# **Technical Handbook**





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Searchline Excel Plastic Functional Test Filters – Open Path

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## Searchline Excel: Plastic Functional Test Filters - Open Path

These filters have been specifically designed to work with open path Excel units of Mod state 7 (or higher).

Testing of Mod state 6 (or lower) open path Excel units should continue to be performed using the original plastic test filters, with the results to be anticipated detailed in Issue 8/9 of the Technical Handbook, 2104M0506.

## Functional Testing of Open Path Searchline Excel Units

The procedure for testing Searchline Excel units using the kit of functional test filters is as follows:-

- 1. Ensure the area is free from gas.
- 2. Connect the SHC-1 Handheld Interrogator to the unit to be tested.
- 3. Select DISPLAY from the Calibration menu.
- 4. Slide a suitable functional test filter (see tables below) into the cowling at the front of the receiver.

Excel Receivers Mod States 0 to 6 Part numbers 2104B2113, 2104B2133, 2104B2153, 2104B2114, 2104B2134, 2104B2154, 2104B3103, 2104B3113, 2104B3123, 2104B3104, 2104B3114, 2104B3124, 2104B3303, 2104B3313, 2104B3323, 2104B3304, 2104B3314, and 2104B3324 and all Excel Receivers at Mod State 7 or Higher

Receiver Gas Calibration	Low Test Filter	Response	High Test Filter	Response
Methane	C or D	0.5 – 1.1 LEL.m	F	1.5 – 2.8 LEL.m
Ethane	C or D	0.6 – 1.3 LEL.m	F	1.5 – 2.7 LEL.m
Propane	B or C	0.5 – 1.2 LEL.m	F	1.6 – 2.9 LEL.m
Butane	B or C	0.6– 1.4 LEL.m	E	1.4 – 2.9 LEL.m
Pentane	A	0.6 – 1.1 LEL.m	D	1.2 – 2.2 LEL.m
Hexane	B or C	0.6 – 1.5 LEL.m	E	1.4 – 3.0 LEL.m
Ethylene	B or C	0.5 – 1.3 LEL.m	F	1.8 – 3.4 LEL.m
Propylene	А	0.5 – 1.0 LEL.m	D	1.0 – 1.9 LEL.m
Butadiene	A	0.5 – 1.0 LEL.m	D	1.0 – 1.9 LEL.m
Methanol	D	0.5 – 0.9 LEL.m	E	1.0 – 2.2 LEL.m
Ethanol	B or C	0.6 – 1.4 LEL.m	E	1.5 – 3.1 LEL.m

Excel Receivers Mod States 0 to 6 Part numbers 2104B2111, 2104B2131, 2104B2151, 2104B2112, 2104B2132, 2104B2152, 2104B3101, 2104B3111, 2104B3121, 2110B3102, 2110B3112, 2110B3122, 2104B3301, 2104B3311, 2104B3321, 2104B3302, 2104B3312 and 2104B3322

Receiver Gas Calibration	Low Test Filter	Response	High Test Filter	Response
Methane	A or B	0.5 – 1.2 LEL.m	D or E	1.0 – 3.3 LEL.m
Ethane	B or C	0.5 – 1.1 LEL.m	E or F	1.1 – 2.7 LEL.m
Propane	B or C	0.5 – 1.1 LEL.m	E or F	1.1 – 2.8 LEL.m
Butane	A or B	0.5 – 1.2 LEL.m	E	1.6 – 2.9 LEL.m
Pentane	A or B	0.5 – 1.2 LEL.m	E	1.6 – 3.0 LEL.m
Hexane	A or B	0.5 – 1.4 LEL.m	D or E	1.1 – 3.3 LEL.m

5. If this is the first time that the unit has been tested with this particular test filter, record the gas reading that is produced. This reading should be used to verify correct operation in the future.

- 6. If this is not the first time that the unit has been tested with this particular filter, note the gas reading it produces and compare it to the original value recorded for this unit when tested with this filter. Provided that the reading is within ±0.5 LEL.m of the original value, the unit is working correctly. If the unit is working correctly, proceed to step 13.
- 7. If the gas reading is not within the expected range it is possible that the unit needs cleaning or re-zeroing.
- 8. Remove the test filter from the cowling.
- 9. Using a damp, lint-free cloth, clean the windows of the transmitter and the receiver.
- 10. Using the SHC-1 in CALIBRATE menu, re-zero the unit.
- 11. Re-insert the chosen test filter into the cowling in front of the receiver.
- 12. Verify that the reading produced by the test filter is now within ±0.5 LEL.m of the reading originally obtained with this filter. If the gas reading is still not within the expected range, check the system alignment (see section 3 of the Excel manual, 2104M0506) and repeat the test in step 6.
- 13. Remove the test filter from the cowling.
- 14. Release the unit under test from INHIBIT by selecting the MAIN menu option.
- 15. Disconnect the SHC-1 Handheld from the unit being tested.