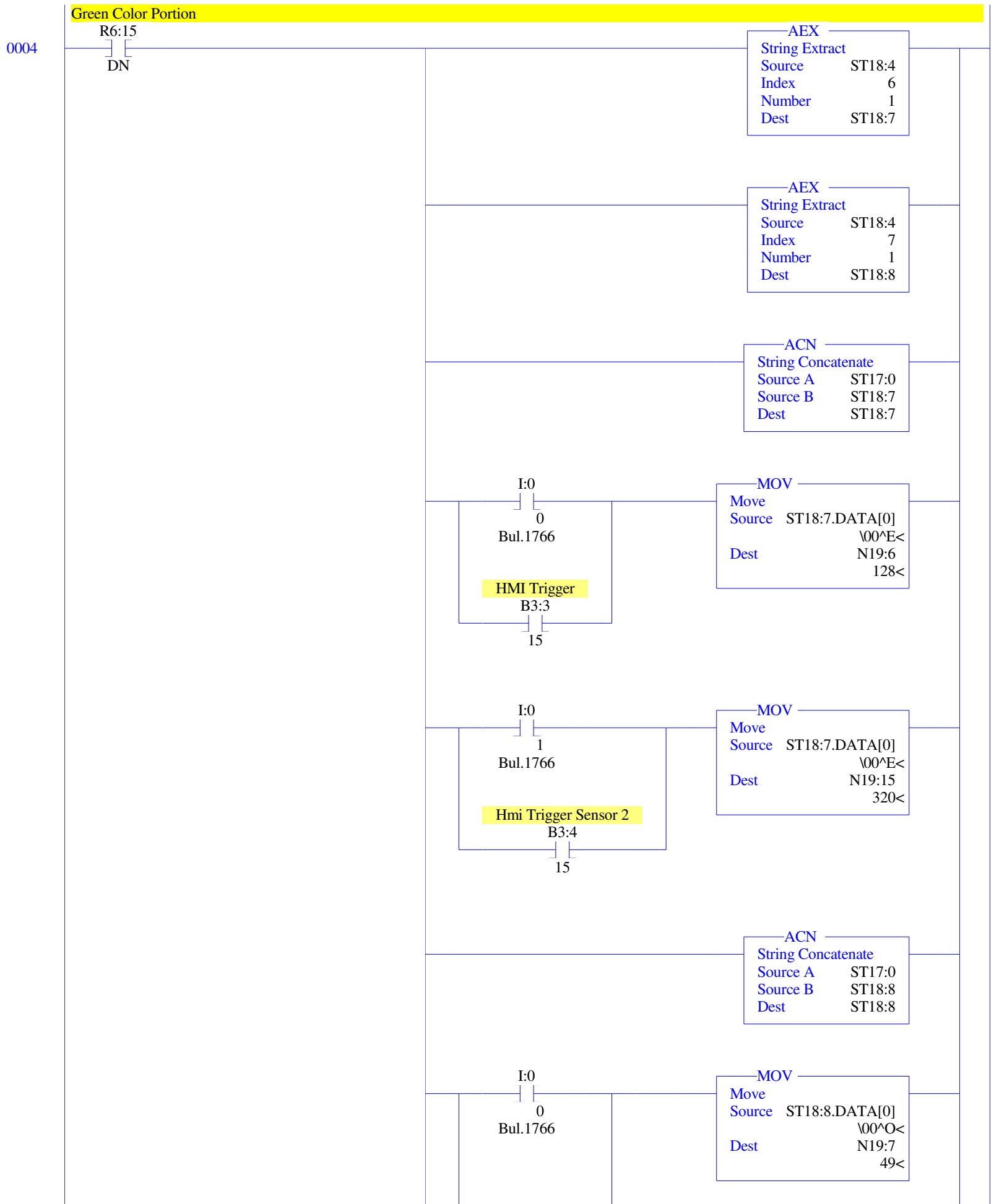
Source A ST17:0

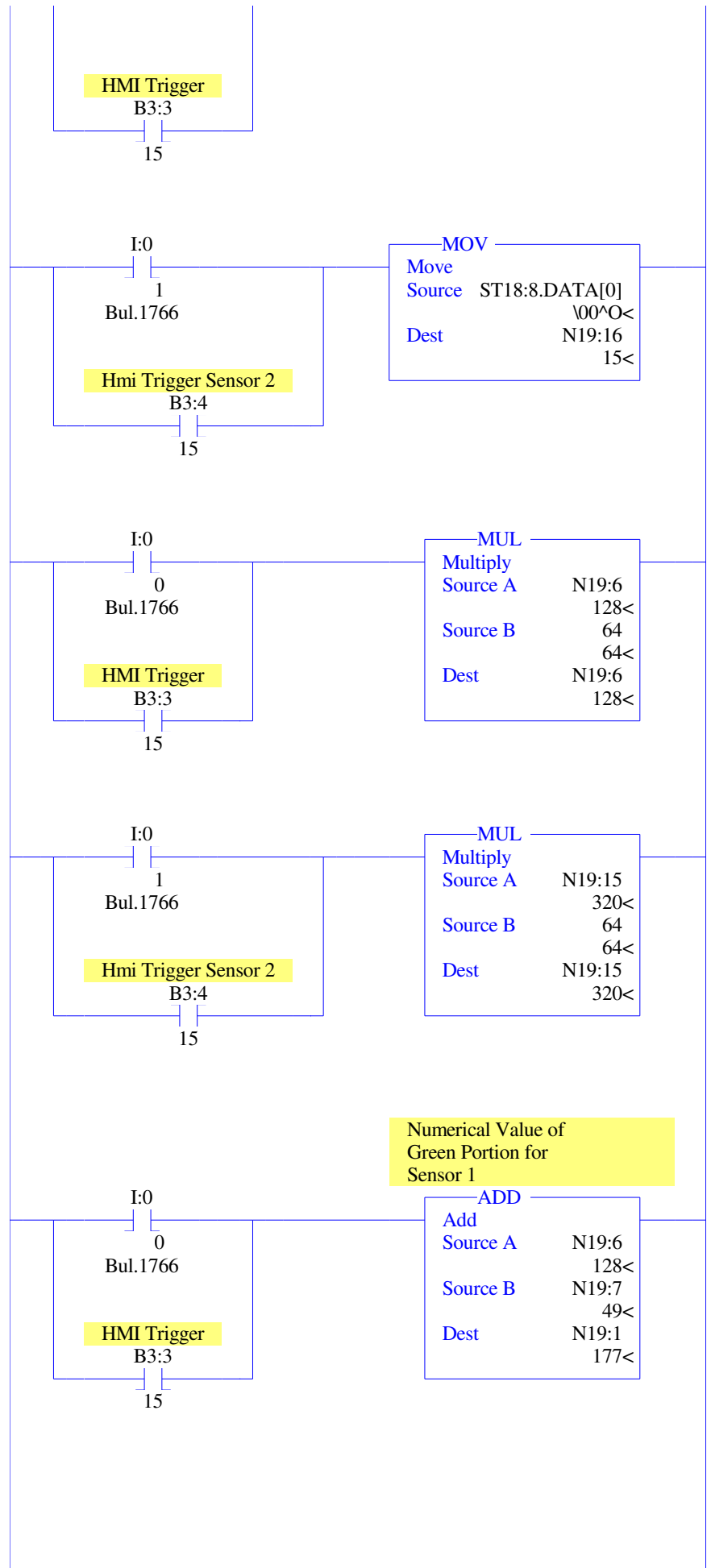
Source B ST18:6

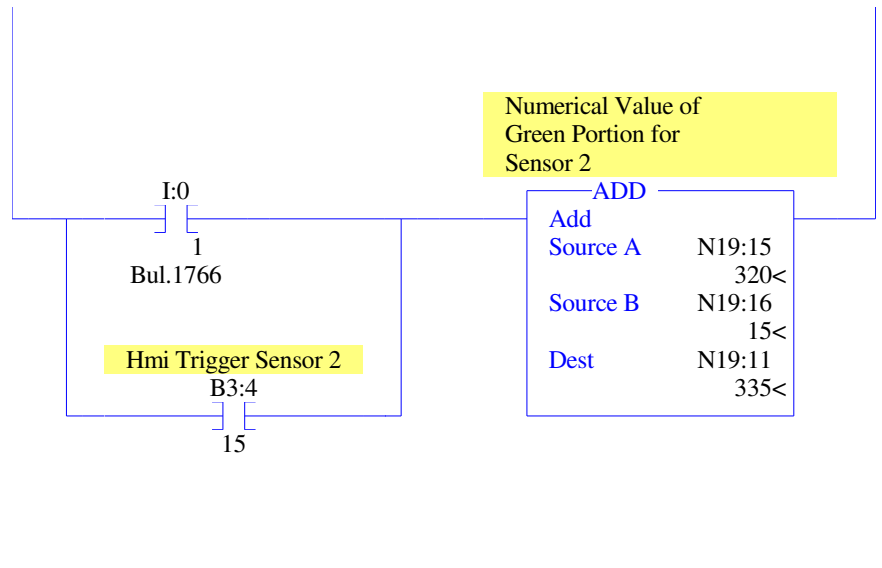
Dest ST18:6

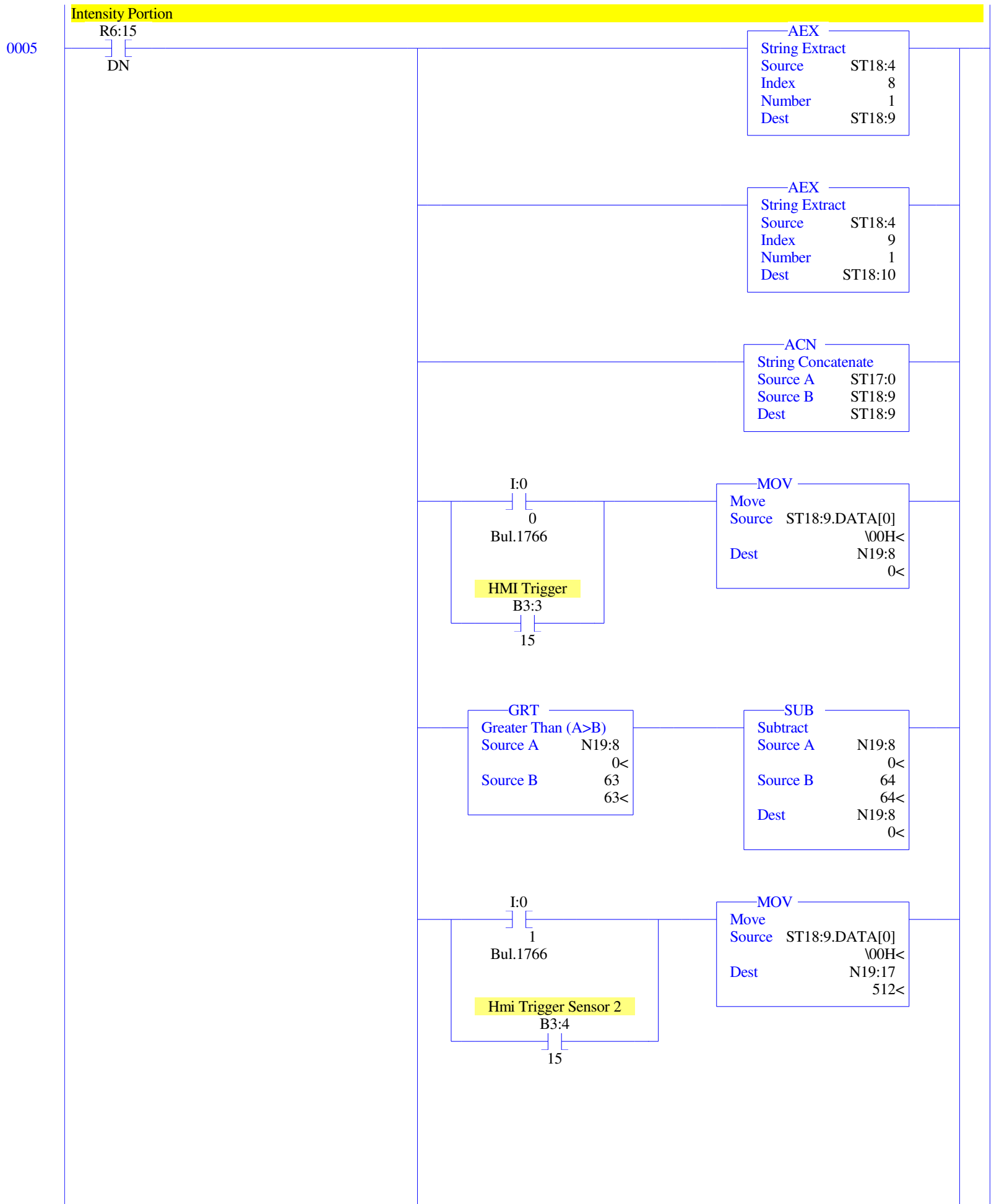


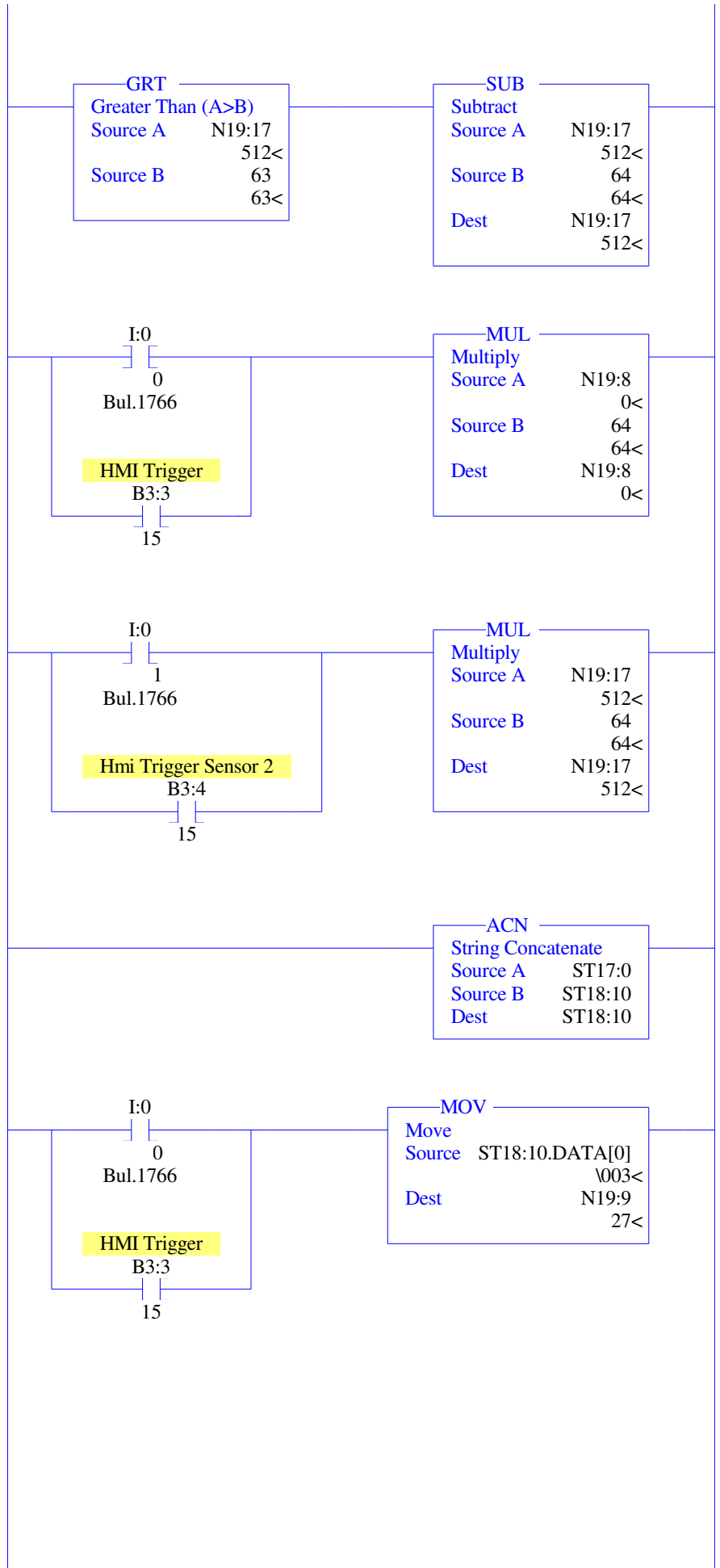


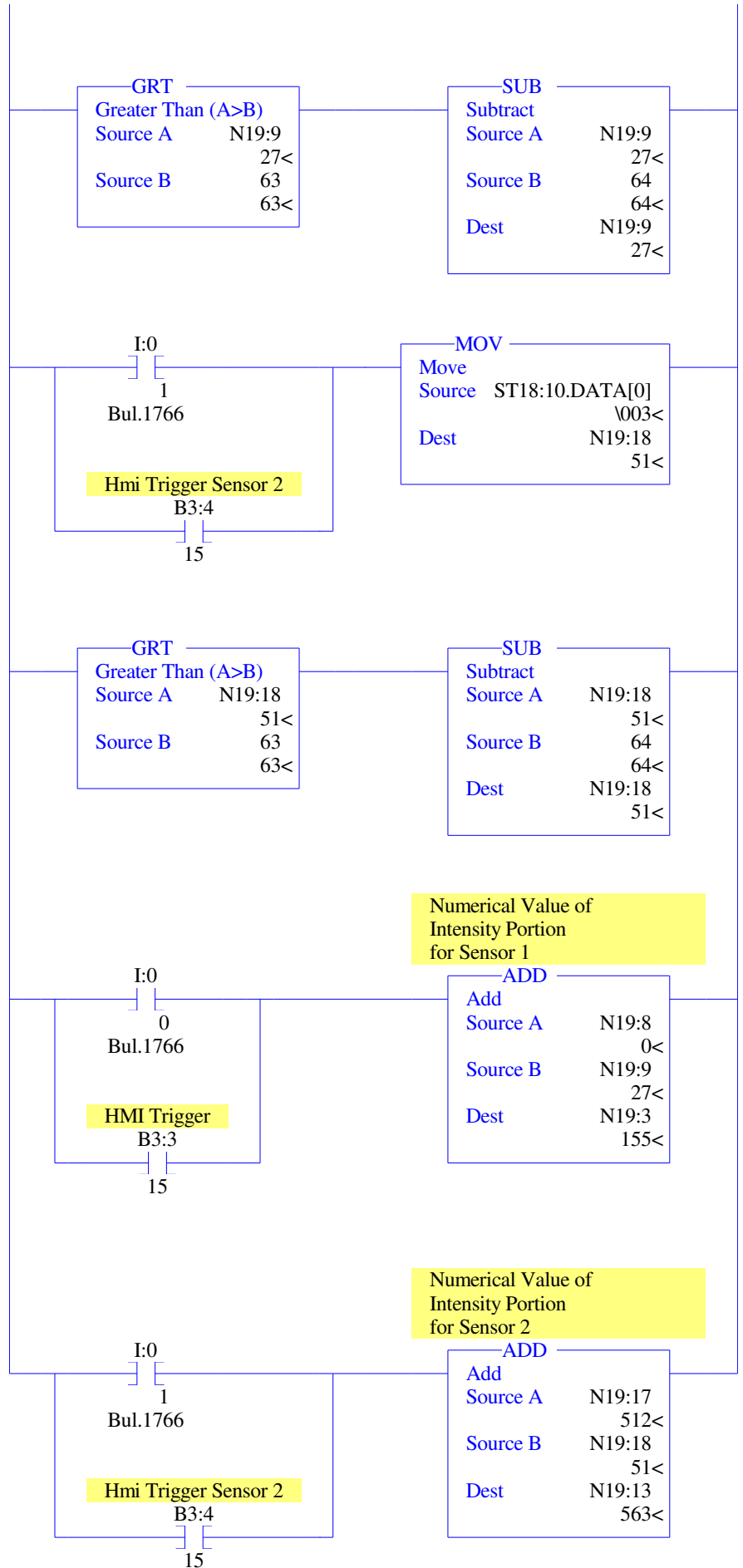






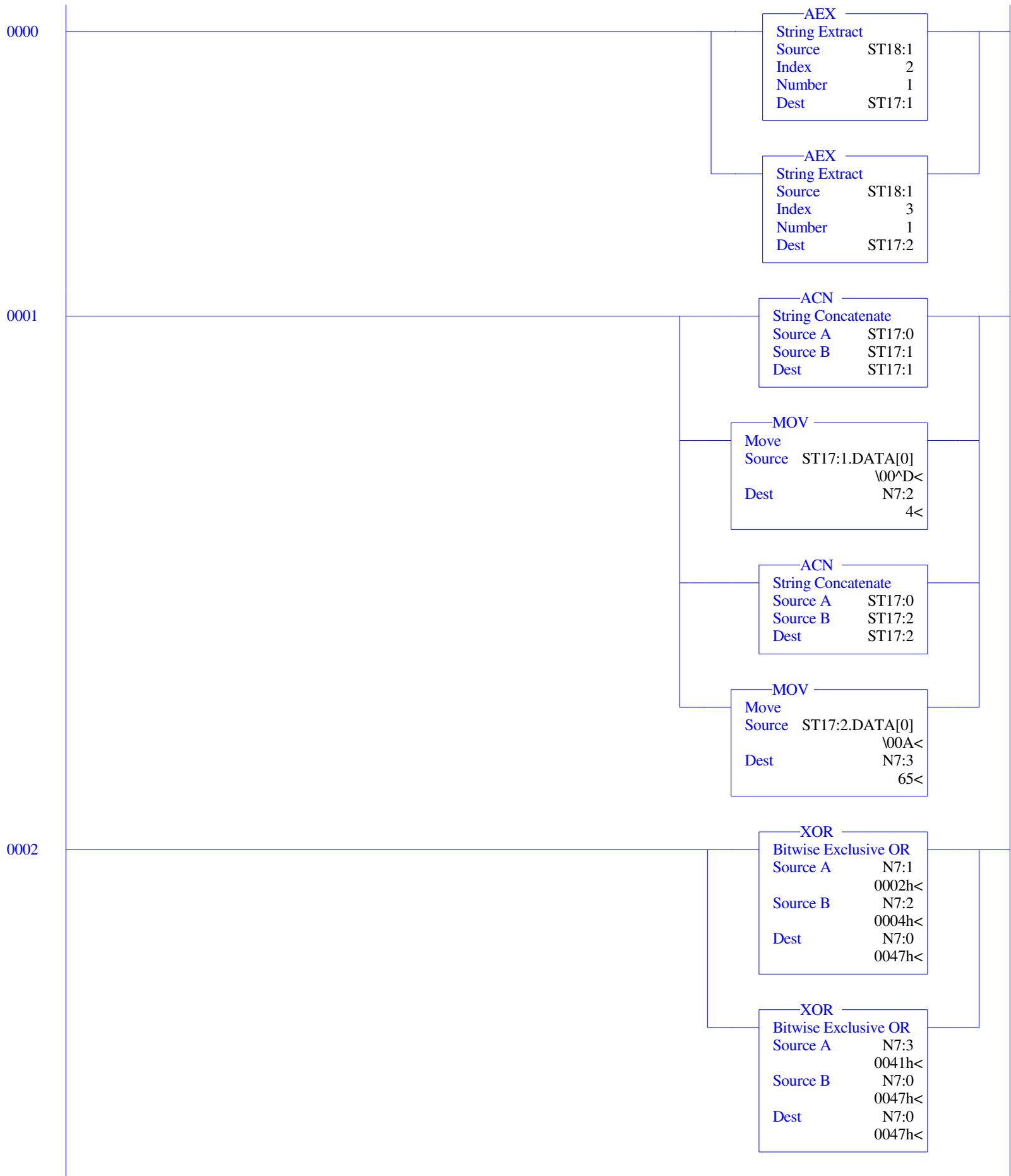


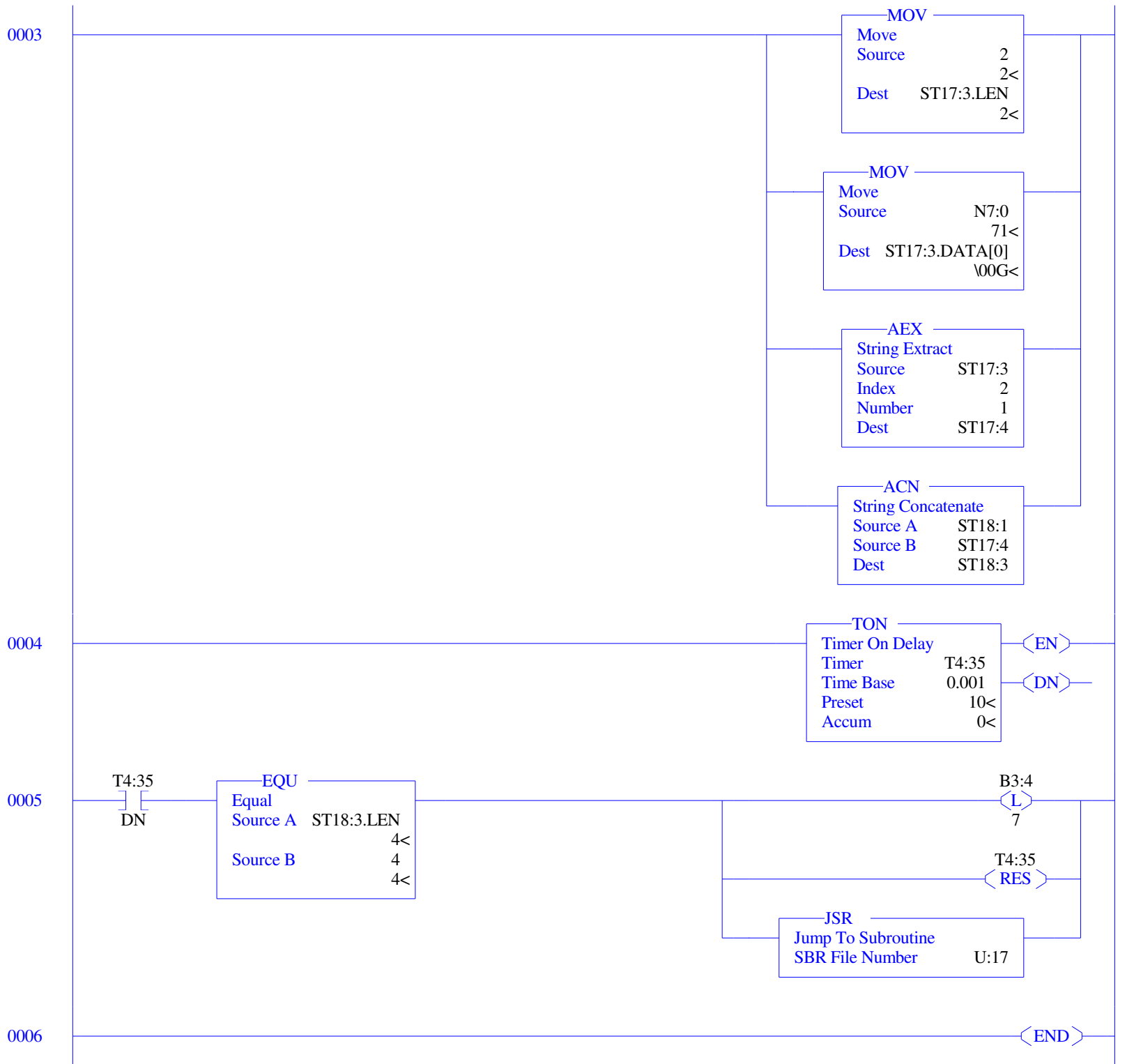




0006

⟨END⟩





Offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0					
O:0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix	1400	Series A	
O:0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix	1400	Series A	
O:0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix	1400	Series A	
O:0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix	1400	Series A	
