Gmail

Aqib Majeed <viamed.aqib.majeed@gmail.com>

Fwd: Info and request

Steve Nixon <office@viamed.co.uk> 1 September 2023 at 14:43
Reply-To: steve.nixon@vandagraphst.com
To: office@vmsecure.me.uk

Please process free of charge VST order to Michael at Muro-CCR and add the notes. Cathy already has the parts.

1 x 8030010
NOTE: **Sample of co-ax cable (non mag)**

1x 8030010
NOTE: **Sample of co-ax cable (non mag) connected to standard right angled coax connector.**

Component parts supplied for R&D engineering evaluation purposes, of no commercial value. Value for customs purpose only: €3.00

1 x UPS Express Saver

Steve

---------- Forwarded message ---------
From: **Michael Holm** <mh@muro-ccr.com>
Date: Fri, 1 Sept 2023 at 13:34
Subject: Re: Info and request
To: <steve.nixon@vandagraphst.com>

Perfect

Have a nice weekend.

Kind regards
Michael Holm

MURO-CCR ApS · Industrivej 15 · 8830 Tjele · Denmark
Phone direct: +45 20847000
Email:mh@muro-ccr.com
Web: https://muro-ccr.com

> Den 31. aug. 2023 kl. 17.42 skrev Steve Nixon <office@viamed.co.uk>:
>
> Hi Michael
>
> We will ship them tomorrow.

Steve

On Thu, 31 Aug 2023 at 15:20, Michael Holm <mh@muro-ccr.com> wrote:

> Hi Steve
>
> Perfect.
>
> We'll make the test as soon we have them.
>
> Just ship to below address.
>
> MURO-CCR
> Industrivej 15
> 8830 Tjele
> Denmark
>
> Kind regards
> **Michael Holm**
>
> **MURO-CCR ApS** · Industrivej 15 · 8830 Tjele · Denmark
> Phone direct: +45 20847000
> Email:mh@muro-ccr.com
> Web: https://muro-ccr.com
>
> > Den 31. aug. 2023 kl. 12.45 skrev Steve Nixon <office@viamed.co.uk>:
> >
> > Hi Michael
> >
> > I have the following that I would like to send to you for testing, can you please let me know to which address they should be sent.
> >
> > **1) Small sample of co-ax cable (non mag).**
> > **2) Small sample of co-ax cable (non mag) connected to standard JJ-CCR coax connector.**
> >
> > When the new connectors arrive I will also send you:
> >
> > 3) Small sample of co-ax cable (non mag) connected to **non mag** version of standard JJ-CCR coax connector.
> >
> > Regards
> >
> > Steve
> >
> > On Mon, 28 Aug 2023 at 20:55, Steve Nixon <steve.nixon@vandagraphst.com> wrote:
> >
> > > Understood Michael, we can talk on Thursday.
> > >
> > > Steve
> > >
> > > On Mon, 28 Aug 2023 at 20:29, Michael Holm <mh@muro-ccr.com> wrote:
> > >
> > > > Hi Steve
> > > >
> > > > Thanks for your prompt responce.
> > > >
> > > > As Jan wrote it is very difficult to say anything about volume.

I think you should prepare for 200 over the next year but it could be double up,
we would like to understand the production flow to give you the best possible information.

I'll not be accessible until Thursday morning but let's try to have a talk Thursday.

Kind regards
Michael Holm

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Phone direct: +45 20847000
Email:mh@muro-ccr.com
Web: https://muro-ccr.com

> Den 28. aug. 2023 kl. 17.42 skrev Steve Nixon <office@viamed.co.uk>:
>
> Hi Michael
>
> Sorry, the office is closed today as it is a UK national holiday.
>
> As I get the parts I will send to you for testing.
>
> Do you have an idea of how many sensors that you will need?
>
> Regards
>
> Steve
>
> On Mon, 28 Aug 2023 at 14:19, Michael Holm <mh@muro-ccr.com> wrote:
>> Hi Steve
>>
>> I've tried to call a couple of times without any luck. :)
>>
>> As Jan told you we can make all needed test in our facility in MURO-CCR in Tjele.
>>
>> Let's have a talk how to make the best setup for all of us so we can meet the market requirements.
>> MURO can make a prepayment of some of the special parts for example.
>>
>> Kind regards
>> **Michael Holm**
>>
>> **MURO-CCR ApS** · Industrivej 15 · 8830 Tjele · Denmark
>> Phone direct: +45 20847000
>> Email:mh@muro-ccr.com
>> Web: https://muro-ccr.com
>>
>>> Den 22. aug. 2023 kl. 23.28 skrev Steve Nixon <office@viamed.co.uk>:
>>>
>>> Hi Michael

