	A	B	C	D	E	F	G	H	I
1				***Tritium Dehumidifier PLC***					
2				**NUMI-TRITIUM 131.225.x.x Station 09**					
3				8 slot main base					
4									
5							Base-		
6	ACNET Tag	PLC Adr	Format	Description	Type	Device	Slot	CNL/ADR	Range
7									
8				**TRITIUM Analog Inputs:**					
9		VX20,VX0	Word	X37:0					
10	E:DDHT01	V2150	Word	Munters Unit 1 vent temperature	RTD	F4-08RTD	0-1	1	
11	E:DDHT02	V2151	Word	Munters Unit 2 vent temperature	RTD	F4-08RTD	0-1	2	
12	E:DDHT03	V2152	Word	Munters Unit 3 vent temperature	RTD	F4-08RTD	0-1	3	
13	E:DDHT04	V2153	Word	Munters Unit 4 vent temperature	RTD	F4-08RTD	0-1	4	
14	E:DDHT05	V2154	Word	Munters Unit 5 vent temperature	RTD	F4-08RTD	0-1	5	
15	E:DDHT06	V2155	Word	Munters Unit 4 Tgt Hall Vent Temperature	RTD	F4-08RTD	0-1	6	
16	E:DDHT07	V2156	Word	Munters Unit 5 Tgt Hall Vent Temperature	RTD	F4-08RTD	0-1	7	
17		V2157	Word	Spare (6/1/06 was E:DKPT06 Decay Pipe Hole 6 temperature)	RTD	F4-08RTD	0-1	8	
18									
19		VX100,VX60	Word	X117:60					
20	E:DKPT04	V2160	Word	Decay Pipe Hole 4 temperature	RTD	F4-08RTD	0-4	1	
21	E:DKPT05	V2161	Word	Decay Pipe Hole 5 temperature	RTD	F4-08RTD	0-4	2	
22	E:DKPT06	V2162	Word	Decay Pipe Hole 6 temperature(6/1/06 Need Charlie to move ACNET ent	RTD	F4-08RTD	0-4	3	
23		V2163	Word	(spare)	RTD	F4-08RTD	0-4	4	
24		V2164	Word	(spare)	RTD	F4-08RTD	0-4	5	
25		V2165	Word	(spare)	RTD	F4-08RTD	0-4	6	
26		V2166	Word	(spare)	RTD	F4-08RTD	0-4	7	
27		V2167	Word	(spare)	RTD	F4-08RTD	0-4	8	
28									
29		VX140,VX120	Word	X157:120					
30		V2170	Word	(spare)	RTD	F4-08RTD	0-5	1	
31		V2171	Word	(spare)	RTD	F4-08RTD	0-5	2	
32		V2172	Word	(spare)	RTD	F4-08RTD	0-5	3	
33		V2173	Word	(spare)	RTD	F4-08RTD	0-5	4	
34		V2174	Word	(spare)	RTD	F4-08RTD	0-5	5	
35		V2175	Word	(spare)	RTD	F4-08RTD	0-5	6	
36		V2176	Word	(spare)	RTD	F4-08RTD	0-5	7	
37		V2177	Word	(spare)	RTD	F4-08RTD	0-5	8	
38									
39		VX200,VX160	Word	X217:160					
40		V2200	Word	(spare)	RTD	F4-08RTD	0-6	1	
41		V2201	Word	(spare)	RTD	F4-08RTD	0-6	2	
42		V2202	Word	(spare)	RTD	F4-08RTD	0-6	3	
43		V2203	Word	(spare)	RTD	F4-08RTD	0-6	4	
44		V2204	Word	(spare)	RTD	F4-08RTD	0-6	5	