O:0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix	1400	Series A	
O:0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix	1400	Series A	

Offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0				
I:0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix 1400 Series A		
I:0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix 1400 Series A		
I:0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix 1400 Series A		
I:0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix 1400 Series A		
I:0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix 1400 Series A		
I:0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix 1400 Series A		
I:0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix 1400 Series A		
I:0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Bul.1766	MicroLogix 1400 Series A		

Main

Processor Mode S:1/0 - S:1/4 = Remote Run
On Power up Go To Run (Mode Behavior) S:1/12 = 0
First Pass S:1/15 = No
Free Running Clock S:4 = 1010-1011-1010-1100

Proc

OS Catalog Number S:57 = 1400 User Program Type S:63 = 9001h
OS Series S:58 = A Compiler Revision Number S:64 =
OS FRS S:59 =
Processor Catalog Number S:60 =
Processor Series S:61 = A
Processor FRN S:62 =

Scan Times

Maximum (x10 ms) S:22 = 28
Watchdog (x10 ms) S:3 (high byte) = 10
Last 100 uSec Scan Time S:35 = 8
Scan Toggle Bit S:33/9 = 0

Math

Math Overflow Selected S:2/14 = 0 Math Register (lo word) S:13 = 0
Overflow Trap S:5/0 = 0 Math Register (high word) S:14-S:13 = 0
Carry S:0/0 = 0 Math Register (32 Bit) S:14-S:13 = 0
Overflow S:0/1 = 0
Zero Bit S:0/2 = 0
Sign Bit S:0/3 = 0

Chan 0

Processor Mode S:1/0- S:1/4 = Remote Run
Node Address S:15 (low byte) = 0 Outgoing Msg Cmd Pending S:33/2 = 0
Baud Rate S:15 (high byte) = ?
Channel Mode S:33/3 = 0
Comms Active S:33/4 = 0
Incoming Cmd Pending S:33/0 = 0
Msg Reply Pending S:33/1 = 0

Debug

Suspend Code S:7 = 0
Suspend File S:8 = 0

Errors

Fault Override At Power Up S:1/8 = 0 Fault Routine S:29 = 0
Startup Protection Fault S:1/9 = 0 Major Error S:6 = 1F39h
Major Error Halt S:1/13 = 0
Overflow Trap S:5/0 = 0 Error Description:
Control Register Error S:5/2 = 0
Major Error Executing User Fault Rtn. S:5/3 = This is a user defined fault code.
Battery Low S:5/11 = 0
Input Filter Selection Modified S:5/13 = 0
ASCII String Manipulation error S:5/15 = 1

