

Functional Description:

The ZPCB2252-MML is the master PCB that interfaces directly to the CIE via the addressable loop interface. The master board takes one address on the CIE and is assigned its address during the auto-learn cycle of the CIE (refer to the CIE manual for more details). This board provides 32 LED outputs which are powered from an external EN54-4 power supply.

The ZPCB2252-MSL is the slave PCB which has no loop interface to the CIE but is directly controlled by the ZPCB2252-MML board. Up to 7 slave boards can be daisy chained to the master board and each slave has 32 LED outputs allowing the number of LED outputs to be expanded up to a maximum of 250 (not all LEDs on the 7th slave are used). The power to these additional LEDs is also from the external power supply but is transferred through the interlinking cable between boards.

Cause and effect programming can be uploaded via the RS232 port to the master board to program how the LEDs will react to command/status information received from the CIE. This allows the LEDs to not only be used to show fire information but also faults, and can be configured to trigger by Zone, Panel, Loop or Address.

These boards are typically used for providing visual indications for fire or fault conditions on a site plan overlay.

Installation Instructions:

- 1. Select the appropriate sized enclosure for the number of Master and Slave boards required.
- 2. Ensure all cable entry points have glands fitted.
- 3. Mount the enclosure back box to the wall using the designated mounting holes and appropriate screw sizes for the enclosure selected.
- 4. Mount the PCBs into the enclosure using appropriate mounting points and no bigger than M4 screws (limited by the hole size on the PCBs).
- Interconnect the Master and slave boards using the appropriate length of 26-way ribbon cable between the MIMIC OUTPUT and the MIMIC INPUT connectors on each board (see wiring diagrams)
- 6. Wire the CIE loop connections to the master board (see wiring diagrams)
- 7. Wire the external EN54-4 PSU to the master and slave boards (see wiring diagrams)
- 8. Wire the LEDs to the required outputs on each board (see wiring diagrams).
- 9. Fit the enclosure lid as required by the enclosure selected.

Installation Instructions for: ZPCB2252-MML (Master) & ZPCB2252-MSL (Slave) <u>Wiring Diagram:</u>



ZPCB2252-MML (Master Board)



LED on flying leads



ZPCB2252-MSL (Slave Boards)



LED on flying leads

Installation Instructions for: ZPCB2252-MML (Master) & ZPCB2252-MSL (Slave) Configuration Instructions:



ZPCB2252-MSL (Slave Boards)

On the Slave boards there is a bank of jumpers (J41 SLAVE CONFIG) that are used to select what bank of LEDs the slave board represents so that the Master board knows that it is present and how to control it. Place a jumper on the required selection (the 8th position is not used). Make sure that these jumpers are set correctly otherwise it will result in incorrect activation of the LED outputs.



ZPCB2252-MML (Master Board)

To configure the rules for the outputs controlled by the Master board you must use the cause and effect file generated for the CIE. This file will contain all the information necessary for creating the cause and effect rules. Use the following guides to setting up and configuring a Master Board.

Setting up the LED Repeater:



1. Locate the master board on the loop of the panel the device is connected to. It will appear as an undefined repeater.

2. Right click the undefined repeater icon and select "Edit Repeater"



Repeater / Mimic	1	
	Address 2 Panel-	- The
	Repeater Type Panel Repeater	
	Output Settings Panel Repeater	3.
	Trigger Source Graphical Mimic Relay Board	
	Rule Logic O Any Rule (OR) O All Rules (AND)	
	Add Rule Edit Rule Delete Rule Delete Visible	Delete All
	Add Rule to All Outputs Assign Each Zone to	Each Output
	V OK	Cancel

 Click on the "Repeater Type" drop down list and select "LED Repeater"

Repeater / Mimic		
LED Repeater Output Output 2 Output 3 Output 4 Output 5 Output 5	Address 11 Address 11 / Repeater Repeater Type LED Reg	peater -
	Output Settings Trigger Source	Input Type Logic 5.
	Rule Logic Add Rule Add Rule Add Rule to A	Al Rules (AND) Delete Rule Delete Visible Delete All NOutputs Asign Each Zone to Each Output OK Cancel