	A	B	C	D	E	F	G	H	I
45		V2205	Word	(spare)	RTD	F4-08RTD	0-6	6	
46		V2206	Word	(spare)	RTD	F4-08RTD	0-6	7	
47		V2207	Word	(spare)	RTD	F4-08RTD	0-6	8	
48									
49				**TRITIUM Analog Outputs:**					
50		VY20,VY40		Y57:20					
51	E:DD1XTD	V10000	Word	Repeat of E:DDHT01 to MADC 87 Ch25	0-10vdc	F4-16DA-2	0-7	1	
52	E:DD2XTD	V10001	Word	Repeat of E:DDHT02 to MADC 87 Ch26	0-10vdc	F4-16DA-2	0-7	2	
53	E:DD3XTD	V10002	Word	Repeat of E:DDHT03 to MADC 87 Ch27	0-10vdc	F4-16DA-2	0-7	3	
54	E:DD4XTT	V10003	Word	Repeat of E:DDHT06 to MADC 87 Ch28	0-10vdc	F4-16DA-2	0-7	4	
55	E:DD5XTT	V10004	Word	Repeat of E:DDHT07 to MADC 87 Ch29	0-10vdc	F4-16DA-2	0-7	5	
56	E:DD4XTD	V10005	Word	Repeat of E:DDHT04 to MADC 87 Ch30	0-10vdc	F4-16DA-2	0-7	6	
57	E:DD5XTD	V10006	Word	Repeat of E:DDHT05 to MADC 87 Ch31	0-10vdc	F4-16DA-2	0-7	7	
58		V10007	Word		0-10vdc	F4-16DA-2	0-7	8	
59		V10010	Word		0-10vdc	F4-16DA-2	0-7	9	
60		V10011	Word		0-10vdc	F4-16DA-2	0-7	10	
61		V10012	Word		0-10vdc	F4-16DA-2	0-7	11	
62		V10013	Word		0-10vdc	F4-16DA-2	0-7	12	
63		V10014	Word		0-10vdc	F4-16DA-2	0-7	13	
64		V10015	Word		0-10vdc	F4-16DA-2	0-7	14	
65		V10016	Word		0-10vdc	F4-16DA-2	0-7	15	
66		V10017	Word		0-10vdc	F4-16DA-2	0-7	16	
67									
68									
69									
70									
71									
72				**TRITIUM Digital Inputs:**					
73		VX40	Word	X57:40					
74		X40	Bit	Munters Unit 1 Run Status	24V AC/DC	D4-16NE3	0-2	A0	
75		X41	Bit	Munters Unit 2 Run Status	24V AC/DC	D4-16NE3	0-2	A1	
76		X42	Bit	Munters Unit 3 Run Status	24V AC/DC	D4-16NE3	0-2	A2	
77		X43	Bit	Munters Unit 4 Run Status	24V AC/DC	D4-16NE3	0-2	A3	
78		X44	Bit	Munters Unit 5 Run Status	24V AC/DC	D4-16NE3	0-2	A4	
79		X45	Bit	Munters Unit 1 Fault Status	24V AC/DC	D4-16NE3	0-2	A5	
80		X46	Bit	Munters Unit 2 Fault Status	24V AC/DC	D4-16NE3	0-2	A6	
81		X47	Bit	Munters Unit 3 Fault Status	24V AC/DC	D4-16NE3	0-2	A7	
82		X50	Bit	Munters Unit 4 Fault Status	24V AC/DC	D4-16NE3	0-2	B0	
83		X51	Bit	Munters Unit 5 Fault Status	24V AC/DC	D4-16NE3	0-2	B1	
84		X52	Bit	AHU4 ON Status	24V AC/DC	D4-16NE3	0-2	B2	
85		X53	Bit	(spare)	24V AC/DC	D4-16NE3	0-2	B3	
86		X54	Bit	(spare)	24V AC/DC	D4-16NE3	0-2	B4	
87		X55	Bit	(spare)	24V AC/DC	D4-16NE3	0-2	B5	
88		X56	Bit	(spare)	24V AC/DC	D4-16NE3	0-2	B6	
89		X57	Bit	(spare)	24V AC/DC	D4-16NE3	0-2	B7	

