MMU2-16LEX-CAN

SmartMonitor®

NEMA TS-2
Enhanced Malfunction Management Unit
Operations Manual

Addendum to the MMU2-16LE(ip) Operations Manual

Firmware Version 16MX04xx

- NOTE -

EDI ECcom v4.0 or greater is required for MMU2-16LEX compatibility. This software can be obtained at www.EDItraffic.com.

1) Canadian Fast Flash

Modify Section 2.1 to read:

The monitor will respond to conflicts using Canadian Fast Flashing Green operation at flash rates from 120 fpm up to 180 fpm ±10%. Detection of flash rates with duty cycles outside 50 ±10% may exceed the 450 ms maximum response time. The inter-flash interval should not exceed 350 ms.

2) Timing Functions

Modify Section 9 to read:

Conflict
(NO FAULT) ..... less than 200 milliseconds
(FAULT) .....greater than 450 milliseconds
(TYPICAL) ..... 260 milliseconds

3) Special Function Walk Inputs

Add **Section 1.5 Special Function Walk Inputs**:

1.5.1 Monitoring Functions

In the Type 16 mode only, the MMU2 will monitor four additional *Walk* inputs for Conflict detection and Minimum Yellow Plus Red Clearance monitoring.

- These four Ped phase *Walk* inputs are NOT monitored for Dual Indication, Red Fail, or Field Check on their respective logical channels (2, 4, 6, 8).

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- The *Dont Walk* outputs of the four additional Ped phases (2, 4, 6, and 8) are NOT monitored. Thus, any malfunction of the *Dont Walk* output will not be detected.

In the Type 12 mode, the operation of the MMU2 is unchanged from a standard MMU2.

1.5.2 Physical to Logical input mapping

The four additional physical Walk outputs from the cabinet shall be connected to MSA-t, MSA-a, MSA-s, and MSA-r inputs of the MMU2. In Type 16 mode only, these physical inputs will be remapped to logical channels 2, 4, 6, 8 Walk respectively as follows:

Function	MMU2 Input Pin	MMU2 Logical Channel
Phase 2 Ped Walk	MSA-t	Channel 2 Walk
Phase 4 Ped Walk	MSA-a	Channel 4 Walk
Phase 6 Ped Walk	MSA-s	Channel 6 Walk
Phase 8 Ped Walk	MSA-r	Channel 8 Walk

1.5.3 Cabinet Interlock

An alternate Cabinet Interlock wiring shall be provided in the cabinet that requires continuity from pin MSA-AA to pin MSA-CC.

- WARNING -

A cabinet that uses the four additional Walk outputs as specified in section 1.5, Special Function Walk Inputs, shall be wired to require continuity between pins MSA-AA and MSA-CC of the MMU2 in order to exit cabinet flash mode.

This alternate interlock function will prevent the cabinet from operating with a standard MMU installed. Operating the cabinet with a standard MMU will leave the four additional Walk outputs unmonitored.

4) <u>Type 16 Terminations</u>

Modify Section 10.1.1 to read (changes in **bold**):

Pin	Function	I/O
A	AC Line	[I]
B	Output Relay 1 Open (Stop Time, Closes when fault occurs)	[O]
C	Output Relay 2 Closed (FTR Drive, Opens when fault occurs)	[O]
D	Channel 12 Green	[I]
E	Channel 11 Green	[I]
F	Channel 10 Green	[I]
G	Channel 9 Green	[I]
H	Channel 8 Green	[I]
J	Channel 7 Green	[I]
K	Channel 6 Green	[I]
L	Channel 5 Green	[I]
M	Channel 4 Green	[I]
N	Channel 3 Green	[I]

Pin	Function	I/O
P	Channel 2 Green	[I]
R	Channel 1 Green	[I]
S	+24 Monitor I	[I]
T	Logic Ground	[I]
U	Earth Ground	[I]
V	AC Neutral	[I]
W	Output Relay 1 Common (Stop Time)	[I]
X	Output Relay 2 Common (FTR Drive)	[I]
Y	Channel 12 Yellow	[I]
Z	Channel 11 Yellow	[I]
AA	**Cabinet Interlock X**	**[O]**
BB	Reset	[I]
CC	Cabinet Interlock A	[I]
DD	Cabinet Interlock B	[O]
EE	Channel 14 Yellow	[I]
FF	Channel 16 Green	[I]
GG	Spare 2	[-]
HH	Type Select	[I]
a	**Channel 4 Walk (Type 16 only)**	**[I]**
b	Channel 10 Yellow	[I]
c	Channel 9 Yellow	[I]
d	Channel 8 Yellow	[I]
e	Channel 7 Yellow	[I]
f	Channel 6 Yellow	[I]
g	Channel 5 Yellow	[I]
h	Channel 3 Yellow	[I]
I	Channel 15 Green	[I]
j	Channel 2 Yellow	[I]
k	Channel 1 Yellow	[I]
m	Controller Voltage Monitor	[I]
n	+24V Monitor Inhibit	[I]
p	Output Relay 1 Closed (Stop Time, Opens when fault occurs)	[O]
q	Output Relay 2 Open (FTR Drive, Closes when fault occurs)	[O]
r	**Channel 8 Walk (Type 16 only)**	**[I]**
s	**Channel 6 Walk (Type 16 only)**	**[I]**
t	**Channel 2 Walk (Type 16 only)**	**[I]**
u	Channel 16 Yellow	[I]
v	Channel 15 Yellow	[I]
w	Channel 13 Yellow	[I]
x	Channel 4 Yellow	[I]
y	Channel 14 Green	[I]
z	Channel 13 Green	[I]

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