



Aqib Majeed &lt;viamed.aqib.majeed@gmail.com&gt;

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**Fwd: Update regarding the Non mag oxygen sensor**

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**Steve Nixon** <steve.nixon@vandagraphst.com>  
To: office@vmsecure.me.uk

29 February 2024 at 15:43

Please process a FOC VST order to Michael Holm at MURO-CCR

2 x 8010054 Oxygen Sensor - JJ-CCR NM £0.00

[Add note:](#)

Prototype sensor samples, supplied for R&D engineering assessment only.

Sensors are of no commercial value.

Value for customs purposes only: GBP £10.00

1 x PPUPS8 Courier delivery - Express £0.00

Steve

----- Forwarded message -----

From: **JJ-CCR** <[jp@jj-ccr.com](mailto:jp@jj-ccr.com)>

Date: Thu, 29 Feb 2024 at 15:04

Subject: Re: Update regarding the Non mag oxygen sensor

To: Steve Nixon <steve.nixon@vandagraphst.com>

Cc: Michael Holm <[mh@muro-ccr.com](mailto:mh@muro-ccr.com)>

Hi Steve.

Pleas send them as we will not be at the dive show this week, only the JJ-rebreather is there whit a few instructors.

Kind regards

**Jan Petersen**

**JJ-CCR ApS** · Dyrlevvej 11 · 4720 Presto · Denmark

Phone direct: +45 40108982

Email: [jp@jj-ccr.com](mailto:jp@jj-ccr.com)

Web: <https://jj-ccr.com>

Den 29. februar 2024 kl. 15.43.00 +01.00, skrev Steve Nixon <[steve.nixon@vandagraphst.com](mailto:steve.nixon@vandagraphst.com)>:

Hi Michael

We have made up two samples, do you want me to ship them to you?

Or if you are going to the DIVE exhibition on Saturday/Sunday, I could give them to you there.

Regards

Steve

On Wed, 7 Feb 2024 at 15:33, Michael Holm <[mh@muro-ccr.com](mailto:mh@muro-ccr.com)> wrote:

Hi Steve

Let's do so. :)

Kind regards  
**Michael Holm**

**MURO-CCR ApS** · Industrivej 15 · 8830 Tjele · Denmark  
Phone direct: +45 20847000

Email: [mh@muro-ccr.com](mailto:mh@muro-ccr.com)

Web: <https://muro-ccr.com>

Den 5. feb. 2024 kl. 22.06 skrev Steve Nixon <[viamedinbox@gmail.com](mailto:viamedinbox@gmail.com)>:

Hi Michael

If we send you one sample first, you can assess to see if all OK, then we can proceed with the development project.

Regards

Steve

On Mon, 5 Feb 2024 at 09:47, Michael Holm <[mh@muro-ccr.com](mailto:mh@muro-ccr.com)> wrote:

Hi Steve

I think it could be a good idea with a sample.

Will it be possible to have maybe 9 samples to make a full test in the rebreathers.

Kind regards

**Michael Holm**

**MURO-CCR ApS** · Industrivej 15 · 8830 Tjele · Denmark

Phone direct: +45 20847000

Email: [mh@muro-ccr.com](mailto:mh@muro-ccr.com)

Web: <https://muro-ccr.com>

Den 31. jan. 2024 kl. 19.13 skrev Steve Nixon <[viamedinbox@gmail.com](mailto:viamedinbox@gmail.com)>:

Hi Michael

The specified QA output range is 6.5mV - 9.0mV, so the output range in 100% will be between 31.03mV - 45.35mV, typical output being in the range of 38mV.

Do you want me to send you a sample sensor with the non-mag cable/connector?

Steve

On Wed, 31 Jan 2024 at 11:06, Michael Holm <[mh@muro-ccr.com](mailto:mh@muro-ccr.com)> wrote:

Hi Steve

Sorry I never replayed on this one.

Yes I need a sensor that is under 5nT.

The >10k should be no problem.

And yes I understand the price will be different than the traditional JJ sensor.

We have made one more test with the first prototype once you made and they still work perfect but is now only under 30mV.

The 30mV is the 100% oxygen output and what we need to let the computer make the calibration.