Protection

Deny Future Access S:1/14 = No
Data File Overwrite Protection Lost S:36/10 = False

Mem Module

Memory Module Loaded On Boot S:5/8 = 0
Password Mismatch S:5/9 = 0
Load Memory Module On Memory Error S:1/10 = 0
Load Memory Module Always S:1/11 = 0
On Power up Go To Run (Mode Behavior) S:1/12 = 0
Program Compare S:2/9 = 0
Data File Overwrite Protection Lost S:36/10 = 0

Forces

Forces Enabled S:1/5 = Yes
 Forces Installed S:1/6 = No

Offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	(Symbol)	Description
B3:0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
B3:1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		
B3:2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
B3:3	0	1	1	0	0	0	0	0	1	0	0	1	1	0	0	0		
B3:4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
B3:5	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1		
B3:6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
B3:7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
B3:8	0	0	0	0	0	1	0	1	1	0	0	1	1	0	0	0		
B3:9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Offset	EN	TT	DN	BASE	PRE	ACC	(Symbol) Description
T4:0	0	0	0	.001 sec	250	0	
T4:1	0	0	0	1.0 sec	1	0	
T4:2	0	0	0	.001 sec	250	0	
T4:3	0	0	0	1.0 sec	1	0	
T4:4	0	0	0	.001 sec	250	0	
T4:5	0	0	0	1.0 sec	1	0	
T4:6	0	0	0	.001 sec	250	0	
T4:7	0	0	0	1.0 sec	1	0	
T4:8	0	0	0	.001 sec	250	0	
T4:9	0	0	0	1.0 sec	1	0	
T4:10	0	0	0	.001 sec	20	0	
T4:11	0	0	0	1.0 sec	1	0	
T4:12	0	0	0	.001 sec	250	0	
T4:13	0	0	0	1.0 sec	1	0	
T4:14	1	1	0	1.0 sec	1	0	
T4:15	0	0	0	.001 sec	20	0	
T4:16	0	0	0	.001 sec	5000	5000	
T4:17	0	0	0	.001 sec	5000	0	
T4:18	0	0	0	.001 sec	5000	5000	
T4:19	0	0	0	.001 sec	5000	0	
T4:20	0	0	0	.001 sec	5000	5000	
T4:21	0	0	0	.001 sec	5000	0	
T4:22	0	0	0	.001 sec	5000	5000	
T4:23	0	0	0	.001 sec	5000	0	
T4:24	0	0	0	.001 sec	5000	5000	
T4:25	0	0	0	.001 sec	20	0	
T4:26	0	0	0	.001 sec	5000	5000	
T4:27	0	0	0	.001 sec	20	0	
T4:28	0	0	0	.001 sec	5000	5000	
T4:29	0	0	0	.001 sec	20	0	
T4:30	0	0	0	.001 sec	5000	5000	
T4:31	0	0	0	.001 sec	20	0	
T4:32	0	0	0	.001 sec	5000	5000	
T4:33	0	0	0	.001 sec	20	0	
T4:34	0	0	0	.001 sec	5000	5000	
T4:35	0	0	0	.001 sec	10	0	
T4:36	0	0	0	.001 sec	2000	0	
T4:37	0	0	0	.001 sec	20	0	
T4:38	0	0	0	.001 sec	2000	0	

Offset	CU	CD	DN	OV	UN	UA	PRE	ACC	(Symbol)	Description
C5:0	0	0	0	0	0	0	5	0		

Offset	EN	EU	DN	EM	ER	UL	IN	FD	LEN	POS	(Symbol)	Description
R6:0	0	0	1	0	0	0	0	0	5	5		
R6:1	0	0	1	0	0	0	0	0	4	4		
R6:2	0	0	1	0	0	0	0	0	5	5		
R6:3	0	0	1	0	0	0	0	0	4	4		
R6:4	0	0	1	0	0	0	0	0	4	4		
R6:5	0	0	1	0	0	0	0	0	4	4		
R6:6	0	0	1	0	0	0	0	0	4	4		
R6:7	0	0	1	0	0	0	0	0	6	6		
R6:8	0	0	0	0	0	0	0	0	4	0		
R6:9	0	0	0	0	0	0	0	0	10	0		
R6:10	0	0	1	0	0	0	0	0	5	5		
R6:11	0	0	0	0	0	0	0	0	4	0		
R6:12	0	0	0	0	0	0	0	0	4	0		
R6:13	0	0	0	0	0	0	0	0	4	0		
R6:14	0	0	0	0	0	0	0	0	4	0		
R6:15	0	0	0	0	0	0	0	0	10	0		
R6:16	0	0	0	0	0	0	0	0	54	0		
R6:17	0	0	0	0	0	0	0	0	4	0		
R6:18	0	0	0	0	0	0	0	0	4	0		
R6:19	0	0	0	0	0	0	0	0	4	0		
R6:20	0	0	0	0	0	0	0	0	0	0		
R6:21	0	0	0	0	0	0	0	0	0	0		
R6:22	0	0	0	0	0	0	0	0	4	0		
R6:23	0	0	0	0	0	0	0	0	10	0		

Data File N7 (dec) -- INTEGER

Offset	0	1	2	3	4	5	6	7	8	9
N7:0	71	2	4	65	1	1	0	0	20	0
N7:10	0	0	0	0	0	0	0	0	0	0
N7:20	0	0	0	0	0	0	0	0	0	0
N7:30	0	0	0	0	0	0	0	0	0	0
N7:40	0	0	0	0	0	0	0	0	0	0
N7:50	0	0	0	0	0	0	0	0	0	0
N7:60	0	0	0	0	0	0	0	0	0	0
N7:70	0	0	0	0	0	0	0	0	0	0
N7:80	0	0								

Data File F8 -- FLOAT

Offset	0	1	2	3	4
F8:0	0				

Data File ST9 -- ADDRESS -- Node Address of Sensor

Offset	LEN	String Text	(Symbol)	Description
ST9:0	1	\81		
ST9:1	1	\82		
ST9:2	1	\83		
ST9:3	1	\84		
ST9:4	1	\85		

Offset	LEN	String Text	(Symbol) Description	
ST10:0	2	^EL		Length
ST10:1	3	\82^EL		
ST10:2	1	^A		
ST10:3	4	\81^EL^A		
ST10:4	5	\81^EL^AI		
ST10:5	4	\81^DY\\		
ST10:6	2	\00Y		Status

Offset	LEN	String Text	(Symbol)	Description	Length
ST11:0	2	^EB			
ST11:1	3	\82^EB			
ST11:2	1	^A			
ST11:3	4	\81^EB^A			
ST11:4	5	\81^EB^AG			
ST11:5	4	\81^DY\\			
ST11:6	2	\00Y			

Data File ST12 -- DEFAULT -- Activate Factory Setting

Offset	LEN	String Text	(Symbol)	Description	Length
ST12:0	2	^DW			
ST12:1	3	\82^DW			
ST12:2	0				
ST12:3	4	\81^DWR			
ST12:4	4	Y\00^TJ			
ST12:5	2	\00^T			

Offset	LEN	String Text	(Symbol) Description	Length
ST13:0	2	^Dv		
ST13:1	3	\82^Dv		
ST13:2	0			
ST13:3	4	\81^Dvs		
ST13:4	6	\81^FY\00^TJ		
ST13:5	2	\00\00		
ST13:6	1	\00		
ST13:7	1	\00		
ST13:8	1	^T		
ST13:9	2	\00\00		
ST13:10	2	\00^T		

