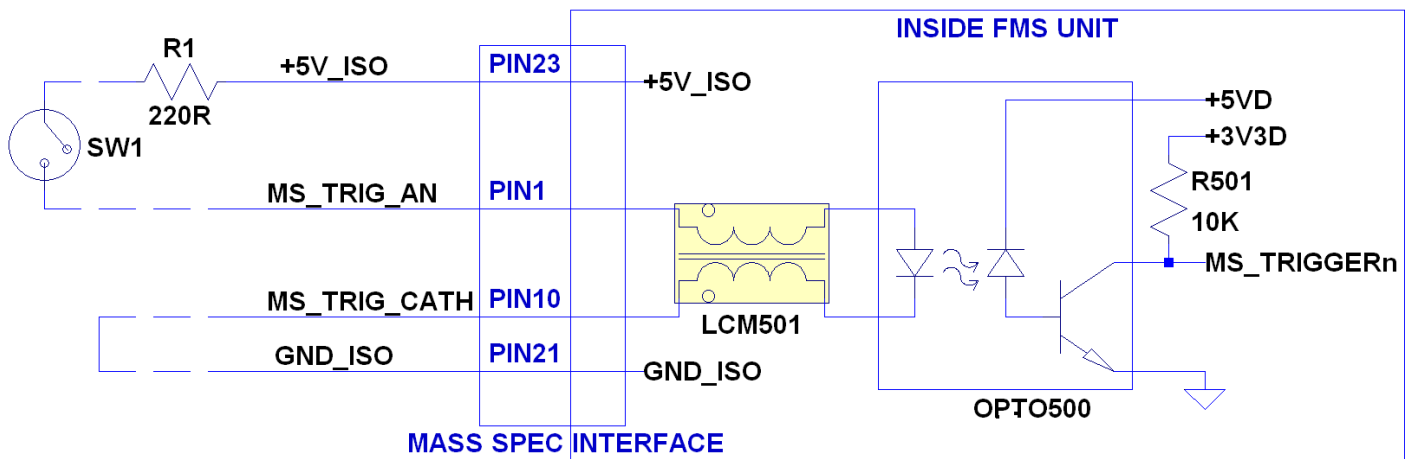


Owlstone UltraFAIMS- External Triggering using the MS Interface port

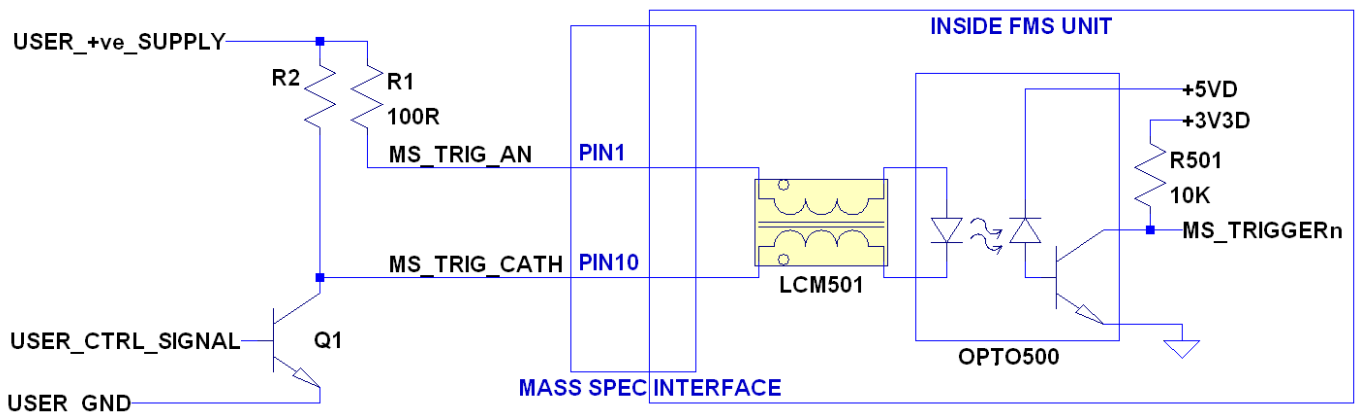
The MS interface presented to the user on the ultraFAIMS control unit casework is an optically isolated communications port containing 7 digital inputs and 3 digital outputs.

One of these digital inputs is known as the trigger line.

In order to cause a trigger condition the LED inside the opto-isolator must be driven correctly with a supply current of ~15mA. Two methods of providing this function can be seen below:



The first is by using a switch or relay contact in position SW1. R1 must be included in any setup to drop the required voltage for the LED to ~1.7Vdc and to limit the LED current to ~15mA. A cable drawing for a suitable solution can be found on the next page.



The second option is to use a digital signal driven by a device capable of sinking or sourcing the required 15mA such as an open collector inverter or buffer.

R2 is dependent on the selection of Q1.

