



Ruscool Annunciators Config

Version 1.0

User Manual

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Ruscool Annunciators Configuration

Running the **Ruscool Annunciator Config** program allows the user to set up each annunciator output as desired.

The annunciators are split into three categories - Module, Glareshield and MIP

If the Caution and Warning lights are connected, these will be actioned by any corresponding 'Trigger' settings.

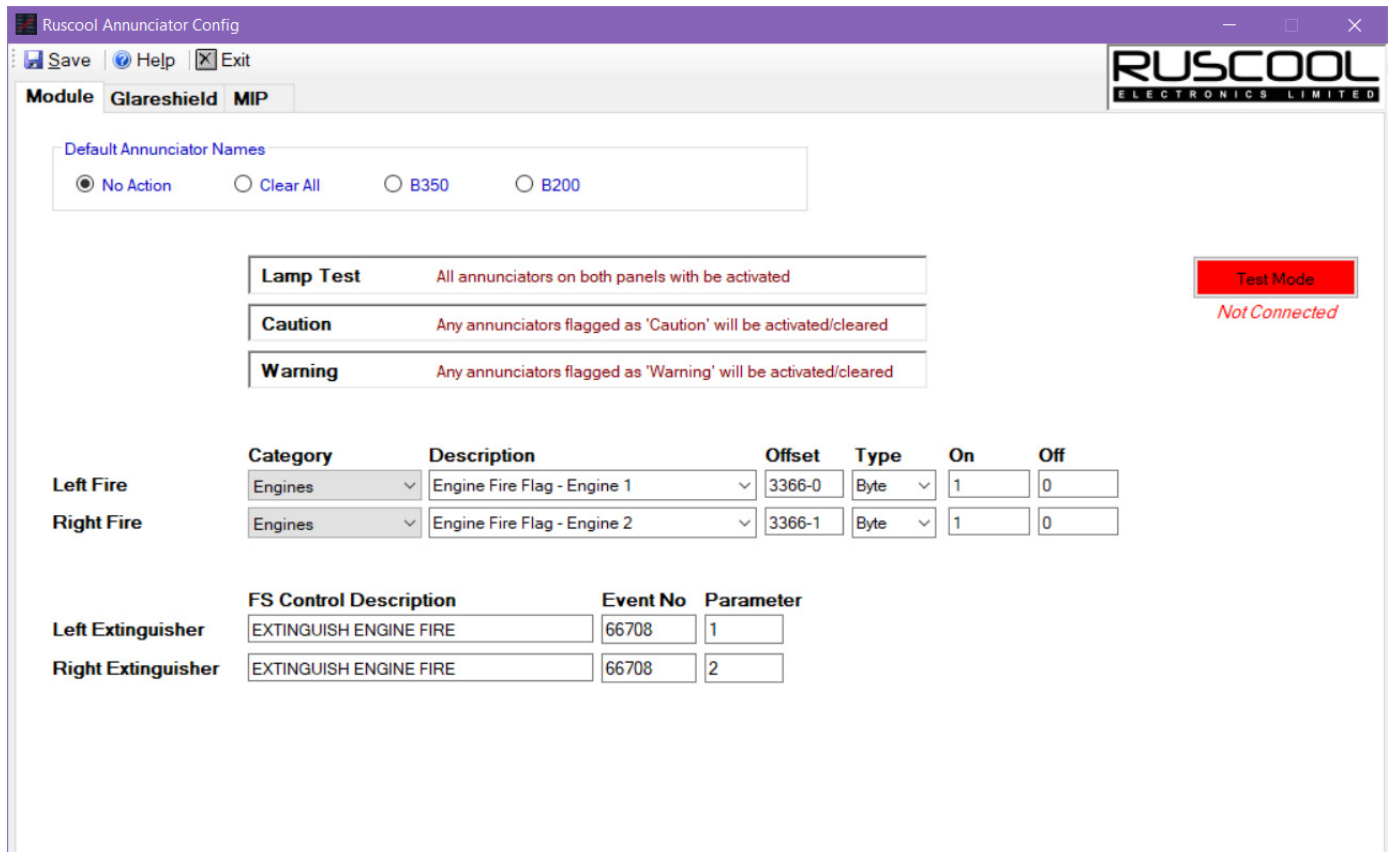
The Annunciator LEDs in the Overhead panel and the MIP panel are powered directly from the controller board which is powered by the 5 Volts from the USB cable. It is recommended that the Lamp Test facility is used only for a couple of seconds, because with all annunciators lit up, the current consumed may be close to the limit of the USB port. Older style USB ports are not able to supply high currents, so it is a good idea to use a Powered USB Hub.