Can you please get back to me regarding whether you can test connectors and cables in terms of magnetic signature analysis. Alternatively, I can perhaps get them tested here in the UK.

Steve

On Thu, 17 Aug 2023 at 19:14, Steve Nixon <steve.nixon@vandagraphst.com> wrote:

> On Fri, 11 Aug 2023 at 11:23, Steve Nixon <steve.nixon@vandagraphst.com> wrote:
> > Hi Michael
> >
> > Hopefully next week I will finally receive some specialist non magnetic coax cable. This cable is clearly different to the existing black standard cable, so it will assist in identifying the sensors.
> >
> > If I send you some cable would you be able to carry out a magnetic signature analysis?
> >
> > Approximately how many sensors per year would you envisage needing:
> >
> > Year 1
> > Year 2
> > Year 3
> >
> > I want to ensure that we have sufficient cable, but at the same time there are cost implications. The cable is made to order and the MOQ for us is 500m, which will cover 1,250 sensors. Ongoing production lead time has also got to be taken into consideration.
> >
> > I also need to know quantities, so that we can plan the supply of the connectors.
> >
> > Regards
> >
> > Steve
> >
> > On Thu, 10 Aug 2023 at 15:30, Steve Nixon <steve.nixon@vandagraphst.com> wrote:
> > > Hi Michael
> > >
> > > We have some sensors prepared, I'm just waiting for the connectors to arrive from Radiall. We will be using **R114.186.197W**. These will fit both the standard R114.436.000 or you could use the non-magnetic version R114.426.147 (see attached).
> > >
> > > Steve
> > >
> > > On Tue, 4 Jul 2023 at 23:18, Steve Nixon <steve.nixon@vandagraphst.com> wrote:
> > > > Hi Michael
> > > >
> > > > I'll get back to you regarding this tomorrow.
> > > >
> > > > Regards
> > > >
> > > > Steve

On Tue, 4 Jul 2023 at 08:33, Michael Holm <mh@muro-ccr.com> wrote:

Hi Steve

We have made some cables we'll like you to mount in some standard JJ-Sensors.

It is magnetic but due to the distance we have mounted in the head on the rebreather we do believe it could be a good solution we have to try out.

See pictures attached.

Where to send the wires/cables?

Kind regards
Michael Holm

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Phone direct: +45 20847000
Email:mh@muro-ccr.com
Web: https://muro-ccr.com

Den 15. jun. 2023 kl. 21.41 skrev Steve Nixon <office@viamed.co.uk>:

Hi Michael

So to confirm, instead of using the non-mag sensor wet components and body, you want to use the standard existing R-17JJ-CCR body.

I am trying to get a small quantity of non-mag connectors and assessing a suitable non mag cable. Please note that these parts will increase the price of the sensor.

Next steps:
1) Obtain connectors and cable.
2) Supply connector and cable samples for testing by **MURO-CCR ApS.**
3) Provide tentative pricing.
4) Provide some sensor samples for initial assessment testing.
5) Production of engineering pilot batch for official testing and field trials.
6) Produce specifications and labelling.
7) Provide finalized price list.
8) Sign-off by **MURO-CCR ApS.**
9) Commence production.

Regards

Steve

On Thu, 15 Jun 2023 at 08:14, Michael Holm <mh@muro-ccr.com> wrote:

Hi Steve

Did you find anything regarding this?