- 4. All 250 outputs will appear in the list on the left hand side of the screen.
- Clicking on any output will display the associated rules for that output (maximum of 5 rules allowed)



Assigning Each Zone to Each Output:

Repeater / Mimic			
LED Repeater	Address 11 Address 11 / Repeater Repeater Type ULED Repeater Output Settings		-
	Trigger Source	Input Type	Logic
	Rule Logic Any Rule (OR) Add Rule Edit Rule Delete Add Rule to All Outputs 	All Rules (AND) Celete Viable Assign Each Zone to E	Delete Al ach Output 6.

6. Click "Assign Each Zone to Each Output" to automatically assign the trigger rule of "Fire By Zone # on Panel #" to all associated outputs whose number corresponds to a zone that exists on the panels listed for the site. For example, if there are 2 panels with Zones 1 to 10 on each panel, then 2 rules will be created for each output; Fire By Zone 1 on Panel 1 and Fire By Zone 1 on Panel 2, etc (maximum of 5 rules allowed).

Adding a Rule to a Single Output:

Repeater / Mimic		
ED Repeater		
Output 1	Transfer And And	
Output 1 .	Address 11	
Output 3	Address 11 / Repeater	-
Output 4		
- Output 5	Repeater Type LED Repeater	•
Output 6		
Output 7	Output Settings	
Output 8	Trigger Source	Input Type Logic
Output 9		
Output 10		
Output 11		
Output 12		
Output 13		
Output 14		
Output 15		
Output 16		
Output 17		
Output 18		
Output 19		
Output 20	Logic Any Rule (OR)	 All Rules (AND)
Output 21	8	
Output 22	O. Add Rule Edit Rule Delete	Hule Delete Visible Delete All
Output 23	Add Bula to All Outputs	Assign Each Zong to Each Output
Output 24	Add Hule to All Outputs	Assign Each Zone to Each Output
Output 25		
Output 26		V OK X Cancel
Output 27		
Outnut 28		

- 7. Click the Output you wish to add a rule to.
- 8. Click "Add Rule" to assign a single rule to the Output selected in the list in the left hand panel. Refer to "Defining a Rule" for more details on creating the appropriate rule triggers and sources.



Adding a Rule to ALL Outputs:

Repeater / Mimic		
LED Repeater	Address 11 Address 11 / Repeater Repeater Type LED Repeater Output Settinge	T
	Trigger Source Input Type L	ogic
	Rule Logic Any Rule (OR) All Rules (AND) Add Rule Edit Rule Delete Rule Delete Visible 9. Add Rule to All Outputs Assign Each Zone to Each	Delete All Output Cancel

Click "Add Rule to All Outputs" to assign a single rule to all 250 Outputs. Refer to "Defining a Rule" for more details on creating the appropriate rule triggers and sources.

Editing a Rule for a Single Output:

Repeater / Mimic		
LED Repeater Cutput 1 Cutput 2 Cutput 3 Cutput 4	Address 11 Address 11 / Repeater	- AF
Output 5 Output 6	Repeater Type LED Repeater	▼
→ Output 7 → Output 8	Output Settings	Logic
Output 9 Output 10		Logic
Utput 11	(11.)	
- Output 12 Output 13		
Output 14 Output 15 Output 16		
Output 17		
Output 18 Output 19		
→ Output 20 → Output 21	Rule Logic Any Rule (OR)	
Output 22 Output 23	Add Rule Edit Rule Delete Visit	Delete All
→ Output 24 → Output 25	Add Hule to All Outputs Assign Each Zor	e to Each Output
Utput 26	\checkmark	DK 🗙 Cancel
Outnut 28		

- 10. Click the Output you wish to edit the rule for.
- 11. Click the Rule you wish to edit
- 12. Click "Edit Rule" to change the rule selected for the output. Refer to "Defining a Rule" for more details on creating the appropriate rule triggers and sources.