The large additional Caution, Warning, and Fire / Extinguisher pushbutton indicators have 12 Volt lamps in them, so they need a separate power supply to enable them to operate. There is a 2 way screw terminal block on the controller board to allow this 12 volt power supply to be connected.

Module Setup

The 'Module' section contains some controller specific settings and initial setup.

The 'Default Annunciator Names' can be used the first time the configuration program is run to automatically enter the standard annunciator names. See ['Default Name Setup'](#) for full details



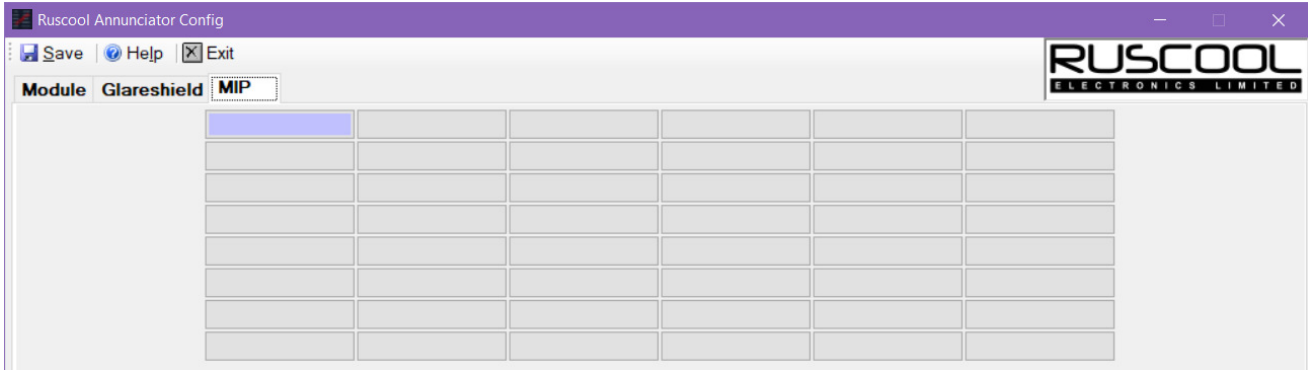
Clicking on 'Test Mode' will allow functionality of the annunciator LEDs to be tested. A button will appear next to the three options which can be clicked to test and clicked a second time to turn them off again.

- Lamp Test - will turn all off LEDs. *(It is recommended that the Lamp Test facility is used only for a couple of seconds, because with all annunciators lit up, the current consumed may be close to the limit of the USB port.)*
- Caution - will turn on any connected Master Caution LED buttons
- Warning - will turn on any connected Master Warning LED buttons

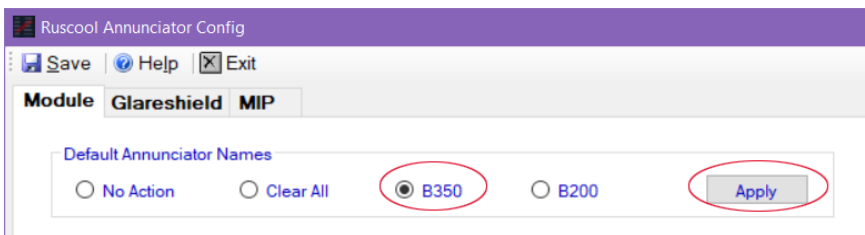
If Fire and Extinguisher LED pushbuttons are used, these can be connected and setup using FSUIPC Offsets and FS Control events (as shown in the example above).

Default Name Setup

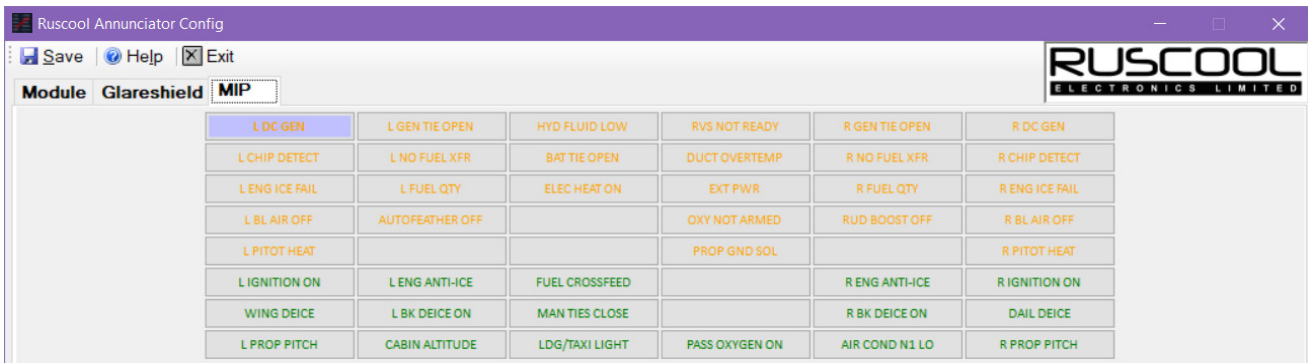
The first time the Ruscool Annunciator Config program is run, all of the annunciator names will be blank (as shown below)



If either a KingAir B350 or B200 is being used, click on the relevant 'Default Annunciator Names' selection and click on Apply.