Kind regards

**Michael Holm**

**MURO-CCR Aps** · Industrivej 15 · 8830 Tjele · Denmark

Phone direct: +45 20847000

Email: [mh@muro-ccr.com](mailto:mh@muro-ccr.com)

Web: <https://muro-ccr.com>

Den 28. nov. 2023 kl. 18.49 skrev Steve Nixon <[office@viamed.co.uk](mailto:office@viamed.co.uk)>:

Hi Michael

We now have a reel of the custom made cable and some non-mag connectors.

So, you need a sensor that is <5nT. As previously discussed we have a sensor module that in principle meets this requirement, but we cannot offer any guarantees as we are unable to carry out production magnetic signature testing. However, we will use non mag (low mag) components: cathode, PCB, wiring...

Please note that the way only we can do this is with an output range of 6.5mV to 9.0mV. In principle these sensors are very linear and may offer a slightly longer sensor life.

<image.png>

Can you please confirm that the load will be >10K, which is the usual standard. I am querying this to be 100% sure, as I have found some rebreathers with <10K load which will affect sensor performance and sensor life.

Until we can finalize the design I cannot provide the sensor pricing, but with the specialized components it will be more expensive than the standard sensor. Are you OK with this?

Regards

Steve

On Tue, 28 Nov 2023 at 15:41, Michael Holm <[mh@muro-ccr.com](mailto:mh@muro-ccr.com)> wrote:

Hi Steve

Our conversation stopped a bit again. :)

I just run true my last text and it's really a bad communication from my side. Sorry.

Let's move on with the process.

We need to:

1) Obtain and test connector samples. These could take several weeks to be received, of course I will move forward with this.

**Completed, Radiall R114.186.197W tested and agreed.  
Connectors in stock**

2) Source non magnetic coax cable and test for suitability.

**Completed, awaiting delivery of a reel of cable  
for production.**

3) Provide specifications.

**To be based on the existing JJ-CCR sensor, but to replace  
the cable assembly with non mag version (non mag  
connector Radiall R114.186.197W, non mag coax cable).**

Output level is okay.

4) Generate new labelling.

**Can you please supply a copy of your company logo  
artwork and address details.**

**What model number do you want to assign to the sensor,  
the JJ-CCR standard sensor is R17JJ-CCR.**

**I have attached the specification datasheet of the R17JJ-CCR for your reference, please see page 4 for the labelling layout. I suggest that we prefix the serial number format with M for your Muro sensor.**

Serial number approved.

Part number 400400000010001

Part name Oxygen Sensors R17 MURO, can be changed

5) Provide pricing quotation for the sensors.

6) Build prototypes and carry out testing.

7) Sign off the specifications.

8) Sign off the labelling.

9) Sign off the approval of the sensor design and testing.

After the above, the production lead time from receipt of order will be approx. 6 weeks.

**How many sensors are you likely to order for the first production batch?**

A lot of factors have to be taken into account here. Shelf time and also usage time.  
If it's suitable for you I'll prefer 30 in the first batch.

Kind regards  
**Michael Holm**

**MURO-CCR ApS** · Industrivej 15 · 8830 Tjele · Denmark

Phone direct: +45 20847000

Email: [mh@muro-ccr.com](mailto:mh@muro-ccr.com)

Web: <https://muro-ccr.com>

Start på videresendt besked:

**Fra:** Michael Holm <[mh@muro-ccr.com](mailto:mh@muro-ccr.com)>

**Emne:** Vedr.: Update regarding the Non mag oxygen sensor

**Dato:** 12. oktober 2023 kl. 18.14.54 CEST

**Til:** [steve.nixon@vandagraphst.com](mailto:steve.nixon@vandagraphst.com)

Hi Steve

It is a shame for sure but better know it now than later.

I'll prefer we continue with the R114.186.197W and the Coax cable.

About the lower output is doesn't seem to be a issue. Do you know the lowest output after 12 month usage?

About the casing we have a little space around so the sensor can be a bit either bigger or smaller if it makes sense.

We need to stay within the range what the Shearwater can read and accept.

