NEM RELAY INSTRUCTION MANUAL

This instruction manual contains important safety information to enable the correct use of this product. Failure to connect the product correctly can result in damage to the product or any device connected to it. Damage caused by incorrect connection or use of this product is not covered by warranty.

These instructions should be read in conjunction with the installation documentation supplied with the Aiphone NEM intercom equipment.

1. Do not connect any power source other than the one specified on NEM RELAY. Fire or damage to the unit could result.
2. Do not modify the NEM RELAY it could cause fire or electric shock.
3. Make sure all connections are made before switching on the power supply.
4. Keep the NEM RELAY away from water or any other liquids. Fire or electric shock could result.
5. Do not make any connections with the power supply connected and turned on. Fire or electric shock could result.
6. Do not install the unit where it will be subject to vibration, moisture or humidity, oil, chemicals and salt air.

The NEM RELAY enables the Aiphone NEM intercom system to have door release control of up to ten doors. The NEM RELAY provides ten normally closed and normally open relay contacts to enable the control of fail safe or fail secure electric door or gate locks. It also provides ten open collector outputs for CCTV camera control or interface with an access control system. If more than ten door release outputs are required more NEM RELAY's can be installed. The NEM RELAY is compatible with systems using the Aiphone NEM series master stations with NEJA, NANE, NAA, NAAN and NBL sub stations.

If two Aiphone NEM/C type master stations are installed with Aiphone NEW5 parallel adaptors two sets of NEM RELAY's will be required, one for each master. Please refer to the additional wiring instructions supplied to cover systems with two master stations special precautions are required if fail-safe door locks are being used.
Please note there must be no connection between the power supply terminals or the common or E terminals on the Aiphone master stations or the NEM relays installed on the separate intercom master stations. Both master stations must be powered off separate power supplies.

Connections are made via terminal strips located on the PCB. There is a 20mm hole in the case to allow for cable access. In addition there are sockets located on the PCB to enable connection to the inputs and outputs via ribbon cable. Please refer to the installation instructions for these connections and precautions.

A normally open non-latching press switch will be required for use as a door release switch; this switch is not supplied with the NEM RELAY. This switch would be mounted next to the Aiphone NEM master station.

We reserve the right to alter or modify the product or product documentation at any time for the purpose of product enhancement.

OPERATION

When a call is placed from a door station or a sub station the open collector output associated with this call input channel will switch on causing the LED connected to this open collector output on the NEM RELAY to illuminate, or the CCTV input connected to this open collector output to select the appropriate camera or function.

The sub station call is then acknowledged at the Aiphone NEM series master station by pressing the button under the illuminated sub station call in LED on the Aiphone NEM master station.

Communication is now possible between the master station and the door or sub station by using the press to talk switch on the NEM master or the handset if fitted.

To operate the door lock associated with this door station or sub station press the door release switch next to or near the master station before cancelling the call with the sub station or selecting another door or sub station on the NEM master.

If another door station or sub station calls while the master station is communicating with a door or sub station the open collector output on the NEM RELAY will switch on as well as the call in LED on the Aiphone NEM master station.

Complete your communications with the current door or sub station before acknowledging the call from the next-door or sub station.

To operate the door lock without receiving a call from the door station or sub station, select the required door or sub station by pressing the corresponding sub station selector button on the Aiphone NEM master station.

The Aiphone NEM master station will now call the door or sub station.

The door release switch next to or near the master station can now be pressed to operate the door release before terminating the call on the master station.

Note the door release function will not operate unless the master station has selected or received a call from a door station or sub station and the master station has acknowledged the call from the door or sub station.

CABLING

Wiring to the input connections of the NEM RELAY must be run in screened cable with the NEM RELAY installed no more than 10 meters from the Aiphone NEM master station. The relay output cabling is as specified by the door release manufacturer to suit the lock and cable distance. The open collector cabling type and distance is as specified by the CCTV switcher manufacturer connected to this output. Power supply cabling is 24.020 or 0.75mm diameter with a maximum distance of 10 metres from the power supply to the NEM RELAY.