	A	B	C	D	E	F	G	H	I
90									
91				**TRITIUM Digital Outputs:**					
92		VY0	Word	Y17:0					
93		Y0	Bit	(spare)	NO Relay	F4-08TRS-2	0-3	0(Form C)	
94		Y1	Bit	(spare)	NO Relay	F4-08TRS-2	0-3	1(Form C)	
95		Y2	Bit	Watchdog Kick	NC Relay	F4-08TRS-2	0-3	2(Form C)	
96		Y3	Bit	Munters Unit 1 RUN/~STOP	NC Relay	F4-08TRS-2	0-3	3(Form C)	
97		Y4	Bit	Munters Unit 2 RUN/~STOP	NO Relay	F4-08TRS-2	0-3	4(Form A)	
98		Y5	Bit	Munters Unit 3 RUN/~STOP	NO Relay	F4-08TRS-2	0-3	5(Form A)	
99		Y6	Bit	Munters Unit 4 RUN/~STOP	NO Relay	F4-08TRS-2	0-3	6(Form A)	
100		Y7	Bit	Munters Unit 5 RUN/~STOP	NO Relay	F4-08TRS-2	0-3	7(Form A)	
101									
102				**TRITIUM Inputs from ACNET:**					
103		V2241	Word	ACNET Command Bits 1					
104	E:DDHS01	B2241.0	Bit	Munters Unit 1 RUN/~STOP	Bit-Out				
105	E:DDHS02	B2241.1	Bit	Munters Unit 2 RUN/~STOP	Bit-Out				
106	E:DDHS03	B2241.2	Bit	Munters Unit 3 RUN/~STOP	Bit-Out				
107	E:DDHS04	B2241.3	Bit	Munters Unit 4 RUN/~STOP	Bit-Out				
108	E:DDHS05	B2241.4	Bit	Munters Unit 5 RUN/~STOP	Bit-Out				
109		B2241.5	Bit		Bit-Out				
110		B2241.6	Bit		Bit-Out				
111		B2241.7	Bit		Bit-Out				
112		B2241.8	Bit		Bit-Out				
113		B2241.9	Bit		Bit-Out				
114		B2241.10	Bit		Bit-Out				
115		B2241.11	Bit		Bit-Out				
116		B2241.12	Bit		Bit-Out				
117		B2241.13	Bit		Bit-Out				
118		B2241.14	Bit		Bit-Out				
119		B2241.15	Bit		Bit-Out				
120									
121		V2242	Word	ACNET Command Bits 2					
122	E:DDHA01-C	B2242.0	Bit	Reset Munters#1 Fault Flag	Bit-Out				
123	E:DDHA02-C	B2242.1	Bit	Reset Munters#2 Fault Flag	Bit-Out				
124	E:DDHA03-C	B2242.2	Bit	Reset Munters#3 Fault Flag	Bit-Out				
125	E:DDHA04-C	B2242.3	Bit	Reset Munters#4 Fault Flag	Bit-Out				
126	E:DDHA05-C	B2242.4	Bit	Reset Munters#5 Fault Flag	Bit-Out				
127		B2242.5	Bit		Bit-Out				
128		B2242.6	Bit		Bit-Out				
129		B2242.7	Bit		Bit-Out				
130		B2242.8	Bit		Bit-Out				
131		B2242.9	Bit		Bit-Out				
132		B2242.10	Bit		Bit-Out				
133		B2242.11	Bit		Bit-Out				
134		B2242.12	Bit		Bit-Out				