Now when viewing the Glareshield and MIP tabs, the names are automatically entered.



These names can be amended, but the standard default names are set.

All of the annunciator default names can be cleared by selecting 'Clear All' and clicking Apply.

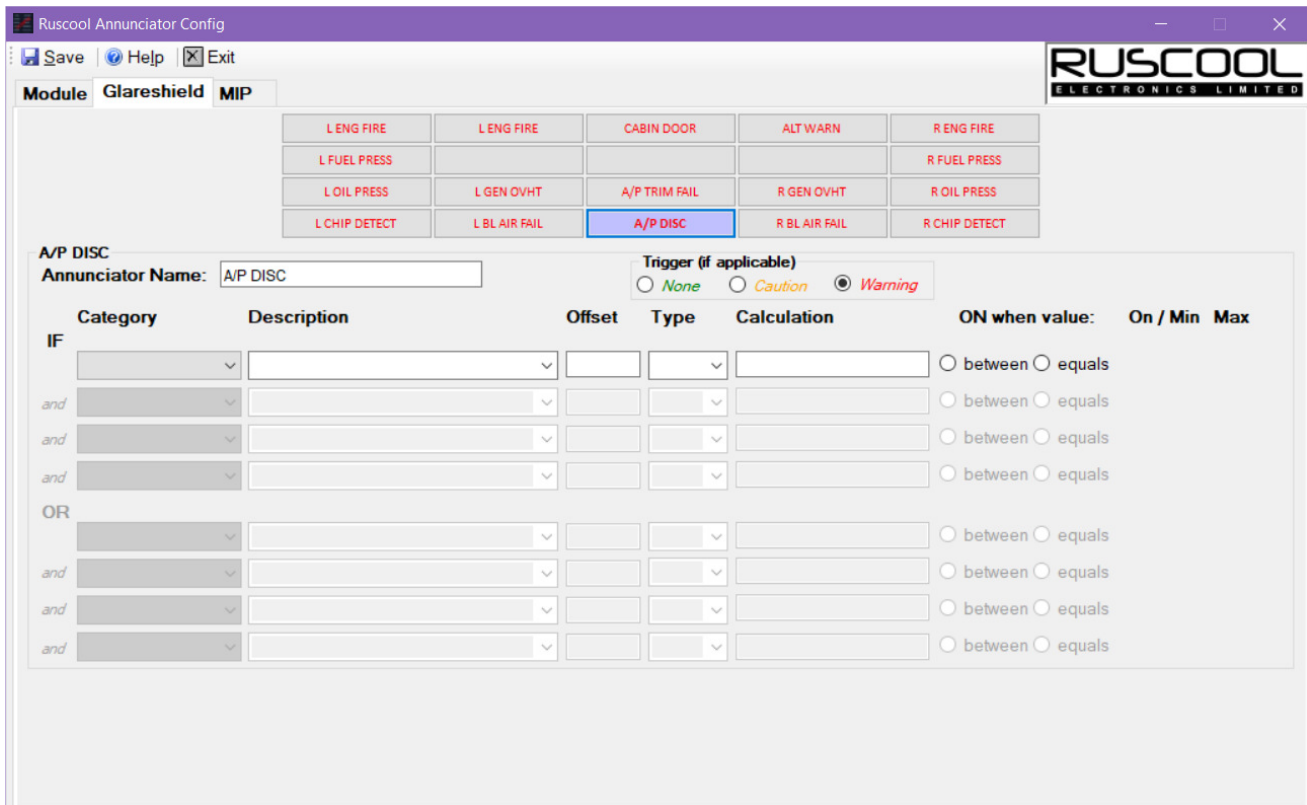
Note: if any names have been entered previously, they will be overwritten by applying any default names.

Glareshield Setup

Select the required annunciator button in the top section of the screen. This will show any information related to that annunciator.

If the default names have been filled in, this will appear in the 'Annunciator Name' field - this can be amended or entered as required. The 'Trigger' is automatically selected as WARNING for the Glareshield, but this can be changed if necessary.