SPECIFICATIONS

Power source	24 volts DC
Current consumption	200 mA maximum
Relay contacts rating	3 Amp 24 volts DC 3 Amp 24 volts AC
Relay contact type	Normally closed Normally open
Relay outputs	Ten
Fuse rating	5 Amp quick blow type
Open collector rating	50 mA 24 volts maximum
Open collector outputs	Ten
Dimensions	222mm x 146mm x 55mm
Temperature	0 – 50 degrees Celsius
Input wiring	Shielded 0.5mm diameter or 14/0.020
Input wiring distance	10 meters maximum

Socket Pin outs

16 Pin Socket

Pin Number	Function
1	Door 1 input control from NEM master
2	Door 2 input control from NEM master
3	Door 3 input control from NEM master
4	Door 4 input control from NEM master
5	Door 5 input control from NEM master
6	Door 6 input control from NEM master
7	Door 7 input control from NEM master
8	Door 8 input control from NEM master
9	Door 9 input control from NEM master
10	Door 10 input control from NEM master
11	DR door release switch (use pin 15 for common return)
12	24 volt power input
13	24 volt power input
14	Relay Common (power input via fuse)
15	Common
16	Common

20 Pin Socket

Pin Number	Function
1	Door 1 relay normally closed contact
2	Door 1 relay normally open contact
3	Door 2 relay normally closed contact
4	Door 2 relay normally open contact
5	Door 3 relay normally closed contact
6	Door 3 relay normally open contact
7	Door 4 relay normally closed contact
8	Door 4 relay normally open contact