Applying a positive signal to turn Q1 on will cause the MS_TRIGGERn line to fall resulting in a trigger condition.

1	2	3	4	5	6																									
Item No.	Qty	Description	Manufacturer & P.N.	Owlstone P.N.	13-0165 - UltraFAIMS MS Trigger Cable <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Revision</th> <th>Date</th> <th>Initials</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>AAA</td> <td>18/06/2012</td> <td>AN</td> <td>Released Cable Drawing.</td> </tr> <tr> <td>AAB</td> <td>05/07/2013</td> <td>AN</td> <td>Updated drawing to new style. Project changed to AFMS. Renamed cable. Improved pinout table to remove possible misinterpretation.</td> </tr> <tr> <td>001</td> <td>11/10/2013</td> <td>DC</td> <td>Moved to CC</td> </tr> <tr> <td>002</td> <td>07/11/2013</td> <td>AN</td> <td>Corrected drawing name to FMS.</td> </tr> <tr> <td>003</td> <td>13/12/2017</td> <td>AP</td> <td>Correct Desc Item 1, correct Owl PN Item2, add items 8,9 (cable Idents), change FMS to UltraFAIMS in title, add correct qty's</td> </tr> </tbody> </table>		Revision	Date	Initials	Comments	AAA	18/06/2012	AN	Released Cable Drawing.	AAB	05/07/2013	AN	Updated drawing to new style. Project changed to AFMS. Renamed cable. Improved pinout table to remove possible misinterpretation.	001	11/10/2013	DC	Moved to CC	002	07/11/2013	AN	Corrected drawing name to FMS.	003	13/12/2017	AP	Correct Desc Item 1, correct Owl PN Item2, add items 8,9 (cable Idents), change FMS to UltraFAIMS in title, add correct qty's
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1	0.067	Cable, 28AWG, 1pair, 4.70 OD, XGF, Supra shield, roll 30m	Alphawire - 86401CY	14-0390																										
2	1	Plug, D-Type, 26 way, High Density, HDP-22	TE connectivity - 1658671-1	14-0342																										
3	4	Crimp Pin, 22-28 AWG, 5A, HDP-22	TE connectivity - 1658670-2	14-0343																										
4	1	Backshell, Straight, D-type, Die-cast, Nickel plated, 15way	TE connectivity - 1-1478782-5	14-0324																										
5	1	Resistor, 220R Through Hole 1/4W	TE Connectivity / NEOHM - CBT25J220R	15-0077																										
6	0.0025	Heatshrink, dia 1.5mm, 3:1 shrink ratio, black, HIS-3, 10m	Hellemann Tyton - 308-30150	14-0090																										
7	0.004	Heatshrink, dia 6.0mm, 3:1 shrink ratio, black, adhesive, HIS-A, 5m	Hellemann Tyton - 308-10800	14-0363																										
8	1	Wrap around cable ident "13-0165-003"	Supplied by cable manufacturer	N/A																										
9	1	Wrap around cable ident with name of manufacturer	Supplied by cable manufacturer	N/A																										

NOTE: Item 4 is a shell for items 2 & 3 and should be fitted last
 NOTE: The screen of item 1 must be connected to item 4 as per the manufacturer instructions of item 4
 NOTE: Use an off cut of item 1 to make the connection between pins 10 & 21 of item 3
 NOTE: Item 6 should be used to cover the solder connection.

Connector A	Wire Colour	Signal	Connector A	Wire Colour	Signal
1	Black	MS_TRIG_AN	14	N/C	MS_RESET_CATH
2	N/C	MS_ABT_LN_AN	15	N/C	MS_RX_CATH
3	N/C	MS_POL_AN	16	N/C	MS_TX_CATH
4	N/C	MS_ABT_SCAN_AN	17	N/C	MS_READY_CATH
5	N/C	MS_RESET_AN	18	N/C	MS_RAMP_ACT_CATH
6	N/C	MS_RX_AN	19	N/C	N/C
7	N/C	MS_TX_AN	20	N/C	N/C
8	N/C	MS_READY_AN	21	Black - Link	GND
9	N/C	MS_RAMP_ACT_AN	22	N/C	N/C
10	Black - Link	MS_TRIG_CATH	23	Item 5	+5V(D)
11	N/C	MS_ABT_LN_CATH	24	N/C	N/C
12	N/C	MS_POL_CATH	25	N/C	MS_SP_I2_AN
13	N/C	MS_ABT_SCAN_CATH	26	N/C	MS_SP_I2_CATH

 © Owlstone Ltd. 2004-2018	Drawing: 13-0165 - UltraFAIMS MS Trigger Cable	
	Project: AFM	Part Number: 13-0165
	Drawn By: AN	Revision: 003
	Modified: 14/12/2017	Checked By (ELEC): RO 14 Dec 17
	Sheet: 1 of 1	Checked By (MANU):GN 14 Dec 17