The conditional setup is configured so that you can have a combination of conditions grouped together, and there is also an 'or' section that allows you to have one of two separate condition arguments implemented. See the ['Glareshield Examples'](#) section for further details



- Click on the “Category” drop-down and choose the item required. If you don't know which category the item is related to, you can choose (All). Selecting CUSTOM will allow you to enter your own offset details.
- Click on the “Description” drop-down and choose the item required. The program will show you the “Offset” as used by FSUIPC. You will notice that some FSUIPC offsets (ie. the different lights) have a suffix after the offset value, and this is automatically catered for in this system.

Where FSUIPC does a calculation on the data, this is shown in the "Calculation (if any)" column.

It is not necessary to use every output in each bank, so they can just be ignored if they are blank. However, if they have been previously configured and you now want them to be unused, you must select (None) from the Category drop-down.

Make sure either 'Equals' or 'Between' is selected and the relevant values are entered against each offset.

'Equals' option

If the item chosen has an ON / OFF function like the "POP SYNC ON" for instance, then click on the 'equals' button and the appropriate "1" (or relevant value) will pop up in the On/Min box. If this box is not filled in automatically, it is permissible to type in the appropriate information by hand.

You can reverse the function of the 'equals' conditions by changing the "1" to a "0". (The same applies to any other value pairing)

When you choose to use an 'equals' function, the annunciator will go On at the number typed into the box, otherwise it is off.

'Between' option

You can click on the 'between' button and then type values in the On/Min and Max boxes (like for Gear Positions below).

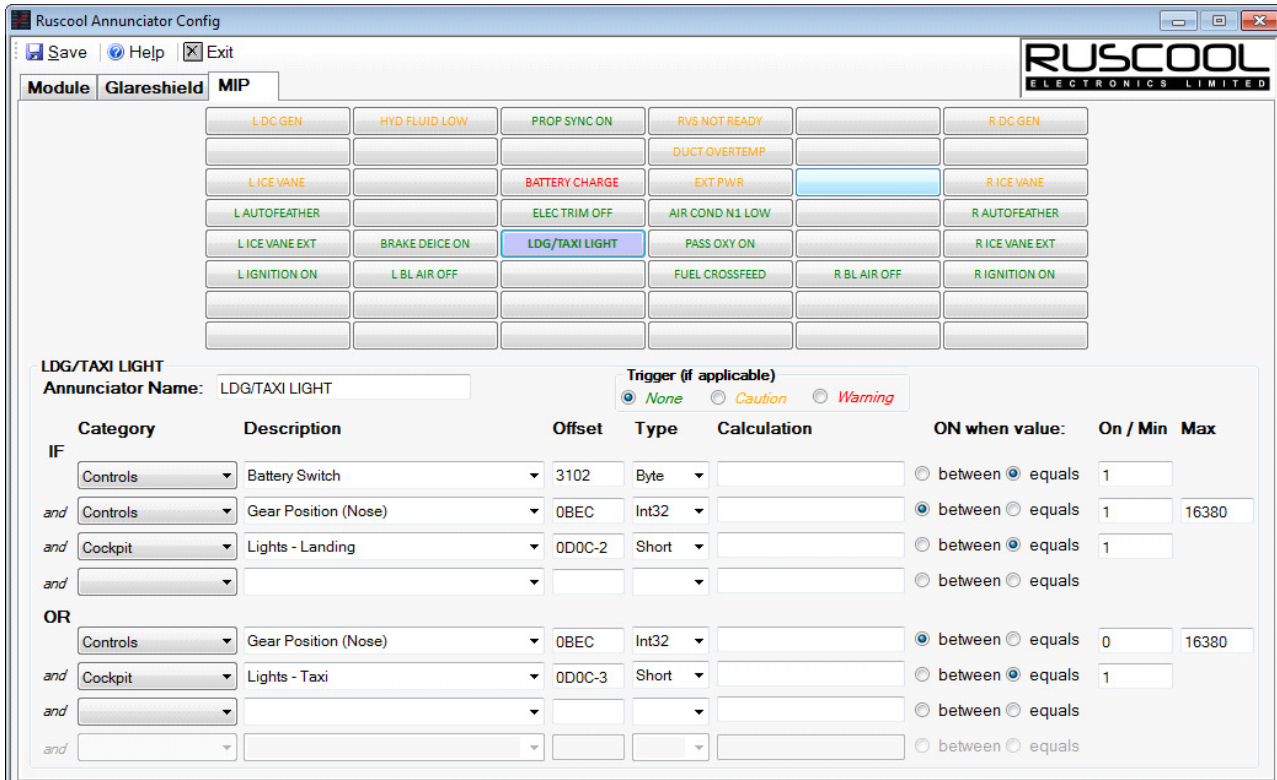
When you choose to use an 'between' function, the annunciator will go On when the value is between the entered values, otherwise it is off.