9	Door 5 relay normally closed contact
10	Door 5 relay normally open contact
11	Door 6 relay normally closed contact
12	Door 6 relay normally open contact
13	Door 7 relay normally closed contact
14	Door 7 relay normally open contact
15	Door 8 relay normally closed contact
16	Door 8 relay normally open contact
17	Door 9 relay normally closed contact
18	Door 9 relay normally open contact
19	Door 10 relay normally closed contact
20	Door 10 relay normally open contact

Note when the 20 pin connector is used the total **maximum** current that can be switched is 100mA at 24 volts. This connector is to facilitate connection to an access control system and not for the switching of door strikes. If it is to be used to switch door strikes additional external relays will be required.

10 Pin Socket

Pin Number	Function
1	Door 1 open collector output
2	Door 2 open collector output
3	Door 3 open collector output
4	Door 4 open collector output
5	Door 5 open collector output
6	Door 6 open collector output
7	Door 7 open collector output
8	Door 8 open collector output
9	Door 9 open collector output
10	Door 10 open collector output

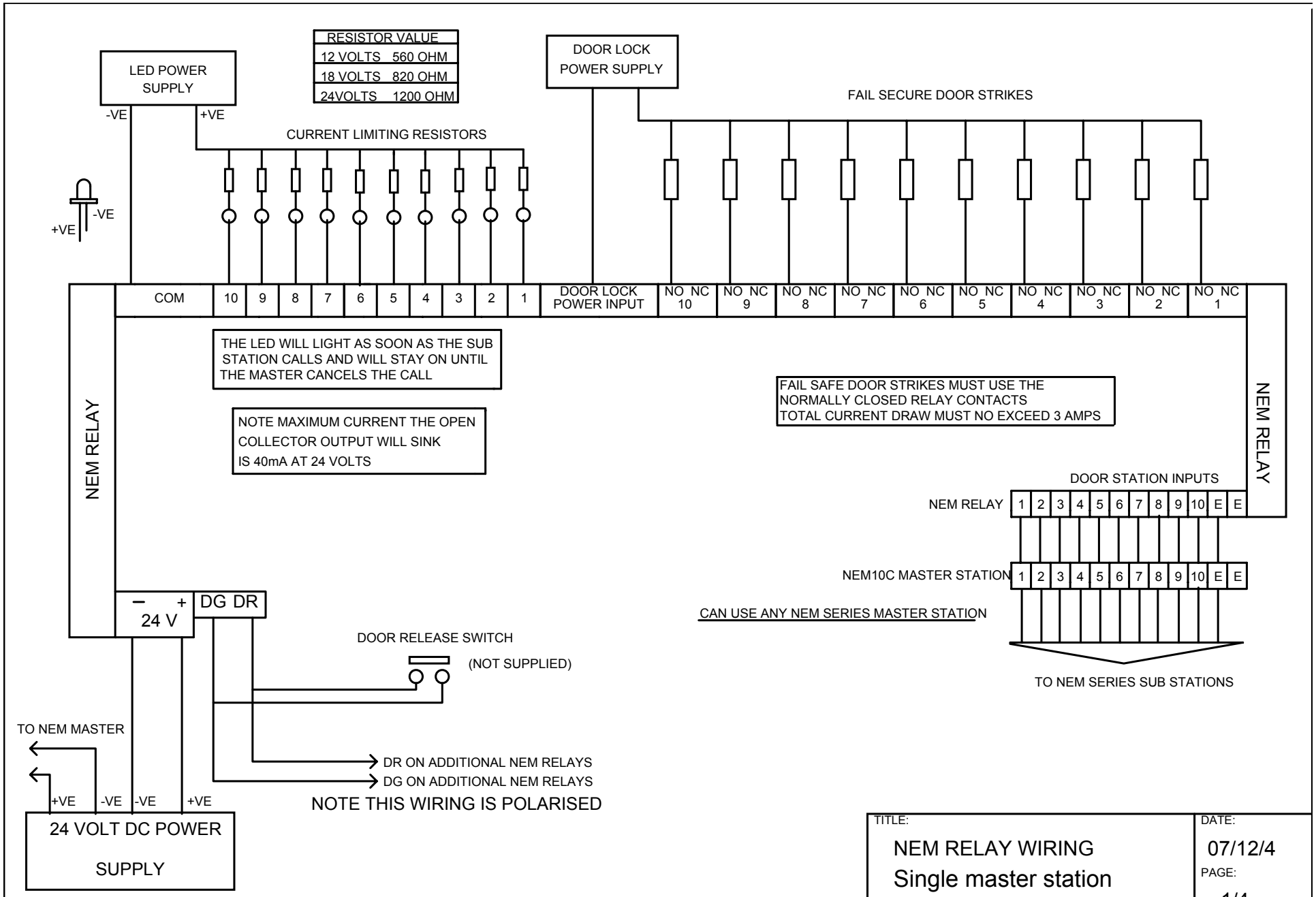
Note use pin 16 of the 16 pin connector as the common return for the open collector outputs when using the 10 pin connector to connect to the open collector outputs. The open collector output is rated to switch 40mA at 24 volts maximum.