	A	B	C	D	E	F	G	H	I
135		B2242.13	Bit		Bit-Out				
136		B2242.14	Bit		Bit-Out				
137		B2242.15	Bit		Bit-Out				
138									
139				**TRITIUM Outputs to ACNET:**					
140		V2001	Word	TRITIUM Loop-Thru Status					
141	E:DDHS01-S	B2001.0	Bit	Munters Unit 1 Run Status	Bit-In				
142	E:DDHS02-S	B2001.1	Bit	Munters Unit 2 Run Status	Bit-In				
143	E:DDHS03-S	B2001.2	Bit	Munters Unit 3 Run Status	Bit-In				
144	E:DDHS04-S	B2001.3	Bit	Munters Unit 4 Run Status	Bit-In				
145	E:DDHS05-S	B2001.4	Bit	Munters Unit 5 Run Status	Bit-In				
146		B2001.5	Bit		Bit-In				
147		B2001.6	Bit		Bit-In				
148		B2001.7	Bit		Bit-In				
149		B2001.8	Bit		Bit-In				
150		B2001.9	Bit		Bit-In				
151		B2001.10	Bit		Bit-In				
152		B2001.11	Bit		Bit-In				
153		B2001.12	Bit		Bit-In				
154		B2001.13	Bit		Bit-In				
155		B2001.14	Bit		Bit-In				
156		B2001.15	Bit		Bit-In				
157									
158		V2002	Word	TRITIUM General Status					
159	E:DDHS06	B2002.0	Bit	Air Handling Unit 4 (AHU4) On Status	Bit-In				
160		B2002.1	Bit		Bit-In				
161		B2002.2	Bit		Bit-In				
162		B2002.3	Bit		Bit-In				
163		B2002.4	Bit		Bit-In				
164		B2002.5	Bit		Bit-In				
165		B2002.6	Bit		Bit-In				
166		B2002.7	Bit		Bit-In				
167		B2002.8	Bit		Bit-In				
168		B2002.9	Bit		Bit-In				
169		B2002.10	Bit		Bit-In				
170		B2002.11	Bit		Bit-In				
171		B2002.12	Bit		Bit-In				
172		B2002.13	Bit		Bit-In				
173		B2002.14	Bit		Bit-In				
174		B2002.15	Bit		Bit-In				
175									
176		V2003	Word	TRITIUM Alarms					
177	E:DDHA01	B2003.0	Bit	Munters Unit 1 Fault Status	Bit-In				
178	E:DDHA02	B2003.1	Bit	Munters Unit 2 Fault Status	Bit-In				
179	E:DDHA03	B2003.2	Bit	Munters Unit 3 Fault Status	Bit-In				

	A	B	C	D	E	F	G	H	I
180	E:DDHA04	B2003.3	Bit	Munters Unit 4 Fault Status	Bit-In				
181	E:DDHA05	B2003.4	Bit	Munters Unit 5 Fault Status	Bit-In				
182		B2003.5	Bit		Bit-In				
183		B2003.6	Bit		Bit-In				
184		B2003.7	Bit		Bit-In				
185		B2003.8	Bit		Bit-In				
186		B2003.9	Bit		Bit-In				
187		B2003.10	Bit		Bit-In				
188		B2003.11	Bit		Bit-In				
189		B2003.12	Bit		Bit-In				
190	E:DDHPLC	B2003.13	Bit	PLC Error	Bit-In				
191	E:DDHPLC	B2003.14	Bit	PLC Warning	Bit-In				
192	E:DDHPLC	B2003.15	Bit	PLC Fatal Error	Bit-In				
193									
194	E:DDHOK	V2210	Word	Heartbeat					
195									
196				**CMEM Usage**					
197		C0	Bit						
198									
199				**VMEM Usage**					
200		V10000-10017	Word	Vout Source Data					
201		V10020	Word	Vout module channel index					
202		V10021	Word	Vout Ch1-8 Source Data Pointer					
203		V10022	Word	Vout Ch9-16 Source Data Pointer					
204		V10025:4	IEEE	Averager time constant					
205		V10027:6	IEEE	Averager Xn (current input value)					
206		V10030	IEEE	Averager Yn-1 (current output value)					
207									
208				**Timer Usage**					
209		T0		Watchdog State 0 Delay					
210		T1		Watchdog State 1 Delay					
211		T2		Averager execution timer					
212									
213				**State Usage**					
214		S0	Initial	Watchdog Off					
215		S1		Watchdog Kick					