Deleting a Rule from a Single Output:

Repeater / Mimic		
LED Repeater	Address 11 Address 11 / Repeater	J.
- Output 5	Repeater Type LED Repeater	
Output 6	Output Sattings	
Output 7	Output Settings	
Output 8	Trigger Source Input Type L/	ogic
Output 9		
Output 10		
Output 11	(14.)	
Output 12		
Output 13		
Output 14		
Output 15		
Output 16		
Output 1/		
Output 18		
Output 19		
Output 20	Rule Logic (I) Any Rule (OR)	
Output 21	Add Bula Edit Bula Delata Bula 15. bla	Doloto All
Output 22		Delete All
Output 23	Add Rule to All Outputs Assign Each Zone to Each	Output
Output 24		
Output 25		
Output 26	🗸 ок	Cancel
Output 2/		
Cutrut 28		

Deleting ALL Rules from a Single Output:

Repeater / Mimic			
EED Repeater Cutput 1 Output 2 Output 3 Output 5	Address 11 Address 11 / Repeater		-
Output 6	LED Repeater		•
Output 7	Output Settings		
Output 8	Trigger Source	Input Type	Logic
Output 9		input type	Logic
Output 10			
Output 11			
Output 12			
Output 13			
Output 14			
Output 15			
Output 16			
Output 17			
Output 18			
Output 19		0.000	\sim
Output 20	Rule Logic (OR)	All Rules (AND)	
Output 21	Add Bule Edit Bule Delete	Rula Dalata Visible	17.
Output 22			
Les Output 23	Add Rule to All Outputs	Assign Each Zone to E	ach Output
Output 24			
Output 25			
Output 27		V ок	K Cancel
Output 28	r		

- 13. Click the Output you wish to delete the rule from.
- 14. Click the Rule you wish to delete
- 15. Click "Delete Rule" to remove the rule from the outputs settings list.

- 16. Click the Output you wish to delete the rules from.
- 17. Click "Delete Visible" to remove ALL the rules from the outputs settings list.
- 18. Click "OK" when the confirmation dialog box appears.



Deleting ALL Rules from ALL Outputs:

Repeater / Mimic			
□ ↓ED Repeater → Outroit 1 → Output 2 → Output 3 → Output 4 → Output 5 → Output 5 → Output 5 → Output 5	Address 11 Address 11 / Repeater Repeater Type LED Repeater Output Settings	·	
→ Output 8 → Output 8 → Output 9 → Output 10 → Output 11 → Output 11 → Output 13 → Output 13 → Output 13 → Output 15 → Output 16 → Output 16 → Output 17 → Output 18	Trigger Source	Input Type Logic	
→ → Output 19 → → Output 20 → → Output 21 → → Output 22 → → Output 23 → → Output 23 → → Output 25 → → Output 25 → → Output 27 → → Output 27 → → Output 27	Rule Logic Any Rule (OR) Add Rule Edit Rule Add Rule to All Outputs	Al Rules (AND) Delete Rule Delete Visible Delete Al Assign Each Zone to Each Output	19.

- 19. Click "Delete All" to remove ALL the rules from ALL outputs.
- 20. Click "OK" when the confirmation dialog box appears.

Defining A Rule:

Rule			×
Trigger Type	Fire		21.
Trigger Source	Fire Fault		
Global			
By Zone			
By Address			v
By Panel			-
By Loop			-
Manual	Panel Address	0	* *
	Loop Number	0	* *
	Device Address	0	* *
	Zone Number	0	* *
		🗸 ок	Cancel

21. Click the "Trigger Type" drop down list and select whether the LED Output triggers on a Fire or Fault event.

Rule			— ×-
Trigger Type	Fire		-
Global 22.	Fault		
By Zone			~
By Address			-
By Panel			~
🔘 By Loop			-
Manual	Panel Address	0	* *
	Loop Number	0	* *
	Device Address	0	* *
	Zone Number	0	×
		🗸 ок 🗙	Cancel



22. Select the "Global" trigger source if you want the output to trigger when the trigger type occurs on any Panel, loop, address or zone on the network/system.