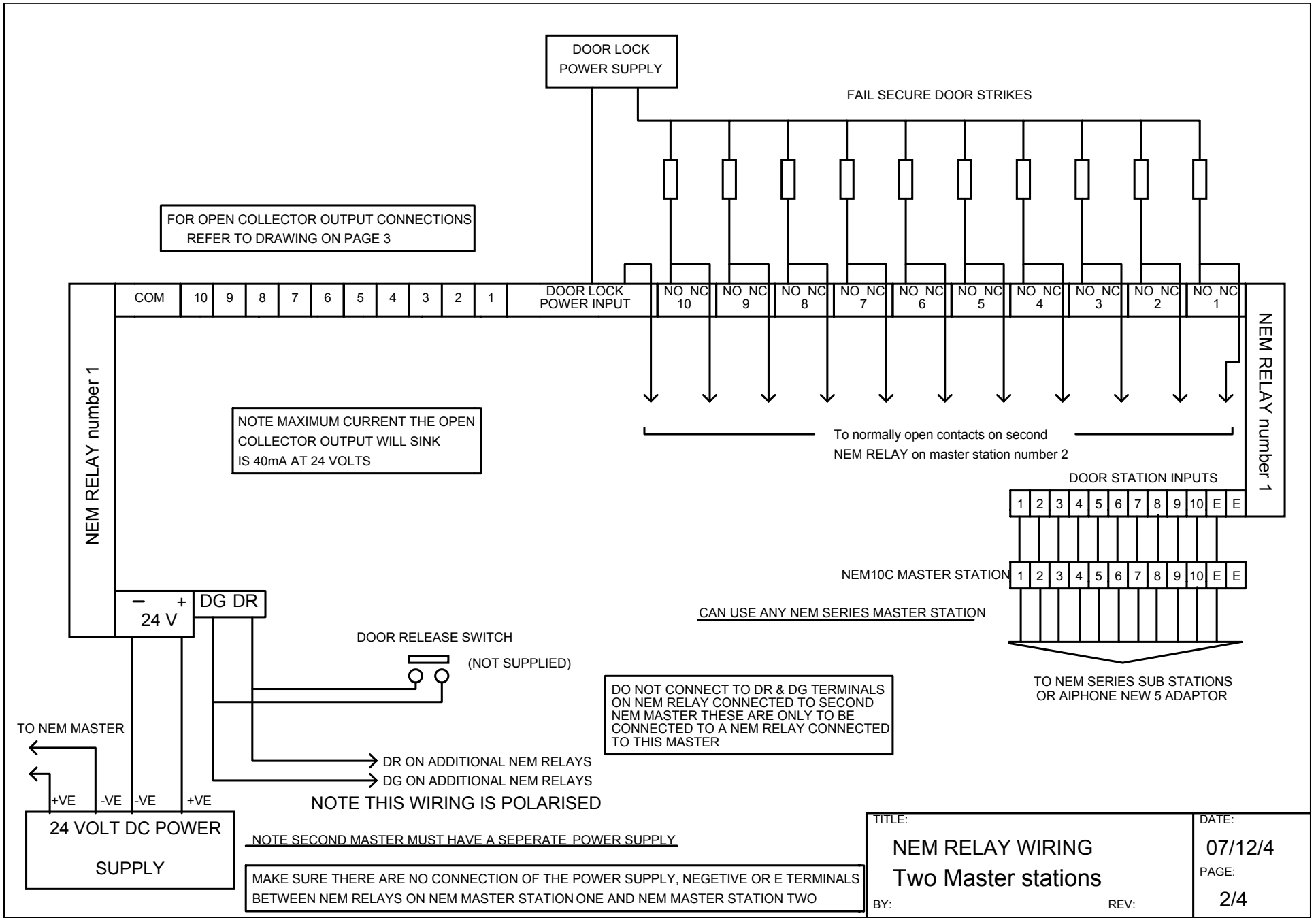
WARRANTY

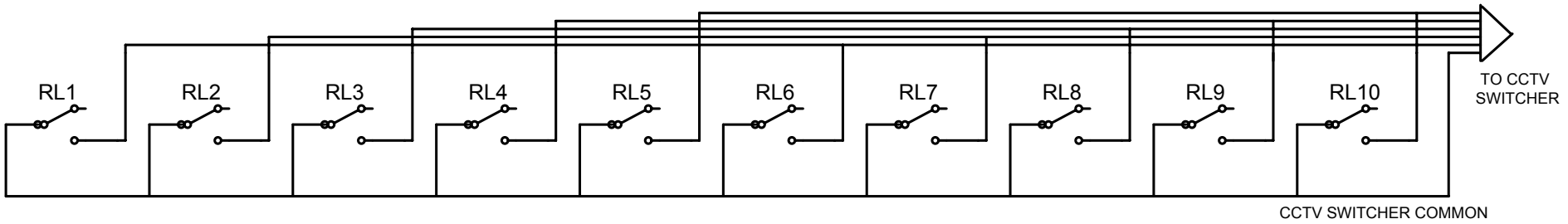
This product is covered against defects of materials or workmanship for a period of two years after delivery to the ultimate user and Audio Products Group will repair free of charge or replace it at no charge, should it be defective and examination shall disclose it to be defective and under warranty.