Path: c:\kasley\numi\tritium\tritium.prj
Save Date: 06/12/06 11:11:10
Creation Date: 05/17/06 15:05:53
PLC Type: 450
Class ID: DirectLogic 405 Series
Link Name: TRITIUM
Description: NuMI TRITIUM Dehumidifier PLC
Version: Issue O
Company: Fermi National Accelerator Laboratory, Batavia, IL
Department: Accelerator Controls / Systems Hardware Group
Programmer: Paul Kasley x8658

****
INITIALIZATION
****

1 _FirstScan SP0
- LD K0
- OUT VY0
- OUT Munters RUN/STOP bits V2241
- OUT Munters Fault Flags V2242

2 _FirstScan SP0
- LDR R0.125
- OUTD Averager Time Constant TC V10024

3 _FirstScan SP0
- LD K0

Initialize outputs to MADC87 to 0.

4 _FirstScan SP0
- OUT VOUT Ch1 V10000
- OUT VOUT Ch2 V10001
- OUT VOUT Ch3 V10002
- OUT VOUT Ch4 V10003
- OUT VOUT Ch5 V10004
- OUT VOUT Ch6 V10005
- OUT VOUT Ch7 V10006

****
SCAN RTD#1 - DEHUMIDIFIERS & DECAY PIPE 4,5,6
****
On each scan, read one channel from RTD module #1.
Store fahrenheit temperature values as 2's complement
binary data starting at V2150. One decimal pt is implied
(a reading of 336 is interpreted as 33.6 deg).

A complete scan of all 8 channels will take 8 ladder scans.
This should be plenty fast for anyone.

5 _On SP1 —

LD RTD #1 Data VX0
LD VX20
ANDD K7
OUTX RTD#1 Base Adrs E:DDHT01 V2150

****
REPEAT MUNTERS TEMPS TO MADC INPUTS
****
Scale RTD values between 0F and 204.8F to 0V to 10VDC. All channels are updated
each scan.

Copy and scale RTD values to output registers

The timer updates the MADC averagers and the direct readbacks once per second.

6 Sample Timer T2 —

TMR Sample Timer T2 K10

Average and repeat E:DDHT01 to E:M1OT. This an exponential averager according to y(n) = A[x(n) - y(n-1)] + y(n-1). This is essentially a single pole RC filter.

Sample Timer

7 — T2

- LD RTD#1 Base Adrs E:DDHT01 V2150
- SHFL K1
- BTOR
- OUTD Current value, IEEE Xn V10026
- LD VOUT Ch1 V10000
- BTOR
- OUTD Current Output, IEEE Yn-1 V10030
- LDR Current value, IEEE Xn V10026
- SUBR Current Output, IEEE Yn-1 V10030
- MULR Averager Time Constant TC V10024
- ADDR Current Output, IEEE Yn-1 V10030
- RTOB
- OUT VOUT Ch1 V10000