- 23. Select the "By Zone" trigger source if you want the output to trigger when the trigger type occurs on a specific Panel and Zone number.
- 24. Select the pane/zone required from the adjacent drop-down list.

Rule	
Trigger Type	Fire
Trigger Source	
Global	
By Zone 23.	
By Address	CF3000: 1 / Zone 1: 1 CF3000: 1 / Zone 2: 2
By Panel	CF3000: 1 / Zone 3: 3 CF3000: 1 / Zone 4: 4
🔘 By Loop	CF3000: 1 / Zone 5: 5 CF3000: 1 / Zone 6: 6
🔘 Manual	CF3000: 1 / Zone 7: 7 CF3000: 1 / Zone 8: 8 CF3000: 1 / Zone 9: 9
	CF3000: 1 / Zone 10: 10 CF3000: 2 / Zone 1: 1
	CF3000: 2 / Zone 2: 2
	CF3000: 2 / Zone 3: 3 CF3000: 2 / Zone 4: 4
	CF3000: 2 / Zone 5: 5
	CF3000: 2 / Zone 6: 6 CF2000: 2 / Zone 7: 7
	CF3000: 2 / Zone 8: 8
	CF3000: 2 / Zone 9: 9
	CF3000: 2 / Zone 10: 10

Rule		×
Trigger Type	Fire	-
Trigger Source		
Global		
By Zone		-
By Address 2	5.	•
By Panel	CF3000: 1 / Loop 1 / Address 1: 1 CF3000: 1 / Loop 1 / Address 2: 2	<u>^</u>
O By Loop	CF3000: 1 / Loop 1 / Address 3: 3 CF3000: 1 / Loop 1 / Address 4: 4	
Manual	CF3000: 1 / Loop 1 / Address 5: 5 CF3000: 1 / Loop 1 / Address 6: 6	
	CF3000: 1 / Loop 1 / Address 7: 7	
	CF3000: 1 / Loop 1 / Address 8: 8 CF3000: 1 / Loop 1 / Address 9: 26	
	CF3000: 1 / Loop 1 / Address 10: 10	
	CF3000: 1 / Loop 1 / Address 11: 11	
	CF3000: 2 / Loop 1 / Address 1: 1	
	CF3000: 2 / Loop 1 / Address 2: 2 CF3000: 2 / Loop 1 / Address 2: 2	
	CF3000: 2 / Loop 1 / Address 4: 4	
	CF3000: 2 / Loop 1 / Address 5: 5	-
	CF3000: 2 / Loop 1 / Address 6: 6	P
	CF3000: 2 / Loop 1 / Address 7: 7	

Irigger Type	Fire		
Trigger Source			
By Zone			
By Address			
By Panel 2	7.		
_			
By Loop	CF3000: 1 20. CF3000: 2		
By LoopManual	CF3000: 1 CF3000: 2 Panel Address	0	4
 By Loop Manual 	CF3000: 1 CF3000: 2 Panel Address	0	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
 By Loop Manual 	CF3000: 1 CF3000: 2 Panel Address Loop Number Device Address	0 0 0	
 By Loop Manual 	CF3000: 1 CF3000: 2 Panel Address Loop Number Device Address Zone Number	0 0 0 0	



- 25. Select the "By Address" trigger source if you want the output to trigger when the trigger type occurs on a specific Panel, Loop and Address number.
- 26. Select the panel/loop/zone required from the adjacent dropdown list.

- 27. Select the "By Panel" trigger source if you want the output to trigger when the trigger type occurs on a specific Panel number.
- 28. Select the panel required from the adjacent drop-down list.

Rule	
Trigger Type	Fire 👻
Trigger Source	
Global	
By Zone	· · · · · · · · · · · · · · · · · · ·
By Address	· · · · · · · · · · · · · · · · · · ·
By Panel	· · · · · · · · · · · · · · · · · · ·
By Loop 29.	
Manual	CF3000: 1 / Loop 1 CF3000: 1 / Loop 2
	CF3000: 1 / Loop 3 CF3000: 1 / Loop 4 20
	CF3000: 2 / Loop 1 30. CF3000: 2 / Loop 2
	CF3000: 2 / Loop 3 CF3000: 2 / Loop 4
	OK Cancel



- 29. Select the "By Loop" trigger source if you want the output to trigger when the trigger type occurs on a specific Panel and Loop number.
- 30. Select the panel/loop required from the adjacent drop-down list.