Kind regards
Michael Holm

MURO-CCR ApS · Industrivej 15 · 8830 Tjele · Denmark
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> Den 12. jun. 2023 kl. 21.57 skrev Steve Nixon <office@viamed.co.uk>:
>
> Hi Michael
>
> I'm having meetings off-site tomorrow, but on Wednesday I'll chase up the samples of non-mag connectors and a reel of non-mag cable.
>
> Steve
>
> On Mon, 12 Jun 2023 at 14:00, Michael Holm <mh@muro-ccr.com> wrote:
>> Hi Steve
>>
>> I think I never got a replay on this one.
>>
>> Pls. give me a feed back if it is something we/you can make.
>>
>> Hi Steve
>>
>> We have made some test with the standard JJ-CCR sensor. It is so close to 5nT that is it worth a try I think.
>>
>> Direct it doesn't works 100% but when everything is mounted together in a rebreather we are at 6,5nT but 1cm distance reduce everything to 4,5nT.
>>
>> See picture.
>>
>> Will you be able to make a batch of 6 or 9 sensors like that or with some nonmagnetic coax cable?
>>
>> Kind regards
>> **Michael Holm**
>>
>> **MURO-CCR ApS** · Industrivej 15 · 8830 Tjele · Denmark
>> Phone direct: +45 20847000
>> Email:mh@muro-ccr.com
>> Web: https://muro-ccr.com

Den 21. mar. 2023 kl. 10.31 skrev Steve Nixon <office@viamed.co.uk>:

Thank you for the update Michael.

So with the true production NM sensors we should be comfortably < 5 nT.

Steve

On Tue, 21 Mar 2023 at 08:24, Michael Holm <mh@muro-ccr.com> wrote:

> Hi Steve
>
> I do agree we messured the JJ-CCR to 16nT but distance is our friend in this case. :)
>
> One sensor in the head we had 6nT and the head in the canister below 5nT.
>
> We will mount all tree modified once and make the measurements.
>
> Kind regards
> **Michael Holm**
>
> **MURO-CCR ApS** · Industrivej 15 · 8830 Tjele · Denmark
> Phone direct: +45 20847000
> Email:mh@muro-ccr.com
> Web: https://muro-ccr.com
>
> > Den 20. mar. 2023 kl. 15.56 skrev Steve Nixon <office@viamed.co.uk>:
> >
> > Hi Michael
> >
> > Good look with the trial, but please be careful with the connections.
> >
> > I do not believe that the mag readings will be <5 nT as the JJ-CCR cathode will read high.
> >
> > Steve
> >
> > On Mon, 20 Mar 2023 at 12:32, Michael Holm <mh@muro-ccr.com> wrote:
> >
> > > Hi Steve
> > >
> > > Let's try one thing first.
> > >
> > > We'll try to rebuild some R17JJ-CCR by removing the coaxial cable and mount wires and use the standard smd plug.
> > >
> > > Let's see how close we can get to the 5nT when everything are put together.
> > >
> > > We have a demonstration in the Baltic this week but will try to have it done ASAP.

Kind regards
Michael Holm

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Web: https://muro-ccr.com

> Den 20. mar. 2023 kl. 13.11 skrev Steve Nixon <office@viamed.co.uk>:
>
> Hi Michael
>
> Thank you for the update. I understand your project requirements and of course we are more than willing to assist, but to be honest after two years the sudden urgent need for sensors may be an issue.
>
> 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.
> 2) Source non magnetic co-ax cable and test for suitability.
> 3) Provide specifications.
> 4) Generate new labelling.
> 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.
>
> Steve.
>
> On Mon, 20 Mar 2023 at 11:51, Michael Holm <mh@muro-ccr.com> wrote:
>> Hi Steve
>>
>> I'm 100% aware that there is a huge difference between the R17JJ and the JJ-CCR NM sensor.
>>
>> However we have a need to have a nonmac sensor and there for we need to move on with the project.
>>
>> We are producing 10 rebreathers at the moment and have a plan for 20 more before summer.

The huge benefit for us is that the JJ and the MURO(NM version of the JJ) is so similar and we'll do all we can to keep it like that.

If there is a nonmac Coaxial cable it will off course be perfect and a NM angled SMB plug will make everything perfect I think.

Do you have any ideas of a time line in this?

I'm appreciate your involvement in this. Thanks.