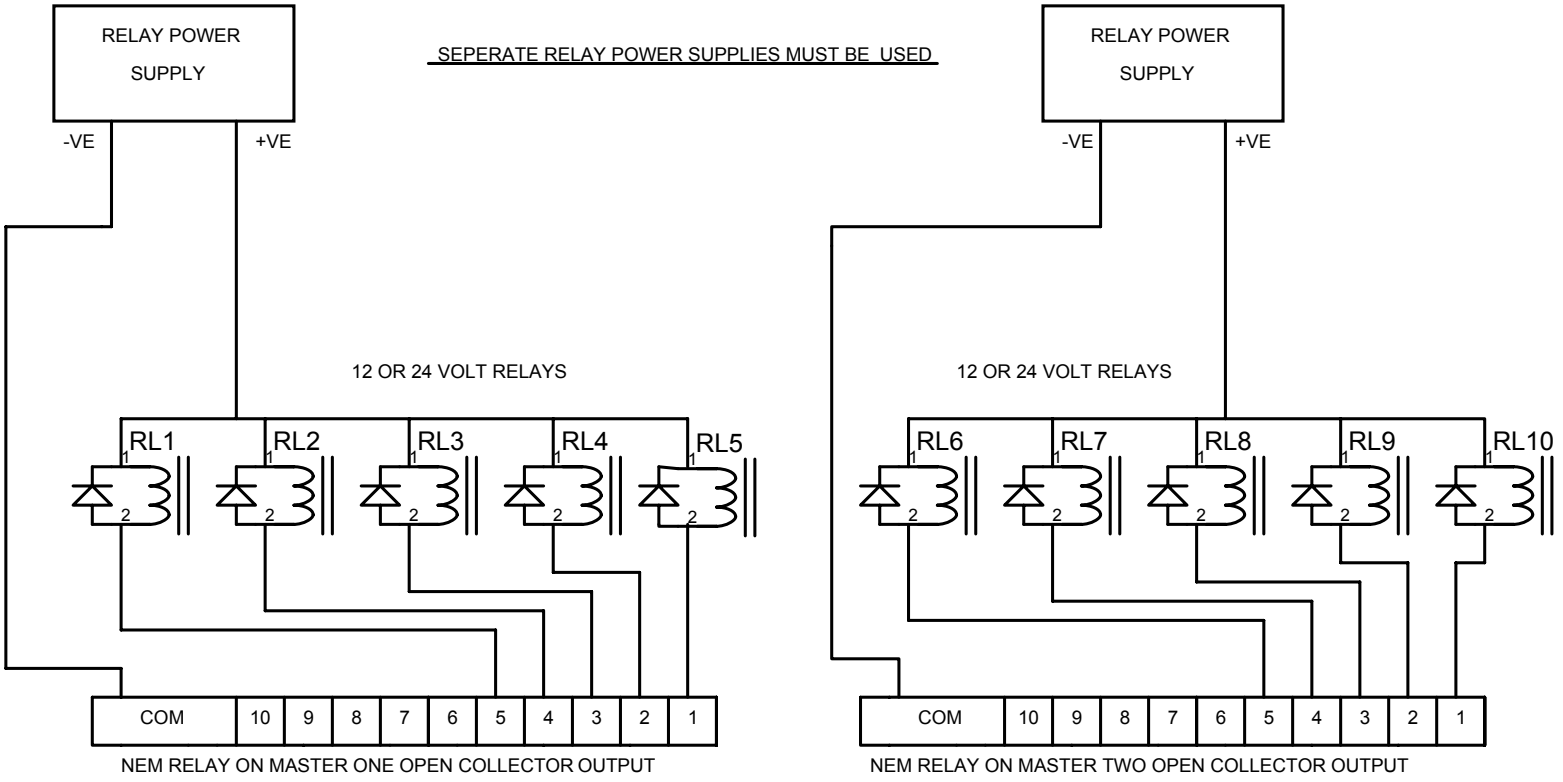
This warranty shall not apply to any product that has been the subject of misuse, neglect, accident, or to use in violation of the instructions furnished, nor extended to units the have been modified outside the factory.

This warranty covers bench repairs only, and must be returned to an authorised service centre for repair, the cost of service calls or any cost incurred is not covered by this warranty.


RESISTOR VALUE
12 VOLTS 560 OHM
18 VOLTS 820 OHM
24VOLTS 1200 OHM
LED POWER SUPPLY
-VE
+VE
CURRENT LIMITING RESISTORS
DOOR LOCK POWER SUPPLY
FAIL SECURE DOOR STRIKES
+VE
-VE
COM
10
9
8
7
6
5
4
3
2
1
DOOR LOCK POWER INPUT
NO NC 10
NO NC 9
NO NC 8
NO NC 7
NO NC 6
NO NC 5
NO NC 4
NO NC 3
NO NC 2
NO NC 1
NEM RELAY
THE LED WILL LIGHT AS SOON AS THE SUB STATION CALLS AND WILL STAY ON UNTIL THE MASTER CANCELS THE CALL
NOTE MAXIMUM CURRENT THE OPEN COLLECTOR OUTPUT WILL SINK IS 40mA AT 24 VOLTS
FAIL SAFE DOOR STRIKES MUST USE THE NORMALLY CLOSED RELAY CONTACTS TOTAL CURRENT DRAW MUST NO EXCEED 3 AMPS
NEM RELAY
DOOR STATION INPUTS
NEM RELAY 1 2 3 4 5 6 7 8 9 10 E E
NEM10C MASTER STATION 1 2 3 4 5 6 7 8 9 10 E E
CAN USE ANY NEM SERIES MASTER STATION
TO NEM SERIES SUB STATIONS
– + 24 V
DG DR
DOOR RELEASE SWITCH
(NOT SUPPLIED)
TO NEM MASTER
+VE -VE -VE +VE
DR ON ADDITIONAL NEM RELAYS
DG ON ADDITIONAL NEM RELAYS
NOTE THIS WIRING IS POLARISED
24 VOLT DC POWER SUPPLY
TITLE:
NEM RELAY WIRING
Single master station
BY:
REV:
DATE:
07/12/4
PAGE:
1/4