Offset	LEN	String Text	(Symbol)	Description	Length
ST14:0	2	^D?			
ST14:1	3	\82^D?			
ST14:2	0				
ST14:3	0				
ST14:4	0				
ST14:5	0				
ST14:6	0				

Offset	LEN	String Text	(Symbol) Description	Length
ST15:0	2	^EV		
ST15:1	3	\82^EV		
ST15:2	1	\00		
ST15:3	4	\81^EV\00		
ST15:4	5	\81^EV\00R		
ST15:5	4	Y\00^TJ		
ST15:6	2	\00^T		

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Offset	LEN	String Text	(Symbol)	Description	
ST17:0	1	\00			
ST17:1	2	\00^D			Address
ST17:2	2	\00A			
ST17:3	2	\00G			
ST17:4	1	G			

Offset	LEN	String Text	(Symbol) Description	Length
ST18:0	2	^DA		
ST18:1	3	\82^DA		
ST18:2	0			
ST18:3	4	\82^DAG		
ST18:4	10	\82^JY^F^B^E^OH3\$		
ST18:5	2	\00^F		
ST18:6	2	\00^B		
ST18:7	2	\00^E		
ST18:8	2	\00^O		
ST18:9	2	\00H		
ST18:10	2	\003		

Data File N19 (dec) -- CLR VALUES -- Color Values and Tolerances										
Offset	0	1	2	3	4	5	6	7	8	9
N19:0	702	177	144	155	640	62	128	49	0	27
N19:10	386	335	302	563	2	320	15	512	51	

	Data	File	N20	(dec)	--	NODE1_CH1	--	Values of Upper and Lower Tolerances		
Offset	0	1	2	3	4	5	6	7	8	9
N20:0	365	410	350	375	400	575				

	Data File N21 (dec)		--	NODE1_CH2		--	Values of Upper and Lower Tolerance			
Offset	0	1	2	3	4	5	6	7	8	9
N21:0	300	380	290	375	25	75				

	Data File N22 (dec)					--	NODE1_CH3		--	Values of Upper and Lower Tolerance		
Offset	0	1	2	3	4	5	6	7	8	9		
N22:0	575	625	185	235	175	225						

	Data File N23 (dec)				--	NODE1_CH4	--	Values of Upper and Lower Tolerance			
Offset	0	1	2	3		4	5	6	7	8	9
N23:0	295	345	335	385		160	210				

	Data File N24 (dec)				--	NODE1_CH5	--	Values of Upper and Lower Tolerance		
Offset	0	1	2	3	4	5	6	7	8	9
N24:0	125	175	195	245	145	205				

Data File N25 (dec) -- NODE2_CH1

Offset	0	1	2	3	4	5	6	7	8	9
N25:0	365	410	320	375	400	575				

Data File N26 (dec) -- NODE2_CH2

Offset	0	1	2	3	4	5	6	7	8	9
N26:0	300	380	290	375	25	75				

Data File N27 (dec) -- NODE2_CH3

Offset	0	1	2	3	4	5	6	7	8	9
N27:0	620	670	190	215	175	250				

Data File N28 (dec) -- NODE2_CH4

Offset	0	1	2	3	4	5	6	7	8	9
N28:0	280	330	320	350	90	150				

Data File N29 (dec) -- NODE2_CH5

Offset	0	1	2	3	4	5	6	7	8	9
N29:0	100	175	175	225	195	245				

Address (Symbol) = Value [Description]

Address/Symbol Database

Address	Symbol	Scope	Description	Sym Group	Dev. Code
B3:0/0			Change the sensor's address		
B3:0/1			Set data transfer rate		
B3:0/2			Activate factory setting		
B3:0/3			Read software version		
B3:0/4					
B3:0/5			Activate Key Pad Lock		
B3:0/6			Permanent storage of sensor settings		
B3:0/7			Clear Buffers		
B3:0/8					
B3:1/0			Node Address 1		
B3:1/1			Node Address 2		
B3:1/2			Node Address 3		
B3:1/3			Node Address 4		
B3:1/4			Node Address 5		
B3:2/0					
B3:2/1					
B3:2/2					
B3:2/3					
B3:2/4					
B3:2/5					
B3:2/6					
B3:2/7					
B3:2/8					
B3:2/9					
B3:2/10					
B3:2/11					
B3:2/12					
B3:2/13					
B3:2/14					
B3:2/15					
B3:3/0					
B3:3/1					
B3:3/2					
B3:3/3					
B3:3/4					
B3:3/5					
B3:3/6					
B3:3/7					
B3:3/8					
B3:3/9					
B3:3/10					
B3:3/11					
B3:3/12					
B3:3/13					
B3:3/14					
B3:3/15			HMI Trigger		
B3:4/4					
B3:4/5					
B3:4/6					
B3:4/7					
B3:4/15			Hmi Trigger Sensor 2		
B3:5/0			Sensor accepted Change of Address Command		
B3:5/1			Sensor did not accept Change of Address Command		
B3:5/2			Sensor accepted Change of Data Transfer Command		
B3:5/3			Sensor did not accept Change of Data Transfer Command		
B3:5/4			Sensor accepted Factory Settings Command		
B3:5/5			Sensor did not accept Factory Settings Command		
B3:5/6			Sensor keypad is locked		
B3:5/7			Sensor keypad is unlocked		
B3:5/8			Sensor accepted Keypad Lock and Unlock Command		
B3:5/9			Sensor did not accept Permanent Storage of Sensor Settings		
B3:5/10					
B3:5/11					
B3:6/0					
B3:6/1					
B3:7/0					
B3:7/1					
B3:7/2					
B3:7/3					
B3:7/4					
B3:7/5					
B3:7/6					
B3:7/7					
B3:7/8					
B3:7/9					
B3:7/10					
B3:7/11					
B3:7/12					
B3:7/13					
B3:7/14					
B3:8/0					
B3:8/1					
B3:8/2					
B3:8/3					

Address/Symbol Database

Address	Symbol	Scope	Description	Sym Group	Dev. Code
B3:8/4					
B3:8/5					
B3:8/6					
B3:8/7					
B3:8/8					
B3:8/9					
B3:8/10					
B3:8/11					
B3:8/12					
B3:8/13					
B3:8/14					
B3:8/15					
B3:9/0					
I:0/0					
I:0/1					
I:0/2					
I:0/3					
N7:0					
N7:1					
N7:2					
N7:3					
N7:4					
N7:5					
N7:6					
N7:7			Main version of software for selected sensor.		
N7:8			Secondary version of software for selected sensor.		
N7:9			Activate Keypad Lock		
N7:10					
N19:0			Numerical Value of Red Portion for Sensor 1		
N19:1			Numerical Value of Green Portion for Sensor 1		
N19:2			Numerical Value of Blue Portion		
N19:3			Numerical Value of Intensity Portion for Sensor 1		
N19:8					
N19:9					
N19:10			Numerical Value of Red Portion for Sensor 2		
N19:11			Numerical Value of Green Portion for Sensor 2		
N19:12			Numerical Value of Blue Portion for Sensor 2		
N19:13			Numerical Value of Intensity Portion for Sensor 2		
N19:14					
N19:15					
N19:16					
N19:17					
N19:18					
N20:0			Lower Limit of Red Portion for Channel 1		
N20:1			Upper Limit of Red Portion for Channel 1		
N20:2			Lower Limit of Green Portion for Channel 1		
N20:3			Upper Limit of Green Portion for Channel 1		
N20:4			Lower Limit of Intensity Portion of Channel 1		
N20:5			Upper Limit of Intensity Portion of Channel 1		
N21:0					
N21:1					
N21:2					
N21:3					
N21:4					
N21:5					
N22:0					
N22:1					
N22:2					
N22:3					
N22:4					
N22:5					
N23:0					
N23:1					
N23:2					
N23:3					
N23:4					
N23:5					
N23:6					
N23:7					
N23:8					
N23:9					
N24:0			Upper Tolerance Percentage of the Red Portion for Channel 5		
N24:1			Lower Tolerance Percentage of the Red Portion for Channel 5		
N24:2			Upper Tolerance Percentage of the Green Portion for Channel 5		
N24:3			Lower Tolerance Percentage of the Green Portion for Channel 5		
N24:4			Upper Tolerance Percentage of the Intensity Portion for Channel 5		
N24:5			Lower Tolerance Percentage of the Intensity Portion for Channel 5		
N24:6	N	Global	Upper Limit of the Red Portion for Channel 1		
N24:7			Lower Limit of the Red Portion for Channel 1		
N24:8			Upper Limit of the Green Portion for Channel 1		
N24:9			Lower Limit of the Green Portion for Channel 1		
N24:10			Upper Limit of the Intensity Portion for Channel 1		
N24:11			Lower Limit of the Intensity Portion for Channel 1		
N25:0			Upper Tolerance Percentage of the Red Portion for Channel 2		