Kind regards
Michael Holm

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Web: https://muro-ccr.com

> Den 17. mar. 2023 kl. 10.02 skrev Steve Nixon <office@viamed.co.uk>:
>
> Dear Michael
>
> I apologize for the delay in getting back to you.
>
> Please note that the standard JJ-CCR sensor (8010004 R17JJ-CCR) is substantially different to the prototype non-magnetic version (8010054 JJ-CCR NM) and the sensors are not interchangeable.
>
> The non magnetic prototype version uses different internal components (low mag) and has a much lower output of 6 - 9 mV. The standard sensor has an output of 9 - 13 mV.
>
> From what you say your preference would be to still have an SMB connector on a cable? I would not advise soldering to the existing crimp SMB connector, the connection would not be secure enough for your application.
>
> Would you like to use a non-mag SMB connector, it looks like you still need a

right angled version?

Which SMB bulkhead connector are you using? If not already doing so, would you need a non-mag version?

Please let me know your thoughts and I can look to try and source some suitable non-mag co-axial cable (RG179 AMG, RG316 AMAG)

Please see the datasheets attached.
R114.186.197 NON MAGNETIC RIGHT ANGLE PLUG CRIMP TYPE
R115.313.197 NON MAGNETIC STRAIGHT BULKHEAD JACK FRONT MOUNT

<image.png>

Would you like an output cover as you used with the R17JJ-CCR?

I assume that you would like us to still resin the back of the right angled SMB connector instead of using the standard metal cap?

Regards

Steve

On Tue, 7 Mar 2023 at 13:53, Michael Holm <mh@muro-ccr.com> wrote:

> Hi Steve
>
> Sorry for my long replay.
>
> We have been doing some test of the sensors, wires and various configurations.
>
> Overall we need to have a ready to dive unit below a magnetic signature on 5nT.
>
> The prototype sensor have been working perfect so far.
> The sample is 1nT so really good.

See attached pictures

All regarding the R17-JJ-CCR

The wire alone is 120nT
The sensor just cut of wire is 20nT
The Radiall SMB Series
R114.186.000 is with the wire end
crimped 4,7nT
The Radiall SMB Series
R114.186.000 2,0nT
The R17-JJ-CCR without wires 16nT

Made a test of 3x R17-JJ-CCR
without the RG174AU cable but with
lead wires and the Radiall SMB
Series R114.186.000. test mounted in
the unit so as real as possible.

see picture

Unfortunately it was measured to
9,2nT didn't got a picture sorry.

Later we removed the sensors but
kept the wires and the R114.186.000
plugs.
Less than 2nT so pretty good.

My suggestion based on this will be to
make a sensor like the samples but
with lead wires crimp shrink and
the Radiall SMB Series R114.186.000

Try to see pictures how i think we can
connect the Radiall SMB Series
R114.186.000 ofcourse we have to
crimp the ferrule and heat up the
heat shrink.

Future estimate is really difficult.

All the Nonmac MURO-CCR project
is ofcourse something we believe in
and there is a lot of very positive
interest in the product.

We have indications that 2023 will be
from 50 to 200 units.
After this it is a huge joker. We are in
contact with EOD divisions all over
the world and it could easily be 500

units or more. All depending on what will happens in the world.

We'll have the need for 3 sensors in each unit as you probably know.

To make some huge design changes in the MURO-CCR from the well proven JJ-CCR is not a good way to go. One of our benefits is that in a crises situation we can use parts from a JJ on a MURO.
Also service, training and so forth will be more cost efficient with as little variants as possible.

Let me know what you think so we can move on.

Kind regards
Michael Holm

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Web: https://muro-ccr.com

> Den 24. feb. 2023 kl. 00.44 skrev Steve Nixon <office@viamed.co.uk>:
>
> Dear Michael
>
> Please accept my apologies for the delay in getting back to you.
>
> We supplied Jan with some engineering prototype non-mag (very low mag) sensors to assess back in April 2021. Please note that they are evaluation units and are not tested and signed-off production series!
>
> The sensors were produced with effectively non-mag

components (circa < 5nT, possibly <3nT). The sensor mV output is lower than standard, but is very linear. Also the prototypes just had flying connections leads. The PCB is also exposed at the rear, will this be of any concern with your new rebreather design?