Average and repeat E:DDHT02 to E:M2OT

Sample Timer

8 — T2 —

LD
Munters#2 Vent Temp
E:DDHT02
V2151

SHFL
K1

BTOR

OUTD
Current value, IEEE
Xn
V10026

LD
VOUT Ch2
V10001

BTOR

OUTD
Current Output, IEEE
Yn-1
V10030

LDR
Current value, IEEE
Xn
V10026

SUBR
Current Output, IEEE
Yn-1
V10030

MULR
Averager Time Constant
TC
V10024

ADDR
Current Output, IEEE
Yn-1
V10030

RTOB

OUT
VOUT Ch2
V10001

Average and repeat E:DDHT03 to E:M3OT

Sample Timer

9 — T2 —

LD
Munters#3 Vent Temp
E:DDHT03
V2152

SHFL
K1

BTOR

OUTD
Current value, IEEE
Xn
V10026

LD
VOUT Ch3
V10002

BTOR

OUTD
Current Output, IEEE
Yn-1
V10030

LDR
Current value, IEEE
Xn
V10026

SUBR
Current Output, IEEE
Yn-1
V10030

MULR
Averager Time Constant
TC
V10024

ADDR
Current Output, IEEE
Yn-1
V10030

RTOB

OUT
VOUT Ch3
V10002

Average and repeat E:DDHT06 to E:M4OT

Sample Timer

10 T2

LD
Munters #4 Vent to Tgt
Hall Temp
E:DDHT06
V2155

SHFL
K1

BTOR

OUTD
Current value, IEEE
Xn
V10026

LD
VOUT Ch4
V10003

BTOR

OUTD
Current Output, IEEE
Yn-1
V10030

LDR
Current value, IEEE
Xn
V10026

SUBR
Current Output, IEEE
Yn-1
V10030

MULR
Averager Time Constant
TC
V10024

ADDR
Current Output, IEEE
Yn-1
V10030

RTOB

OUT
VOUT Ch4
V10003

Average and repeat E:DDHT07 to E:M5OT

Sample Timer

11 — T2 —

LD
Munters #5 Vent to Tgt
Hall Temp
E:DDHT07
V2156

SHFL
K1

BTOR

OUTD
Current value, IEEE
Xn
V10026

LD
VOUT Ch5
V10004

BTOR

OUTD
Current Output, IEEE
Yn-1
V10030

LDR
Current value, IEEE
Xn
V10026

SUBR
Current Output, IEEE
Yn-1
V10030

MULR
Averager Time Constant
TC
V10024

ADDR
Current Output, IEEE
Yn-1
V10030

RTOB

OUT
VOUT Ch5
V10004

Average and repeat E:DDHT04 to E:M4OTDK

Sample Timer

12 — T2 —

LD
Munters#4 Vent Temp
E:DDHT04
V2153

SHFL
K1

BTOR

OUTD
Current value, IEEE
Xn
V10026

LD
VOUT Ch6
V10005

BTOR

OUTD
Current Output, IEEE
Yn-1
V10030

LDR
Current value, IEEE
Xn
V10026

SUBR
Current Output, IEEE
Yn-1
V10030

MULR
Averager Time Constant
TC
V10024

ADDR
Current Output, IEEE
Yn-1
V10030

RTOB

OUT
VOUT Ch6
V10005

Average and repeat E:DDHT05 to E:M5OTDK

Sample Timer

13 T2

- LD Munters#5 Vent Temp E:DDHT05 V2154
- SHFL K1
- BTOR
- OUTD Current value, IEEE Xn V10026
- LD VOUT Ch7 V10006
- BTOR
- OUTD Current Output, IEEE Yn-1 V10030
- LDR Current value, IEEE Xn V10026
- SUBR Current Output, IEEE Yn-1 V10030
- MULR Averager Time Constant TC V10024
- ADDR Current Output, IEEE Yn-1 V10030
- RTOB
- OUT VOUT Ch7 V10006

Set up the pointers

14 _On SP1

- LD K8000
- OUT VOUT channel pointer V10020
- LDA O10000
- OUT Ch1-8 source pointer V10021
- LDA O10010
- OUT Ch9-16 source pointer V10022

15 _On SP1 (K8 FOR)

Load indirect via V10021,mask,combine,and write to module low word.

16 _On SP1

LD P10021
ANDD Kfff
OR VOUT channel pointer V10020
OUTIF Y20 K16

Load indirect via V10022,mask,combine, and write to module high word.

17 _On SP1

LD P10022
ANDD Kfff
OR VOUT channel pointer V10020
OUTIF Y40 K16

Bump the two source pointers and the channel pointer.