Address/Symbol Database

Address	Symbol	Scope	Description	Sym Group	Dev. Code
N25:1			Lower Tolerance Percentage of the Red Portion for Channel 2		
N25:2			Upper Tolerance Percentage of the Green Portion for Channel 2		
N25:3			Lower Tolerance Percentage of the Green Portion for Channel 2		
N25:4			Upper Tolerance Percentage of the Intensity Portion for Channel 2		
N25:5			Lower Tolerance Percentage of the Intensity Portion for Channel 2		
N25:6			Upper Limit of the Red Portion for Channel 2		
N25:7			Lower Limit of the Red Portion for Channel 2		
N25:8			Upper Limit of the Green Portion for Channel 2		
N25:9			Lower Limit of the Green Portion for Channel 2		
N25:10			Upper Limit of the Intensity Portion for Channel 2		
N25:11			Lower Limit of the Intensity Portion for Channel 2		
N26:0					
N26:1					
N26:2					
N26:3					
N26:4					
N26:5					
N26:6					
N26:7					
N27:0					
N27:1					
N27:2					
N27:3					
N27:4					
N27:5					
N27:6					
N27:7					
N28:0					
N28:1					
N28:2					
N28:3					
N28:4					
N28:5					
N28:6					
N28:7					
N29:0					
N29:1					
N29:2					
N29:3					
N29:4					
N29:5					
N191:0					
O:0/0					
O:0/1			Node Address 1: Color Channel 1 Output		
O:0/2			Node Address 1: Color Channel 2 Output		
O:0/3			Node Address 1: Color Channel 3 Output		
O:0/4			Node Address 1: Color Channel 4 Output		
O:0/5			Node Address 1: Color Channel 5 Output		
O:0/6			Node Address 2: Color Channel 1 Output		
O:0/7			Node Address 2: Color Channel 2 Output		
O:0/8			Node Address 2: Color Channel 3 Output		
O:0/9			Node Address 2: Color Channel 4 Output		
O:0/10			Node Address 2: Color Channel 5 Output		
R6:0					
R6:1					
R6:2					
R6:3					
R6:4					
R6:5					
R6:5/UL					
R6:6					
R6:7					
R6:8					
R6:8/ER					
R6:8/DN					
R6:9					
R6:9/UL					
R6:9/ER					
R6:9/DN					
R6:10					
R6:10/ER					
R6:10/DN					
R6:11					
R6:11/UL					
R6:11/ER					
R6:11/DN					
R6:12					
R6:12/ER					
R6:12/DN					
R6:13					
R6:13/UL					
R6:13/ER					
R6:13/DN					
R6:14					

Address/Symbol Database

Address	Symbol	Scope	Description	Sym Group	Dev. Code
R6:14/ER					
R6:14/DN					
R6:15					
R6:15/UL					
R6:15/ER					
R6:15/DN					
R6:16					
R6:18					
R6:19					
R6:21/DN					
R6:22					
R6:23					
R6:23/DN					
S:0			Arithmetic Flags		
S:0/0			Processor Arithmetic Carry Flag		
S:0/1			Processor Arithmetic Underflow/ Overflow Flag		
S:0/2			Processor Arithmetic Zero Flag		
S:0/3			Processor Arithmetic Sign Flag		
S:1			Processor Mode Status/ Control		
S:1/0			Processor Mode Bit 0		
S:1/1			Processor Mode Bit 1		
S:1/2			Processor Mode Bit 2		
S:1/3			Processor Mode Bit 3		
S:1/4			Processor Mode Bit 4		
S:1/5			Forces Enabled		
S:1/6			Forces Present		
S:1/7			Comms Active		
S:1/8			Fault Override at Powerup		
S:1/9			Startup Protection Fault		
S:1/10			Load Memory Module on Memory Error		
S:1/11			Load Memory Module Always		
S:1/12			Load Memory Module and RUN		
S:1/13			Major Error Halted		
S:1/14			Access Denied		
S:1/15			First Pass		
S:2/0			STI Pending		
S:2/1			STI Enabled		
S:2/2			STI Executing		
S:2/3			Index Addressing File Range		
S:2/4			Saved with Debug Single Step		
S:2/5			DH-485 Incoming Command Pending		
S:2/6			DH-485 Message Reply Pending		
S:2/7			DH-485 Outgoing Message Command Pending		
S:2/15			Comms Servicing Selection		
S:3			Current Scan Time/ Watchdog Scan Time		
S:4			Time Base		
S:5/0			Overflow Trap		
S:5/2			Control Register Error		
S:5/3			Major Err Detected Executing UserFault Routine		
S:5/4			M0-M1 Referenced on Disabled Slot		
S:5/8			Memory Module Boot		
S:5/9			Memory Module Password Mismatch		
S:5/10			STI Overflow		
S:5/11			Battery Low		
S:6			Major Error Fault Code		
S:7			Suspend Code		
S:8			Suspend File		
S:9			Active Nodes		
S:10			Active Nodes		
S:11			I/O Slot Enables		
S:12			I/O Slot Enables		
S:13			Math Register		
S:14			Math Register		
S:15			Node Address/ Baud Rate		
S:16			Debug Single Step Rung		
S:17			Debug Single Step File		
S:18			Debug Single Step Breakpoint Rung		
S:19			Debug Single Step Breakpoint File		
S:20			Debug Fault/ Powerdown Rung		
S:21			Debug Fault/ Powerdown File		
S:22			Maximum Observed Scan Time		
S:23			Average Scan Time		
S:24			Index Register		
S:25			I/O Interrupt Pending		
S:26			I/O Interrupt Pending		
S:27			I/O Interrupt Enabled		
S:28			I/O Interrupt Enabled		
S:29			User Fault Routine File Number		
S:30			STI Setpoint		
S:31			STI File Number		
S:32			I/O Interrupt Executing		
S:33			Extended Proc Status Control Word		
S:33/0			Incoming Command Pending		
S:33/1			Message Reply Pending		