For instance, if you need to activate the annunciator for the left engine oil pressure failure, you would choose "Between" and use Min set to 0 and set a Max of 40. This means that any oil pressure below 40 will activate the annunciator. (ie Between 0 and 40)

In a similar manner, if you wanted to activate an annunciator for low voltage from the Generator / Alternator, you would use the "Between" function and set Min as 0 and Max as 22. This means any voltage lower than 22 will activate the annunciator.

Because you don't want annunciators to be active when the Battery switch is OFF, you can use this as the first line of most configurations :

IF Controls Battery Switch 3102 Byte Equals 1



Glareshield Examples

Ruscool Annunciator Config

Save Help Exit

Module Glareshield MIP

RUSCOOL
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L ENG FIRE	L ENG FIRE	CABIN DOOR	ALT WARN	R ENG FIRE
L FUEL PRESS				R FUEL PRESS
L OIL PRESS	L GEN OVHT	A/P TRIM FAIL	R GEN OVHT	R OIL PRESS
L CHIP DETECT	L BL AIR FAIL	A/P DISC	R BL AIR FAIL	R CHIP DETECT

CABIN DOOR
Annunciator Name: CABIN DOOR

Trigger (if applicable)
 None Caution Warning

Category	Description	Offset	Type	Calculation	ON when value:	On / Min	Max
IF							
Controls	Battery Switch	3102	Byte		between <input checked="" type="radio"/> equals	1	
and	Plane	Doors Open Flag - Exit 1	3367-0	Byte		between <input checked="" type="radio"/> equals	1
and					between <input type="radio"/> equals		
and					between <input type="radio"/> equals		
OR							
Plane	Doors Open Flag - Exit 2	3367-1	Byte		between <input checked="" type="radio"/> equals	1	
and	Plane	Doors Open Flag - Exit 3	3367-2	Byte		between <input checked="" type="radio"/> equals	1
and	Plane	Doors Open Flag - Exit 4	3367-3	Byte		between <input checked="" type="radio"/> equals	1
and					between <input type="radio"/> equals		

Ruscool Annunciator Config

Save Help Exit

Module Glareshield MIP

RUSCOOL
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L ENG FIRE	L ENG FIRE	CABIN DOOR	ALT WARN	R ENG FIRE
L FUEL PRESS				R FUEL PRESS
L OIL PRESS	L GEN OVHT	A/P TRIM FAIL	R GEN OVHT	R OIL PRESS
L CHIP DETECT	L BL AIR FAIL	A/P DISC	R BL AIR FAIL	R CHIP DETECT

L OIL PRESS
Annunciator Name: L OIL PRESS

Trigger (if applicable)
 None Caution Warning

Category	Description	Offset	Type	Calculation	ON when value:	On / Min	Max
IF							
Controls	Battery Switch	3102	Byte		between <input checked="" type="radio"/> equals	1	
and	Engines	Engine 1 Oil Pressure	08BA	Short	*55/16384	between <input checked="" type="radio"/> equals	0 40
and					between <input type="radio"/> equals		
and					between <input type="radio"/> equals		
OR							
					between <input type="radio"/> equals		
and					between <input type="radio"/> equals		
and					between <input type="radio"/> equals		
and					between <input type="radio"/> equals		

You can read this setup as "If the Battery Switch is ON, and Engine 1 Oil Pressure is below 40, turn on the annunciator."

Ruscool Annunciator Config

Save Help Exit

Module **Glareshield** MIP

RUSCOOL
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L ENG FIRE	INVERTER	CABIN DOOR	ALT WARN	R ENG FIRE
L FUEL PRESS				R FUEL PRESS
L OIL PRESS	L GEN OVHT	A/P TRIM FAIL	R GEN OVHT	R OIL PRESS
L CHIP DETECT	L BL AIR FAIL	A/P DISC	R BL AIR FAIL	R CHIP DETECT

L ENG FIRE
Annunciator Name: L ENG FIRE

Trigger (if applicable)
 None Caution Warning

Category	Description	Offset	Type	Calculation	ON when value:	On / Min	Max	
IF	Controls	Battery Switch	3102	Byte		<input type="radio"/> between <input checked="" type="radio"/> equals	1	
and	Engines	Engine Fire Flag - Engine 1	3366-0	Byte		<input type="radio"/> between <input checked="" type="radio"/> equals	1	
and						<input type="radio"/> between <input type="radio"/> equals		
and						<input type="radio"/> between <input type="radio"/> equals		
OR						<input type="radio"/> between <input type="radio"/> equals		
and						<input type="radio"/> between <input type="radio"/> equals		
and						<input type="radio"/> between <input type="radio"/> equals		
and						<input type="radio"/> between <input type="radio"/> equals		