We have used the sample without any

Kind regards

**Michael Holm**

**MURO-CCR ApS** · Industrivej 15 · 8830 Tjele · Denmark

Phone direct: +45 20847000

Email: [mh@muro-ccr.com](mailto:mh@muro-ccr.com)

Web: <https://muro-ccr.com>

Den 12. okt. 2023 kl. 17.33 skrev Steve Nixon <[office@viamed.co.uk](mailto:office@viamed.co.uk)>:

Hi Michael

I'm away at the moment, but will get back to you early next week.

It's a shame about the results, I was going by your feedback and the urgency, so I acquired connectors and have purchased 500m of specialist cable. We need to tighten your requirements before going forward.

Can you handle the lower output of the sensor sample provided? As you know we can get the signature very low, but the compromise of using the specialist components is the reduced output range.

Would you ideally want to use the same casing style of the JJ-CCR sensor? Also would your preference be to use the coax cable and SMB connector? Or would similar looking sensors with different outputs cause a problem?

Regards

Steve

On Thu, 12 Oct 2023, 14:13 Michael Holm, <[mh@muro-ccr.com](mailto:mh@muro-ccr.com)> wrote:

Hi Steve

Sorry I'm a bit slow.

Last week we had a magnetising coil installed. It's a device developed together with a Professor with a PhD in magnetism who is working on a university in Germany.

It's probably the only device fulfilling the STANAG 2897 requirements.

It's been a new experience for us and has changed a few focus points.

Regarding the sensor something also changed there.

Try to see the picture attached.

The standard JJ sensor was within the frame without wire and plug and mounted in the head. After a "treatment" in the coil we can measure 130nT and need 15-20cm distance to get under the 5nT

The NM sample you made in Marts 21 is still perfect and is 1,4 to 2,6nT depending on how it's placed on the measuring table.  
The same for the plug R114.186.197W.

So it's a setback for the idea about using the standard sensor with the new NM plug.

What to do from here.

Should we try to make some sensors with the R17 JJ-CCR but with the new NM plug and cable? Witch we probably can't use

or

Focusing on the NM sample you made from the beginning. Which we know will work.

About labelling we should have a MURO-CCR label as you suggest. Logo attached.

Adress as in signature.

Let me know what you think.



Kind regards  
**Michael Holm**

**MURO-CCR ApS** · Industrivej 15 · 8830 Tjele · Denmark  
Phone direct: +45 20847000  
Email: [mh@muro-ccr.com](mailto:mh@muro-ccr.com)  
Web: <https://muro-ccr.com>

Den 29. sep. 2023 kl. 18.10 skrev Steve Nixon  
<[office@viamed.co.uk](mailto:office@viamed.co.uk)>:

Hi Michael

As previously discussed the following is the updated sequence for the development of the new sensor

We need to:

1) Obtain and test connector samples. These could take several weeks to be received, of course I will move forward with this.

**Completed, Radiall R114.186.197W tested and agreed.  
Connectors in stock**

2) Source non magnetic coax cable and test for suitability.

**Completed, awaiting delivery of a reel of cable  
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3) Provide specifications.

**To be based on the existing JJ-CCR sensor, but to replace the cable assembly with non mag version (non mag connector Radiall R114.186.197W, non mag coax cable).**

4) Generate new labelling.

**Can you please supply a copy of your company logo artwork and address details.**

**What model number do you want to assign to the sensor, the JJ-CCR standard sensor is R17JJ-CCR.**

**I have attached the specification datasheet of the R17JJ-CCR for your reference, please see page 4 for the labelling layout. I suggest that we prefix the serial number format with M for your Muro sensor.**

- 5) Provide pricing quotation for the sensors.
- 6) Build prototypes and carry out testing.
- 7) Sign off the specifications.
- 8) Sign off the labelling.
- 9) Sign off the approval of the sensor design and testing.

After the above, the production lead time from receipt of order will be approx. 6 weeks.

**How many sensors are you likely to order for the first production batch?**

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Steve

Steve Nixon  
Director - Vandagraph Sensor Technologies Ltd.

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<Oxygen Sensor Specifications - 8010004 ID27365.pdf>

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29/02/2024, 15:52

Gmail - Fwd: Update regarding the Non mag oxygen sensor

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