Address/Symbol Database

Address	Symbol	Scope	Description	Sym Group	Dev. Code
S:33/2			Outgoing Message Command Pending		
S:33/3			Selection Status User/DF1		
S:33/4			Communicat Active		
S:33/5			Communicat Servicing Selection		
S:33/6			Message Servicing Selection Channel 0		
S:33/7			Message Servicing Selection Channel 1		
S:33/8			Interrupt Latency Control Flag		
S:33/9			Scan Toggle Flag		
S:33/10			Discrete Input Interrupt Reconfigur Flag		
S:33/11			Online Edit Status		
S:33/12			Online Edit Status		
S:33/13			Scan Time Timebase Selection		
S:33/14			DTR Control Bit		
S:33/15			DTR Force Bit		
S:34			Pass-thru Disabled		
S:34/0			Pass-Thru Disabled Flag		
S:34/1			DH+ Active Node Table Enable Flag		
S:34/2			Floating Point Math Flag Disable,Fl		
S:35			Last 1 ms Scan Time		
S:36			Extended Minor Error Bits		
S:36/8			DII Lost		
S:36/9			STI Lost		
S:36/10			Memory Module Data File Overwrite Protection		
S:37			Clock Calendar Year		
S:38			Clock Calendar Month		
S:39			Clock Calendar Day		
S:40			Clock Calendar Hours		
S:41			Clock Calendar Minutes		
S:42			Clock Calendar Seconds		
S:43			STI Interrupt Time		
S:44			I/O Event Interrupt Time		
S:45			DII Interrupt Time		
S:46			Discrete Input Interrupt- File Number		
S:47			Discrete Input Interrupt- Slot Number		
S:48			Discrete Input Interrupt- Bit Mask		
S:49			Discrete Input Interrupt- Compare Value		
S:50			Processor Catalog Number		
S:51			Discrete Input Interrupt- Return Number		
S:52			Discrete Input Interrupt- Accumulat		
S:53			Reserved/ Clock Calendar Day of the Week		
S:55			Last DII Scan Time		
S:56			Maximum Observed DII Scan Time		
S:57			Operating System Catalog Number		
S:58			Operating System Series		
S:59			Operating System FRN		
S:61			Processor Series		
S:62			Processor Revision		
S:63			User Program Type		
S:64			User Program Functional Index		
S:65			User RAM Size		
S:66			Flash EEPROM Size		
S:67			Channel 0 Active Nodes		
S:68			Channel 0 Active Nodes		
S:69			Channel 0 Active Nodes		
S:70			Channel 0 Active Nodes		
S:71			Channel 0 Active Nodes		
S:72			Channel 0 Active Nodes		
S:73			Channel 0 Active Nodes		
S:74			Channel 0 Active Nodes		
S:75			Channel 0 Active Nodes		
S:76			Channel 0 Active Nodes		
S:77			Channel 0 Active Nodes		
S:78			Channel 0 Active Nodes		
S:79			Channel 0 Active Nodes		
S:80			Channel 0 Active Nodes		
S:81			Channel 0 Active Nodes		
S:82			Channel 0 Active Nodes		
S:83			DH+ Active Nodes		
S:84			DH+ Active Nodes		
S:85			DH+ Active Nodes		
S:86			DH+ Active Nodes		
ST9:0					
ST9:1					
ST9:2					
ST9:3					
ST9:4					
ST10:0			Length and Command to change the node address		
ST10:1					
ST10:2					
ST10:2.LEN					
ST10:2.DATA[0]			New node address for currently selected sensor		
ST10:3					
ST10:5					
ST10:6			Status of Change Address Command		

Address/Symbol Database

Address	Symbol	Scope	Description	Sym Group	Dev. Code
ST10:6.DATA[0]					
ST11:0			Length and Command		
ST11:1					
ST11:2					
ST11:2.LEN					
ST11:2.DATA[0]			New data transfer rate for currently selected sensor		
ST11:3					
ST11:5					
ST11:6					
ST11:6.DATA[0]					
ST12:0			Length and Command		
ST12:1					
ST12:4					
ST12:5					
ST12:5.DATA[0]					
ST13:0			Length and Command		
ST13:1					
ST13:9.DATA[0]					
ST13:10.DATA[0]					
ST14:0			Length and Command		
ST14:1					
ST14:3					
ST14:3.LEN					
ST14:4					
ST14:5					
ST14:6					
ST14:6.DATA[0]					
ST15:0			Length and Command		
ST15:1					
ST15:2					
ST15:2.LEN					
ST15:2.DATA[0]					
ST15:3					
ST15:4					
ST15:4.LEN					
ST15:5					
ST15:5.DATA[0]					
ST15:6					
ST15:6.DATA[0]					
ST16:0			Length and Command		
ST16:1					
ST17:0					
ST17:1			Address, Length, Command		
ST17:2					
ST17:3.LEN					
ST17:3.DATA[0]					
ST17:4					
ST18:0			Length and Command		
ST18:1					
ST18:3					
ST18:3.LEN					
ST18:5.DATA[0]					
ST19:0					
ST20:0					
ST20:1					
ST20:4					
ST20:5					
ST21:0					
ST21:1					
ST22:0					
ST22:1					
ST22:4					
ST22:5					
ST22:5.DATA[0]					
ST22:6					
ST22:6.DATA[0]					
ST22:7					
ST22:7.DATA[0]					
ST22:8					
ST22:8.DATA[0]					
ST22:9					
ST22:9.DATA[0]					
ST22:10					
ST22:10.DATA[0]					
ST51:1					
T4:0					
T4:0/DN					
T4:1					
T4:1/DN					
T4:2					
T4:2/DN					
T4:3					
T4:3/DN					
T4:4					

Address/Symbol Database

Address	Symbol	Scope	Description	Sym Group	Dev. Code
T4:4/DN					
T4:5					
T4:5/DN					
T4:6					
T4:6/DN					
T4:7					
T4:7/DN					
T4:8					
T4:8/DN					
T4:9					
T4:9/DN					
T4:10					
T4:10/DN					
T4:11					
T4:11/DN					
T4:12					
T4:12/DN					
T4:13					
T4:13/DN					
T4:14					
T4:14/DN					
T4:15					
T4:15/DN					
T4:16					
T4:16/DN					
T4:16/EN					
T4:17					
T4:17/DN					
T4:18					
T4:18/DN					
T4:19					
T4:19/DN					
T4:20					
T4:20/DN					
T4:21					
T4:21/DN					
T4:22					
T4:22/DN					
T4:23					
T4:23/DN					
T4:24					
T4:24/DN					
T4:25					
T4:25/DN					
T4:26					
T4:26/DN					
T4:27					
T4:27/DN					
T4:28					
T4:28/DN					
T4:29					
T4:29/DN					
T4:30					
T4:30/DN					
T4:31					
T4:31/DN					
T4:32					
T4:32/DN					
T4:33					
T4:33/DN					
T4:34					
T4:34/DN					
T4:35					
T4:35/DN					
T4:36					
T4:36/DN					
T4:37					
T4:37/DN					
T4:38					
T4:38/DN					
U:3					
U:5					
U:7					
U:9					
U:11					
U:12					
U:14					
U:15					
U:16					
U:17					
U:18					
U:19					
U:23					
U:25					

Instruction Comment Database

Address	Instruction	Description
B3:0/8	XIC	Clear Buffers
B3:5/0	XIC	Sensor accepted Change of Address Command
B3:5/2	OTE	Sensor accepted Change of Data Transfer Command
B3:5/2	XIC	Sensor accepted Change of Data Transfer Command
B3:5/3	OTE	Sensor did not accept Change of Data Transfer Command
B3:5/3	XIC	Sensor did not accept Change of Data Transfer Command
B3:5/5	XIC	Sensor did not accept Factory Settings Command
B3:5/8	OTE	Sensor accepted Keypad Lock and Unlock Command
B3:5/9	OTE	Sensor did not accept Keypad Lock and Unlock Command
B3:5/10	OTE	Sensor accepted Permanent Storage of Settings
B3:5/11	OTE	Sensor did not accept Permanent Storage of Settings
N7:4	MOV	New node address for currently selected sensor (default address is 1)
N23:0	LIM	True value of Red Portion from Color Vector
N23:2	SUB	True value of Blue Portion from Color Vector
ST10:6	AEX	status of Change Address Command
ST15:2.DATA[0]	MOV	Activate Key Pad Lock for Sensor

Symbol Group Database

Group_Name	Description
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