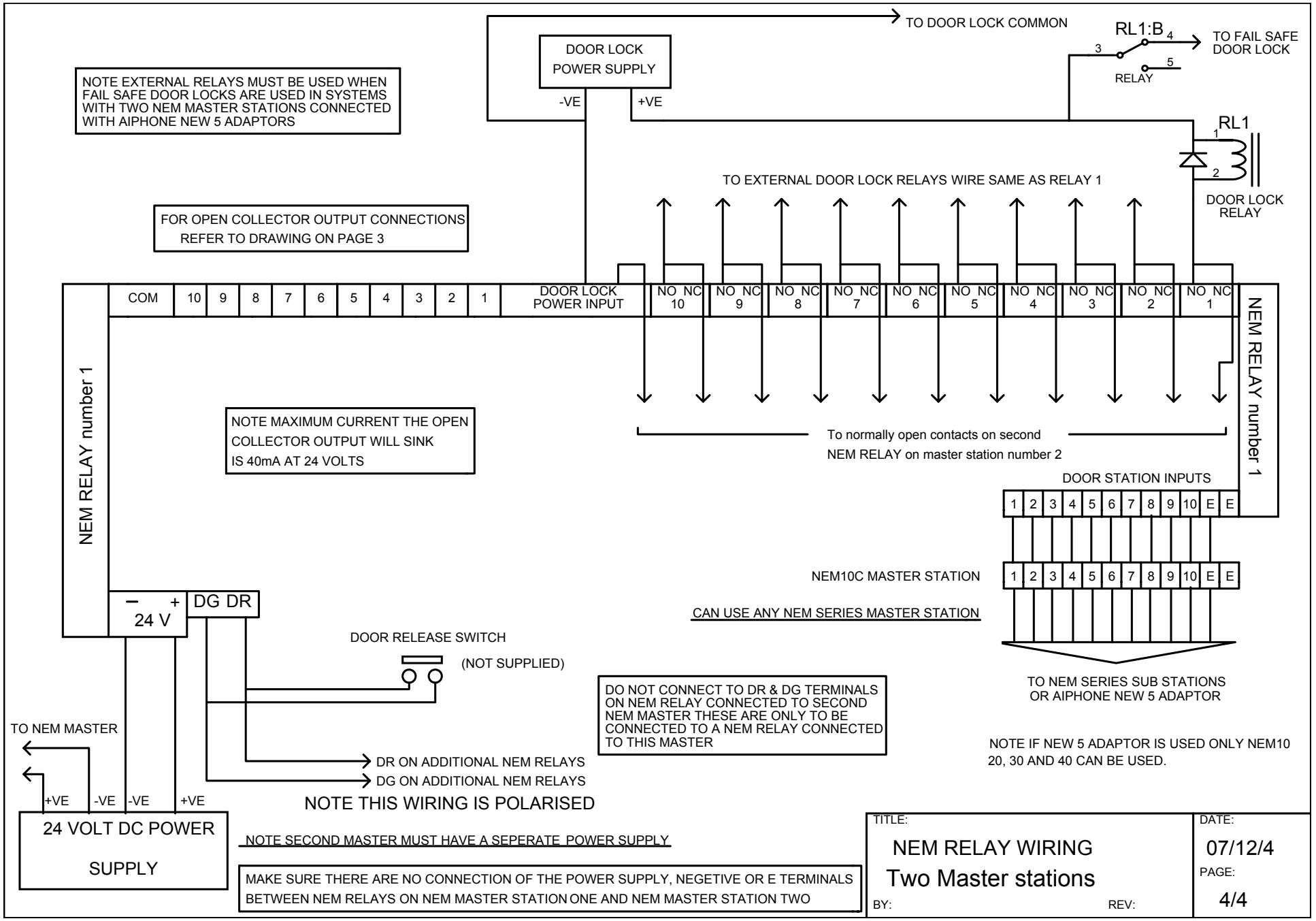

DOOR LOCK
POWER SUPPLY
FAIL SECURE DOOR STRIKES
FOR OPEN COLLECTOR OUTPUT CONNECTIONS
REFER TO DRAWING ON PAGE 3
COM
10
9
8
7
6
5
4
3
2
1
DOOR LOCK
POWER INPUT
NO NC
10
NO NC
9
NO NC
8
NO NC
7
NO NC
6
NO NC
5
NO NC
4
NO NC
3
NO NC
2
NO NC
1
NEM RELAY number 1
NEM RELAY number 1
NOTE MAXIMUM CURRENT THE OPEN
COLLECTOR OUTPUT WILL SINK
IS 40mA AT 24 VOLTS
To normally open contacts on second
NEM RELAY on master station number 2
DOOR STATION INPUTS
1 2 3 4 5 6 7 8 9 10 E E
NEM10C MASTER STATION
1 2 3 4 5 6 7 8 9 10 E E
CAN USE ANY NEM SERIES MASTER STATION
TO NEM SERIES SUB STATIONS
OR AIPHONE NEW 5 ADAPTOR
– +
24 V
DG DR
DOOR RELEASE SWITCH
(NOT SUPPLIED)
DO NOT CONNECT TO DR & DG TERMINALS
ON NEM RELAY CONNECTED TO SECOND
NEM MASTER THESE ARE ONLY TO BE
CONNECTED TO A NEM RELAY CONNECTED
TO THIS MASTER
TO NEM MASTER
DR ON ADDITIONAL NEM RELAYS
DG ON ADDITIONAL NEM RELAYS
+VE
-VE
-VE
+VE
NOTE THIS WIRING IS POLARISED
24 VOLT DC POWER
SUPPLY
NOTE SECOND MASTER MUST HAVE A SEPERATE POWER SUPPLY
MAKE SURE THERE ARE NO CONNECTION OF THE POWER SUPPLY, NEGETIVE OR E TERMINALS
BETWEEN NEM RELAYS ON NEM MASTER STATION ONE AND NEM MASTER STATION TWO
TITLE:
NEM RELAY WIRING
Two Master stations
BY:
REV:
DATE:
07/12/4
PAGE:
2/4

