Questions about the FS9952_LP1 and the proposed oximeter design.

1   Is there security of supply of this chip for, say, the next 10 years? Chips need to be supplied to Viamed for service repairs.

2   The chip can be software programmed (Section III User Development Function). Who will do this to our requirements, at what cost, using what development tools and who will own the firmware?

3   The chip must work in manual 200mV mode not auto-ranging mode. MEA0 – MEA4 and SELECT1 appear to do this, is this correct? The decimal point must not move as the signal level changes.

4   If a standard 3½ digit LCD is not used, the "mV" symbol must be suppressed.

5   The low battery symbol is required.

6   What height are the LCD digits – the current VN202 digits are 10mm high?

7   No backlight function is required.

8   What is the cost of the FS9952_LP1 plus LCD at 500 off, please?

9   How often will the Calibration pot, VR?, need resetting?

10   Should R12 be 10k Ohm and not 1k Ohm?

11   It is a requirement that the auto-OFF circuit can be disabled by a factory fitted link, giving two versions of the product - auto-OFF and non auto-OFF.

12   The 15-minute auto-OFF mode should be disabled by default. A one minute auto-OFF period is required.

13   The 74HC74 circuit doesn't appear to work – please see the attached drawing. An alternative design, using a 4013, is attached. This circuit can be switched ON/OFF by a momentary switch and will auto switch OFF after about 1 minute.

14   The instrument must not give negative readings.

15   Some CMOS inputs have been left floating – all CMOS inputs must be tied high or low.

16   Who owns the hardware design?

17   What prevents a competitor from being allowed to "badge engineer" the design in competition with Viamed's product?

Peter Anderson
27th May 2004

Please kindly find the reply as following for the question form Peter Anderson

1. The security of the chip supply. It seems not possible of the supplier can continuously supply the chip for ten years, The chip is built by a fabless design house in Taiwan, If the performance is good for this project, a reasonable stock can be kept for long time service.

2. Software programmability. The current chip is a mask version MCU and dedicate for DMM application, changing the existing code is impossible for us to do so. Only the original designer has the authority to customize the code for specified application. We will clarify with our vender later.

3. Auto / manual mode. It is my understanding that It is in auto-ranging mode when power on, It will switch to manual mode when range key be pressed once. (Datasheet Page 12..1) , Is it possible to enter the manual mode when started?   I have to clarify with the vender.

4. "mV" symbol elimination,   Sure , I suppose to customize a LCD panel for this product.

5. LCD issue. Same as item 4

6. LCD issue. Same as item 4 , The LCD size is depend on the industrial design, We agree the bigger the best.

7. Noted and will eliminate the backlight.

8. The price. We are still waiting for the quotation form vender.

9. Calibration issue. I believe the internal reference should not be change in it's life time after calibrated in factory. But you may need to calibrate once a year if you claim it is a kind of testing equipment. We can state it in the user manual.

10. The value of R12, I must clarify it with the vender, It is 1 K in the Chinese datasheet but 10K in English one.

11. Disable or shorten the auto-off time period. As the internal program is masked by the original designer, we may not have the ability to change the default setting, That is why we keep the switch on/ switch off/ auto off circuit externally.

12. One minute auto-off feature, same as above

13. The external power control circuit. Thanks for your comment. We will change the circuit as you designed

14. Negative reading, It is the internal features of the DMM, We may not have the ability to modify it. But if we eliminate the minus symbol in the customize LCD, the user will not know if it is a negative reading or not.

15. CMOS floating, Thanks for your reminder.