Ruscool Annunciator Config

Save Help Exit

Module **Glareshield** MIP

RUSCOOL
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L ENG FIRE	INVERTER	CABIN DOOR	ALT WARN	R ENG FIRE
L FUEL PRESS				R FUEL PRESS
L OIL PRESS	L GEN OVHT	A/P TRIM FAIL	R GEN OVHT	R OIL PRESS
L CHIP DETECT	L BL AIR FAIL	A/P DISC	R BL AIR FAIL	R CHIP DETECT

L FUEL PRESS
Annunciator Name: L FUEL PRESS

Trigger (if applicable)
 None Caution Warning

Category	Description	Offset	Type	Calculation	ON when value:	On / Min	Max	
IF	Controls	Battery Switch	3102	Byte		<input type="radio"/> between <input checked="" type="radio"/> equals	1	
and	Engines	Engine 1 Fuel Pressure	08F8	Int32	/144	<input checked="" type="radio"/> between <input type="radio"/> equals	0	10
and						<input type="radio"/> between <input type="radio"/> equals		
and						<input type="radio"/> between <input type="radio"/> equals		
OR						<input type="radio"/> between <input type="radio"/> equals		
and						<input type="radio"/> between <input type="radio"/> equals		
and						<input type="radio"/> between <input type="radio"/> equals		
and						<input type="radio"/> between <input type="radio"/> equals		

Ruscool Annunciator Config

Save Help Exit

Module Glareshield MIP

RUSCOOL
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L ENG FIRE	INVERTER	CABIN DOOR	ALT WARN	R ENG FIRE
L FUEL PRESS				R FUEL PRESS
L OIL PRESS	L GEN OVHT	A/P TRIM FAIL	R GEN OVHT	R OIL PRESS
L CHIP DETECT	L BL AIR FAIL	A/P DISC	R BL AIR FAIL	R CHIP DETECT

L BL AIR FAIL
Annunciator Name: L BL AIR FAIL

Trigger (if applicable)
 None Caution Warning

Category	Description	Offset	Type	Calculation	ON when value:	On / Min	Max
IF							
Controls	Battery Switch	3102	Byte		<input type="radio"/> between <input checked="" type="radio"/> equals	1	
and	Engines	Turbine Engine 1 Bleed Air PSI	206C	Double	<input checked="" type="radio"/> between <input type="radio"/> equals	0	40
and					<input type="radio"/> between <input type="radio"/> equals		
and					<input type="radio"/> between <input type="radio"/> equals		
OR					<input type="radio"/> between <input type="radio"/> equals		
and					<input type="radio"/> between <input type="radio"/> equals		
and					<input type="radio"/> between <input type="radio"/> equals		
and					<input type="radio"/> between <input type="radio"/> equals		

MIP Setup

Select the required annunciator button in the top section of the screen. This will show any information related to that annunciator.

If the default names have been filled in, this will appear in the 'Annunciator Name' field and the 'Trigger' will be selected accordingly - this can be amended or entered as required. The 'Trigger' can be selected as None, Caution or Warning (normally the MIP annunciators are either None or Caution).

The conditional setup is configured so that you can have a combination of conditions grouped together, and there is also an 'or' section that allows you to have one of two separate condition arguments implemented. See the ['MIP Examples'](#) section for further details

Ruscool Annunciator Config

Save Help Exit

Module Glareshield **MIP**

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L DC GEN	L GEN TIE OPEN	HYD FLUID LOW	RVS NOT READY	R GEN TIE OPEN	R DC GEN
L CHIP DETECT	L NO FUEL XFR	BAT TIE OPEN	DUCT OVERTEMP	R NO FUEL XFR	R CHIP DETECT
L ENG ICE FAIL	L FUEL QTY	ELEC HEAT ON	EXT PWR	R FUEL QTY	R ENG ICE FAIL
L BL AIR OFF	AUTOFEATHER OFF		OXY NOT ARMED	RUD BOOST OFF	R BL AIR OFF
L PITOT HEAT			PROP GND SOL		R PITOT HEAT
L IGNITION ON	L ENG ANTI-ICE	FUEL CROSSFEED		R ENG ANTI-ICE	R IGNITION ON
WING DEICE	L BK DEICE ON	MAN TIES CLOSE		R BK DEICE ON	DAIL DEICE
L PROP PITCH	CABIN ALTITUDE	LDG/TAXI LIGHT	PASS OXYGEN ON	AIR COND N1 LO	R PROP PITCH