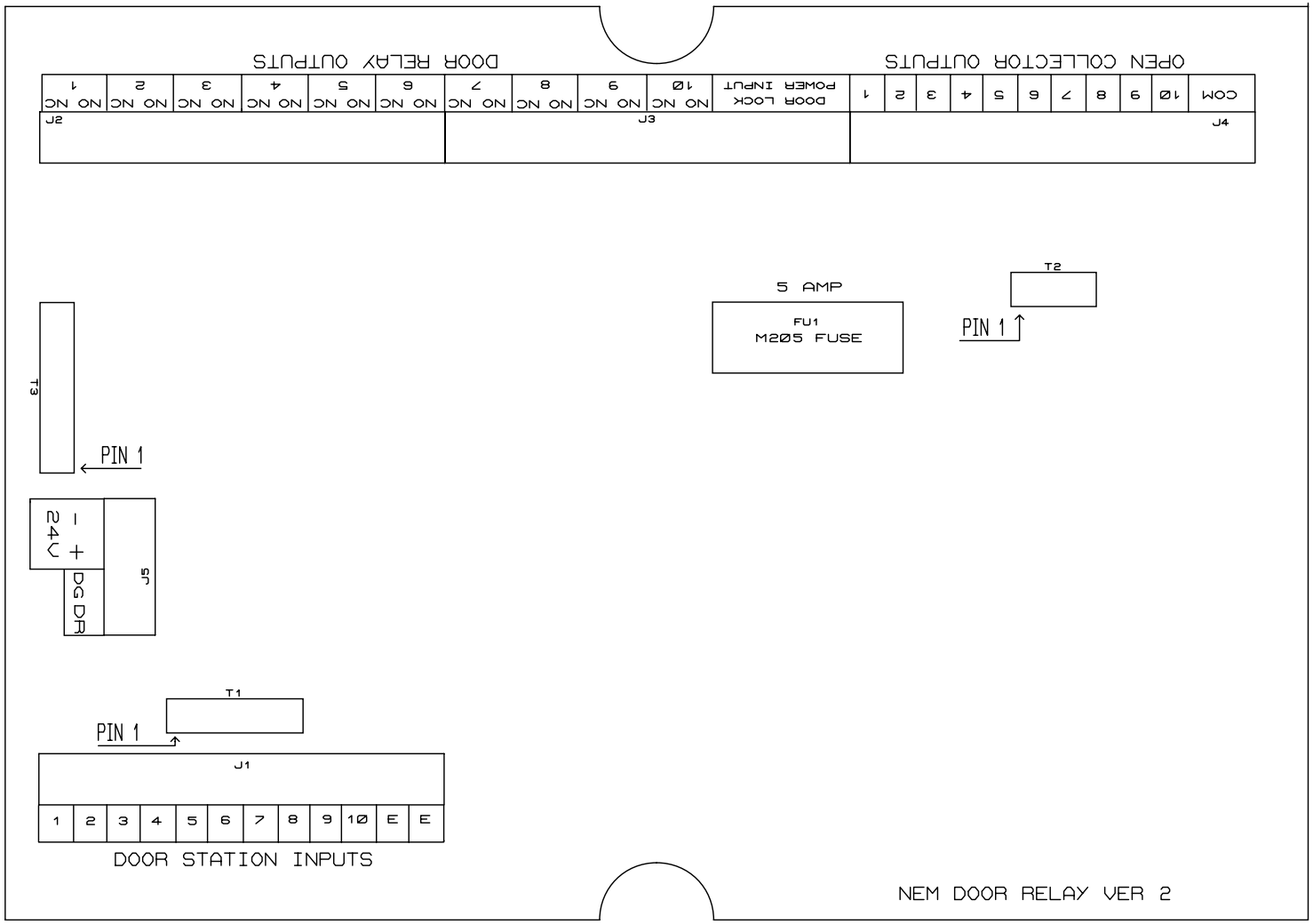




NOTE MAXIMUM CURRENT THE OPEN COLLECTOR OUTPUT WILL SINK IS 40mA AT 24 VOLTS

TITLE:	DATE:
NEM RELAY WIRING	07/12/4
BY: REV:	PAGE: 3/4


NOTE EXTERNAL RELAYS MUST BE USED WHEN FAIL SAFE DOOR LOCKS ARE USED IN SYSTEMS WITH TWO NEM MASTER STATIONS CONNECTED WITH AIPHONE NEW 5 ADAPTORS
TO DOOR LOCK COMMON
DOOR LOCK POWER SUPPLY
-VE
+VE
RL1:B
3
4
5
RELAY
TO FAIL SAFE DOOR LOCK
RL1
1
2
DOOR LOCK RELAY
TO EXTERNAL DOOR LOCK RELAYS WIRE SAME AS RELAY 1
FOR OPEN COLLECTOR OUTPUT CONNECTIONS REFER TO DRAWING ON PAGE 3
COM
10
9
8
7
6
5
4
3
2
1
DOOR LOCK POWER INPUT
NO NC 10
NO NC 9
NO NC 8
NO NC 7
NO NC 6
NO NC 5
NO NC 4
NO NC 3
NO NC 2
NO NC 1
NEM RELAY number 1
NOTE MAXIMUM CURRENT THE OPEN COLLECTOR OUTPUT WILL SINK IS 40mA AT 24 VOLTS
To normally open contacts on second NEM RELAY on master station number 2
DOOR STATION INPUTS
1 2 3 4 5 6 7 8 9 10 E E
NEM10C MASTER STATION
1 2 3 4 5 6 7 8 9 10 E E
CAN USE ANY NEM SERIES MASTER STATION
TO NEM SERIES SUB STATIONS OR AIPHONE NEW 5 ADAPTOR