On your new rebreather which connections are you using, I assume SMB Series bulkhead types? Are they non-mag types?

The connector on the JJ-CCR existing standard sensor is: R**adiall SMB Series R114.186.000 right angled plug, crimp type**

The cable is **RG174AU, length 15 cm.** Are you saying that the RG174AU cable is too magnetic? We suspected so, that is why the separate lead wires were used with the prototype sensor.

The Radiall SMB Series R114.186.000 is designed for crimp connections, soldering these connections would not be realistic and I would not advise doing so.

Have you tested the R114.186.000. In terms of nT, what value are you getting? I believe that Radiall (and other manufacturers) may also have a non-mag

variant, do you want me to look into this for you? Ideally we need one with solder connections.

I will also see if we can get some more appropriate non-mag co-ax cable.

Is your design finalized? If not, could you have a connector on the sensor PCB and plug directly into a bulkhead connector?

Has the JJ-CCR NM prototype sensor type between tested for fit and function in your new design rebreather? Is the lower output of range (output in ambient air 6.5 – 9.0 mV) suitable?

What is the target nT value range for the new sensor?

At the moment I cannot provide a price or lead time until we finalize the design.

What do you envisage that the initial oxygen sensor quantities will be? This will assist with cable assembly design and production options.
2023 ?
2024 ?
2025 ?

Can you please provide MURO-CCR logo artwork as well as the contact and address details for the labelling.

Should we use **M** for the serial number

prefix?

What do you want the model number to be? On the prototype it is JJ-CCR NM

Can I assume that the MURO-CCR sensor now supersedes the JJ-CCR NM, or does Jan still also require a non-magnetic sensor?

Have you considered using a low cost connector solution, if we can get non-mag pins?

<image.png>

Regards

Steve

On Wed, 22 Feb 2023 at 12:52, Michael Holm <mh@muro-ccr.com> wrote:

> Hi Steve
>
> As you all ready have been a part of this I assume below is mainly an update and information.
>
> For more than a decade, the Danish company JJ-CCR ApS have produced Closed Circuit Rebreathers to customers worldwide. Initially for the technical/recreational diving market but during recent years more and more professional diving companies and military forces are buying the JJ-CCR

for use in various explorations, projects, and missions.

One specific group of these customers is the MCM diving unit within the Danish Armed Forces. They came to JJ-CCR and asked if it was possible to develop a Non Magnetic rebreather based on all the beneficial aspects of the JJ-CCR and the thousands of reference hours within the technical diving community . This project was given a go, the process has been long, but now we finally have a fully working rebreather.

To ensure the right focus on this project, the activities of the NM project was moved from JJ-CCR ApS to a new established company named MURO-CCR ApS, managed by Michael Holm and with Jan Petersen, me, as technical director. Our aim is to focus on the MCM diving activities by western military forces, initially to fulfil the request and requirements from the Danish MCM Diving unit.

STATUS:

- We have a fully diveable prototype that have passed all

magnetic tests
- We have a new technical facility set-up in mid region of Denmark for production/assembly
- We have the 0-serie in production these days
- We are ready to start production of the first 50 units

Due to the military clients, we are fully aware of the legislation in FKOBST 358-1 set by the Danish military. FKOBST 358-1 is a local standard describing how to do business with the military based on Multinational Industrial Security Working Group (MISWG)

This is where we are at the moment and that lead me to my next question.

Will you be able to make the JJ-CCR NM sensor with the RG174 male. I assume RG174 it the one used at the R17 JJ-CCR.

Of cours label and so on have to be in relation to MURO-CCR.

The wire used in R17 are very magnetic so please use wires as

the sample with crimp shrink. See picturs attached

Company info is attached.

I'll like to have a price and lead time of 30 sensors.

And also lead time for the next 150 sensors.

Do you have any question fell free to give me a call.

Have a nice day.
Kind regards
Michael Holm

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Steve

Steve Nixon
Director - Vandagraph Sensor Technologies Ltd.

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Mobile: +44 (0)7850 252267

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Steve

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Director - Vandagraph Sensor
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