18 _On SP1

INCB Ch1-8 source pointer V10021
INCB Ch9-16 source pointer V10022
LD VOUT channel pointer V10020
ADDB K1000
OUT VOUT channel pointer V10020

Loop

19 NEXT

****
STATUS UPDATE
****
Copy status bits from the digital input module to ACNET.

Munters #1 RUN Status

20 X40 — Munters#1 Run Status E:DDHS01-S B2001.0 OUT

Munters #2 RUN Status

21 X41 — Munters#2 Run Status E:DDHS02-S B2001.1 OUT

Munters #3 RUN Status

22 X42 — Munters#3 Run Status E:DDHS03-S B2001.2 OUT

23 Munters #4 RUN Status
X43
Munters#4 Run Status
E:DDHS04-S
B2001.3
OUT

24 Munters #5 RUN Status
X44
Munters#5 Run Status
E:DDHS05-S
B2001.4
OUT

25 AHU4 ON Status
X52
AHU4 ON Status
E:DDHS06
B2002.0
OUT

****
FAULT LATCHES
****

26 Munters #1 FAULT
X45
Munters#1 Fault
E:DDHA01
B2003.0
SET

27 Munters #2 FAULT
X46
Munters#2 Fault
E:DDHA02
B2003.1
SET

28 Munters #3 FAULT
X47
Munters#3 Fault
E:DDHA03
B2003.2
SET

29 Munters #4 FAULT
X50
Munters#4 Fault
E:DDHA04
B2003.3
SET

30 Munters #5 FAULT
X51
Munters#5 Fault
E:DDHA05
B2003.4
SET

****
FAULT RESETS
****

31 Clear Munters#1 Fault
E:DDHA01-C
B2242.0
Munters#1 Fault
E:DDHA01
B2003.0
RST
Clear Munters#1 Fault
E:DDHA01-C
B2242.0
RST

32 Clear Munters#2 Fault
E:DDHA02-C
B2242.1
Munters#2 Fault
E:DDHA02
B2003.1
RST
Clear Munters#2 Fault
E:DDHA02-C
B2242.1
RST

33
Clear Munters#3 Fault
E:DDHA03-C
B2242.2
Munters#3 Fault
E:DDHA03
B2003.2
RST
Clear Munters#3 Fault
E:DDHA03-C
B2242.2
RST

34
Clear Munters#4 Fault
E:DDHA04-C
B2242.3
Munters#4 Fault
E:DDHA04
B2003.3
RST
Clear Munters#4 Fault
E:DDHA04-C
B2242.3
RST

35
Clear Munters#5 Fault
E:DDHA05-C
B2242.4
Munters#5 Fault
E:DDHA05
B2003.4
OUT
Clear Munters#5 Fault
E:DDHA05-C
B2242.4
RST