L DC GEN

Annunciator Name: L DC GEN

Trigger (if applicable)
 None Caution Warning

Category	Description	Offset	Type	Calculation	ON when value:	On / Min	Max
IF					<input type="radio"/> between <input type="radio"/> equals		
and					<input type="radio"/> between <input type="radio"/> equals		
and					<input type="radio"/> between <input type="radio"/> equals		
and					<input type="radio"/> between <input type="radio"/> equals		
OR					<input type="radio"/> between <input type="radio"/> equals		
and					<input type="radio"/> between <input type="radio"/> equals		
and					<input type="radio"/> between <input type="radio"/> equals		
and					<input type="radio"/> between <input type="radio"/> equals		

MIP Examples

Ruscool Annunciator Config

Save Help Exit

Module Glareshield **MIP**

RUSCOOL
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L DC GEN	HYD FLUID LOW	PROP SYNC ON	RVS NOT READY		R DC GEN
			DUCT OVERTEMP		
L ICE VANE		BATTERY CHARGE	EXT PWR		R ICE VANE
L AUTOFEATHER		ELEC TRIM OFF	AIR COND N1 LOW		R AUTOFEATHER
L ICE VANE EXT	BRAKE DEICE ON	LDG/TAXI LIGHT	PASS OXY ON		R ICE VANE EXT
L IGNITION ON	L BL AIR OFF		FUEL CROSSFEED	R BL AIR OFF	R IGNITION ON
		L DC GEN			

Annunciator Name: L DC GEN

Trigger (if applicable)
 None Caution Warning

Category	Description	Offset	Type	Calculation	ON when value:	On / Min	Max	
IF								
Controls	Battery Switch	3102	Byte		<input type="radio"/> between <input checked="" type="radio"/> equals	1		
and	Cockpit	Engine 1 General Generator Switch	3B78	Int32		<input type="radio"/> between <input checked="" type="radio"/> equals	1	
and	Cockpit	Generator Alternator 1 Bus Voltage	2880	Double		<input checked="" type="radio"/> between <input type="radio"/> equals	0	22
and					<input type="radio"/> between <input type="radio"/> equals			
OR								
					<input type="radio"/> between <input type="radio"/> equals			
and					<input type="radio"/> between <input type="radio"/> equals			
and					<input type="radio"/> between <input type="radio"/> equals			
and					<input type="radio"/> between <input type="radio"/> equals			

Ruscool Annunciator Config

Save Help Exit

Module Glareshield **MIP**

RUSCOOL
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L DC GEN	HYD FLUID LOW	PROP SYNC ON	RVS NOT READY		R DC GEN
			DUCT OVERTEMP		
L ICE VANE		BATTERY CHARGE	EXT PWR		R ICE VANE
L AUTOFEATHER		ELEC TRIM OFF	AIR COND N1 LOW		R AUTOFEATHER
L ICE VANE EXT	BRAKE DEICE ON	LDG/TAXI LIGHT	PASS OXY ON		R ICE VANE EXT
L IGNITION ON	L BL AIR OFF		FUEL CROSSFEED	R BL AIR OFF	R IGNITION ON

R IGNITION ON

Annunciator Name: R IGNITION ON

Trigger (if applicable)
 None Caution Warning

Category	Description	Offset	Type	Calculation	ON when value:	On / Min	Max	
IF								
Controls	Battery Switch	3102	Byte		<input type="radio"/> between <input checked="" type="radio"/> equals	1		
and	Engines	Engine 2 Starter Switch Position	092A	Short		<input type="radio"/> between <input checked="" type="radio"/> equals	1	
and					<input type="radio"/> between <input type="radio"/> equals			
and					<input type="radio"/> between <input type="radio"/> equals			
OR								
					<input type="radio"/> between <input type="radio"/> equals			
and					<input type="radio"/> between <input type="radio"/> equals			
and					<input type="radio"/> between <input type="radio"/> equals			
and					<input type="radio"/> between <input type="radio"/> equals			

Ruscool Annunciator Config

Save Help Exit

Module Glareshield MIP

RUSCOOL
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L DC GEN	HYD FLUID LOW	PROP SYNC ON	RVS NOT READY		R DC GEN
			DUCT OVERTEMP		
L ICE VANE		BATTERY CHARGE	EXT PWR		R ICE VANE
L AUTOFEATHER		ELEC TRIM OFF	AIR COND N1 LOW		R AUTOFEATHER
L ICE VANE EXT	BRAKE DEICE ON	LDG/TAXI LIGHT	PASS OXY ON		R ICE VANE EXT
L IGNITION ON	L BL AIR OFF		FUEL CROSSFEED	R BL AIR OFF	R IGNITION ON