Rule				— ×
Trigger Type	Fire			•
Trigger Source				
Global				
By Zone				-
By Address				-
By Panel				-
By Loop				-
Manual 31.	Panel Address		1	×.
	Loop Number		2	32.
	Device Address		4	
	Zone Number		1	×.
		v	<u>о</u> к	<u>C</u> ancel

- 31. Select the "Manual" trigger source if you want the output to trigger when the trigger type occurs on a specific Panel, Loop Address and Zone number.
- 32. Enter the panel, loop, address, and zone numbers in the adjacent entry boxes.

Rule			×
Trigger Type	Fire		•
Trigger Source			
Global			
By Zone			-
By Address			-
By Panel			-
By Loop			-
Manual	Panel Address	1	×.
	Loop Number	2	×.
	Device Address	4	×.
	Zone Number	1	* *
		OK 0K 33.	Cancel 34.



- Click the "OK" button to accept and apply the rule definition and close the Rule dialog box.
- 34. Click the "Cancel" button to discard the rule definition and close the Rule dialog box.

Closing the Edit Repeater Dialog Box:

Repeater / Mimic		
LED Repeater Output 1 Output 2 Output 3 Output 4 Output 4	Address 11 Address 11 / Repeater	20
Output 5	LED Repeater	•
Output 7	Output Settings	
Output 8	Trigger Source	Logic
Output 9	ingger couldo	Logio
Output 10		
Output 11		
Output 12		
Output 13		
Output 14		
Output 15		
Output 16		
Output 1/		
Output 18		
Cutput 19	Pula Lacia (Ary Pula (OP)	
Cutput 20		
Utput 21	Add Rule Edit Rule Delete Rule Delete Visib	le Delete All
Output 23		
- Output 20	Add Rule to All Outputs Assign Each Zon	e to Each Output
Output 25		
Output 26		
Output 27	V	Cancel
Output 28	25	Υ
Outnut 28	35.)

35. Click the "OK" button to accept the rule definitions and close the Edit Repeater dialog box.

Uploading the Output Rules to the Master Board:





- 36. Connect the serial cable to the RS232 port (J6) on the Master board.
- 37. Move the jumper on J3 to the RS232 position. This will disable the loop communication with the CIE so a device missing fault will occur; this is normal.
- 38. Press the RESET button on the master board.

- 39. Right click the LED repeater icon and select "Send Repeater"
- 40. Wait for the Send LED Repeater dialog to finish.





- 41. Disconnect the serial cable from the RS232 port (J6) on the Master board.
- 42. Move the jumper on J3 to the LOOP position. This will enable the loop communication with the CIE.
- 43. Press the RESET button on the master board.

Commissioning Instructions:

The commissioning instructions supplied with the CIE must be followed in order to commission the MIMIC boards (please refer to the Installation and Commissioning manual supplied with the CIE). As part of the CIE commissioning procedure each LED output will be exercised as each zone is placed into the fire condition. Please ensure that the cause and effect has been properly uploaded to the Master board before commissioning commences (please refer to Configuration Instructions).

Maintenance Instructions:

There are no serviceable parts so no maintenance procedures apply.



Technical Specification:

External PSU Specification	Minimum	Nominal	Maximum
Voltage	18VDC		30VDC
Current		1A	
Protection	PSU must have in-built fuse protection		
Fault monitoring	PSU must have in-built fault monitoring		
Certification	EN54-4: 1997 + A1:2002 + A2:2006		

Cable Specification	Minimum	Nominal	Maximum
Size	0.5mm ²		2.5mm ²
Recommended Type	DRAKA – FIRETUF, FP200		