****
MUNTERS ON/OFF CONTROL
****

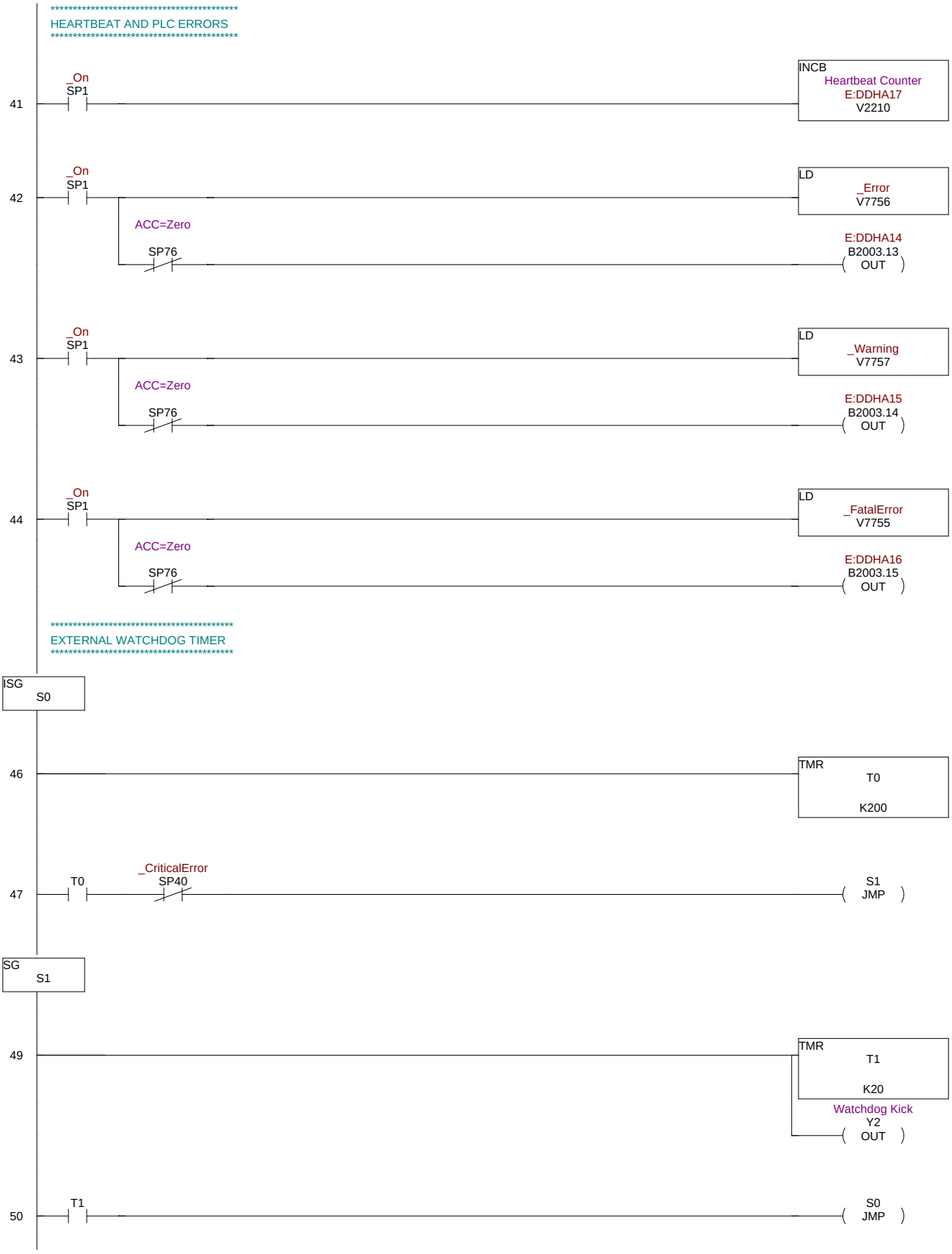
36
Munters#1 RUN/stop
E:DDHS01
B2241.0
Munters#1 RUN
contact
Y3
OUT

37
Munters#2 RUN/stop
E:DDHS02
B2241.1
Munters#2 RUN
contact
Y4
OUT

38
Munters#3 RUN/stop
E:DDHS03
B2241.2
Munters#3 RUN
contact
Y5
OUT

39
Munters#4 RUN/stop
E:DDHS04
B2241.3
Munters#4 RUN
contact
Y6
OUT

40
Munters#5 RUN/stop
E:DDHS05
B2241.4
Munters#5 RUN
contact
Y7
OUT


****
HEARTBEAT AND PLC ERRORS
****
41
_On
SP1
INCB
Heartbeat Counter
E:DDHA17
V2210
42
_On
SP1
LD
_Error
V7756
ACC=Zero
SP76
E:DDHA14
B2003.13
OUT
43
_On
SP1
LD
_Warning
V7757
ACC=Zero
SP76
E:DDHA15
B2003.14
OUT
44
_On
SP1
LD
_FatalError
V7755
ACC=Zero
SP76
E:DDHA16
B2003.15
OUT
****
EXTERNAL WATCHDOG TIMER
****
ISG
S0
46
TMR
T0
K200
47
T0
_CriticalError
SP40
S1
JMP
SG
S1
49
TMR
T1
K20
Watchdog Kick
Y2
OUT
50
T1
S0
JMP

```
**********************************************************
END END END END END END END END END
**********************************************************

51 ------------------------------------------------------------------------------( END )

52 ------------------------------------------------------------------------------( NOP )
```