NOTE IF NEW 5 ADAPTOR IS USED ONLY NEM10 20, 30 AND 40 CAN BE USED.
NEM RELAY number 1
− +
24 V
DG DR
DOOR RELEASE SWITCH
(NOT SUPPLIED)
DO NOT CONNECT TO DR & DG TERMINALS ON NEM RELAY CONNECTED TO SECOND NEM MASTER THESE ARE ONLY TO BE CONNECTED TO A NEM RELAY CONNECTED TO THIS MASTER
TO NEM MASTER
DR ON ADDITIONAL NEM RELAYS
DG ON ADDITIONAL NEM RELAYS
+VE
-VE
-VE
+VE
NOTE THIS WIRING IS POLARISED
24 VOLT DC POWER SUPPLY
NOTE SECOND MASTER MUST HAVE A SEPERATE POWER SUPPLY
MAKE SURE THERE ARE NO CONNECTION OF THE POWER SUPPLY, NEGETIVE OR E TERMINALS BETWEEN NEM RELAYS ON NEM MASTER STATION ONE AND NEM MASTER STATION TWO
TITLE:
NEM RELAY WIRING
Two Master stations
BY:
REV:
DATE:
07/12/4
PAGE:
4/4


DOOR RELAY OUTPUTS
NO NC 1
NO NC 2
NO NC 3
NO NC 4
NO NC 5
NO NC 6
NO NC 7
NO NC 8
NO NC 9
NO NC 10
DOOR LOCK POWER INPUT
J2
J3
OPEN COLLECTOR OUTPUTS
1
2
3
4
5
6
7
8
9
10
COM
J4
5 AMP
FU1
M205 FUSE
T2
PIN 1
T3
PIN 1
J5
24V
+
-
DG
DR
T1
PIN 1
J1
1
2
3
4
5
6
7
8
9
10
E
E
DOOR STATION INPUTS
NEM DOOR RELAY VER 2