Loop Specification	Minimum	Nominal	Maximum
Operating Voltage (Vmin and	18.5VDC		30VDC
Vmax)			
Quiescent Current		310µA	
Alarm Current		310µA	
Addressing Mode	Auto-addressing from the CIE		
Compatibility	Suitable for use with Eaton Analogue Addressable Fire Systems		
	(800 s	eries protocol PR200-0	7-400)

Short Circuit Isolator Specification	Minimum	Nominal	Maximum
Total Loop Resistance for correct			50Ω
operation of short circuit isolator			
Parallel Fault Resistance to be seen at		200Ω	
the Control Panel for isolators to open			
Continuous Current allowable through			700mA
isolator (Ic max)			
Isolator Resistance in closed state (Zc			0.26Ω
max)			
Leakage Current into direct short circuit			14mA
with isolator open (IL max)			
Voltage at which isolator changes from	3.8V		11V
open to closed state (Vsc min & max)			
Voltage at which isolator changes from	3.8V		11V
closed to open state (Vso min & max)			
Maximum switching current to isolator			1.5A
(IS max)			
This addressable device contains an integral sh	ort circuit isolator, whi	ch operates between the	e – IN terminal and the

- OUT terminal. The isolator operates in conjunction with the Cooper Addressable Control Panel when a low parallel resistance fault of typically 200Ω is present between the +VE and –VE of the loop wiring.

LED Output Specification	Minimum	Nominal	Maximum
Voltage (Per Output)		24VDC	30V
Current (Per Output)			10mA
Number of LEDs (Per PCB)			32
Number of LEDs (Total)			250

PCB Specification	Minimum	Nominal	Maximum
Number of Masters			1
Number of Slaves	0		7
ZPCB2252-MML Dimensions		140 x 290 (mm)	
ZPCB2252-MSL Dimensions		140 x 290 (mm)	

Environmental Specification	Minimum	Nominal	Maximum
Operating Temperature	-10°C		+45°C
Humidity (Non Condensing)	0%		95%



Mechanical Specification	Minimum	Nominal	Maximum
Material		PC / ABS	
Dimensions (w / h / d)	350mm x		
	190mm x 75mm		
Ingress Protection	IP30		

Certification			
EN54-17: 2005*	Short Circuit Isolators		
EN54-18: 2005	Input / Output Devices		

* EN54-17 is only applicable to ZPCB2252-MML.

Installation Instructions for: ZPCB2252-MML (Master) & ZPCB2252-MSL (Slave) Manufacturer's Contact Details:

Technical Support:

Eaton's Fire Systems

www.cooper-ls.com

Wheatley Hall Road

Doncaster South Yorkshire DN2 4NB

Tel: +44 (0)1302 - 303350

techsupport@cooperfire.com

Eaton Industries Manufacturing

Electrical Sector EMEA

Route de la Longeraie 7

GmbH

1110 Morges Switzerland



Sales: Tel: +44 (0)1302 – 303303 sales@cooperfire.com

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Cooper Lighting and Safety Ltd, Wheatley Hall Road, Doncaster, DN2 4NB, UK						
	16					
DOP0019						
ZPCB2252-MML* Input / Output device with short circuit isolator ZPCB2252-MSL Input / Output device						
EN54-17:2005*		EN54-18:2005				
Essential Characteristics	Performance	Essential Characteristics	Performance			
Performance Under Fire Conditions	Pass	Performance Under Fire Conditions	Pass			
Response Delay (Response Time To Fire)	Pass	Response Delay (Response Time To Fire)	Pass			
Operational Reliability	Pass	Operational Reliability	Pass			
Durability Of Operational Reliability, Temperature Resistance	Pass	Durability Of Operational Reliability, Temperature Resistance	Pass			
Durability Of Operational Reliability, Vibration Resistance	Pass	Durability Of Operational Reliability, Vibration Resistance	Pass			
Durability Of Operational Reliability, Electrical Stability	Pass	Durability Of Operational Reliability, Electrical Stability	Pass			
Durability Of Operational Reliability, Humidity Resistance	Pass	Durability Of Operational Reliability, Humidity Resistance	Pass			

* EN54-17 is only applicable to ZPCB2252-MML.