LDG/TAXI LIGHT

Annunciator Name: LDG/TAXI LIGHT

Trigger (if applicable)
 None Caution Warning

Category	Description	Offset	Type	Calculation	ON when value:	On / Min	Max
IF							
Controls	Battery Switch	3102	Byte		<input type="radio"/> between <input checked="" type="radio"/> equals	1	
and	Controls	Gear Position (Nose)	0BEC	Int32	<input checked="" type="radio"/> between <input type="radio"/> equals	1	16380
and	Cockpit	Lights - Landing	0D0C-2	Short	<input type="radio"/> between <input checked="" type="radio"/> equals	1	
and					<input type="radio"/> between <input type="radio"/> equals		
OR							
Controls	Gear Position (Nose)	0BEC	Int32		<input checked="" type="radio"/> between <input type="radio"/> equals	0	16380
and	Cockpit	Lights - Taxi	0D0C-3	Short	<input type="radio"/> between <input checked="" type="radio"/> equals	1	
and					<input type="radio"/> between <input type="radio"/> equals		
and					<input type="radio"/> between <input type="radio"/> equals		

Because there is a light in the nose gear of many King Air aircraft, it is useful to have a warning annunciator to tell you that the Landing or Taxi light is still ON when the landing gear is retracted.

The example above effectively says :

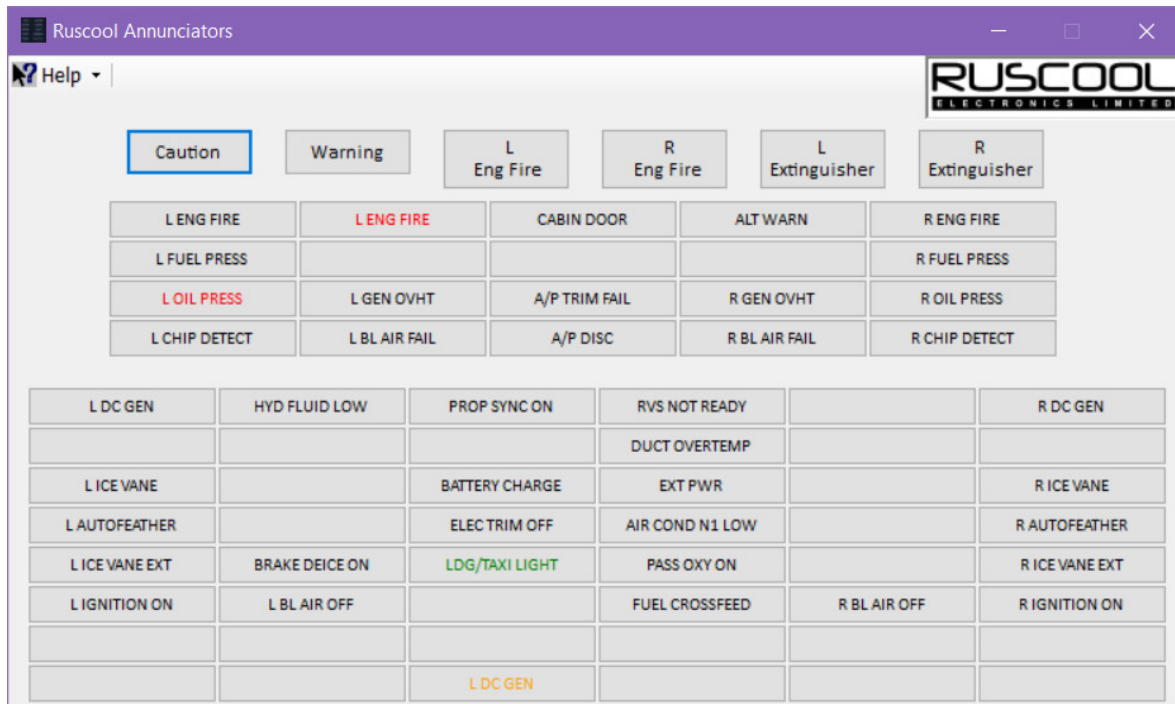
If the Battery Switch is ON, and the landing gear in anywhere in the retracting / retracted state (ie between 1 and 16380) and the Landing Lights or Taxi Lights are ON, then activate the LDG/TAXI LIGHT annunciator.

Note : Gear down and locked has a value of 16383

Main Annunciator Program

The main 'Ruscool Annunciators' program will start minimised and wait for the Flight Simulator software to start, so it can be running prior to the simulator being started.

If necessary, the program can be maximised and will show the annunciators that are triggered.



When closing Flight Simulator, the following message will appear allowing the 'Ruscool Annunciator' program to close smoothly.

