
From: T Barker Dameron <tdameron@industrialheat.co>
Sent: Thursday, September 25, 2014 2:23 PM
To: JT Vaughn
Subject: Re: Testing
Attachments: attachment-1.jpeg

JT,

We are using 480 3 phase, 3 wire. The wiring diagram is correct with 480 as the phase to phase voltage. The controller is wired in a 480 delta configuration (no neutral).

Buildings often use 480. The 480 3 phase is commonly used for motor loads. The 480 in a wye configuration created 277 V which is very often used for lighting.

As regards the paint, while a paint with a high emissivity is advantageous, it is more important to have paint where the emissivity is known through your temperature ranges. This must also be for the same wave lengths that the camera reports.

On Thu, Sep 25, 2014 at 1:41 PM, JT Vaughn <jvaughn@industrialheat.co> wrote:
Please help if you can.

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

From: Morgan, Dan <dmhd@ti.com>
Date: Thursday, September 25, 2014
Subject: Testing
To: JT Vaughn <jvaughn@industrialheat.co>

JT,

In the US the most common 3 Phase delta voltages are either 240VAC or 208VAC like shown in the diagram below. 480VAC is normally for a "Y" connection rather than delta. Please check that it is 480VAC. If you could have your electrician create a wiring diagram, that would be great. (Perhaps you have a transformer within your facility that steps up the voltage to create delta 3 phase at 480VAC.)



Regarding the paint, we will assume that we can use the Rustoleum Flat Black paint you sent for Amazon. We prefer flat black because this commonly gives high emissivity.

Regarding the 8 weeks, at TI we still must get our test set-up together. That will likely take at least 6 weeks, so maybe our schedules are not so far apart.

Regards,

Dan

From: JT Vaughn [mailto:jvaughn@industrialheat.co]
Sent: Thursday, September 25, 2014 8:41 AM
To: Morgan, Dan
Subject: Re: Testing

Dan: Yes, 3 phase 480VAC connects directly to the power controller for the ECAT. Also, we are using a delta configuration, so three wires (Phase 1, 2 and 3) and no neutral going into the box.

The devices we've prepared for you guys have not been painted. So, you can use a paint with a known emissivity you feel good about, or you can test them unpainted.

Keep in mind, I think we're still 8 weeks out, in the best case. I was out at the shop yesterday and they're behind schedule, so that will delay our ability to allow you guys to come do testing.

On Thursday, September 25, 2014, Morgan, Dan <dmhd@ti.com> wrote:

JT,

Thanks. Is the 3 phase 480VAC what directly connects to the electronics box that powers the ECAT? So is it four wires: Phase1, Phase2, Phase3, and neutral? (This will mean that any AC power meter inserted before your electronics box must be for 3 phase power, not single phase power. Until now I had been assuming that the ECAT ran on single phase 240VAC like the power to the washer and dryer in your house.)

For the paint, we just want to use whatever will be on the ECAT units that you let us test. Is the Amazon link right for that?

Regards,

Dan

From: JT Vaughn [mailto:jvaughn@industrialheat.co]
Sent: Wednesday, September 24, 2014 2:55 PM
To: Morgan, Dan
Subject: Re: Testing

Dan: We use 3 phase 480VAC, fwiw. You may not need such robustness, but that's what we use.

Also, I'm not sure what type of paint, exactly, was used for the Swedish/Italian committee tests of December 2012 and March 2013. We have used a high temp cylinder head paint, which you can buy on Amazon (this one is only 2,000F--can't recall if we've used higher temp versions): http://www.amazon.com/Rust-Oleum-248903-Automotive-12-Ounce-Degree/dp/B003CT4AKC/ref=sr_1_1?ie=UTF8&qid=1411588273&sr=8-1&keywords=high+temperature+paint

In the March 2014 test they may have used a white paint (I am not sure if I can find those specs, nor certain that it was used) or no paint at all, but they did not use black paint.

On Mon, Sep 22, 2014 at 11:51 AM, Morgan, Dan <dmhd@ti.com> wrote:

JT,

Hope all is well.

We plan to start ordering long lead time test instruments here this week. For creating a test mock-up here we will make a heated pipe of the approximate dimensions of the ECAT. We will paint the outside of it with the same black paint that you use so that we can expect similar results with a thermal imaging camera.

Also, I want to be sure we get the right instruments for the AC power input to the ECAT.

Thus, two questions are:

- 1) Do you know the vendor and part number of the paint so that we can use it here?
- 2) Is the AC power input "single phase" 240VAC and not "three phase" like is used for some large industrial equipment?
 - a. The instrument I plan on getting only supports "single phase" with a max voltage of 300VAC.

Regards,
Dan

From: Morgan, Dan
Sent: Thursday, September 04, 2014 6:24 PM
To: 'JT Vaughn'
Subject: RE: Testing

JT,

Okay, that sounds like a good plan. As long as it's certain that you will let us do the tests at your site, we can go ahead and order the test instruments. Some might take 4 weeks to get, so ordering them soon will help reduce future delays.

Also, I want to do a test mock-up at TI first to emulate the tests we'll do at the IH site. So then when we arrive it will take the least amount of time to get testing started. This mock-up testing at TI will take some time too. So again it seems to make sense for us to go ahead and order the instruments.

Regarding AR being at your facility and your contract with him, I understand that is very confidential and we'll protect this information. I'll also narrowly limit who I tell this too here.

Regards,

Dan

From: JT Vaughn [mailto:jvaughn@industrialheat.co]
Sent: Thursday, September 04, 2014 12:05 PM

To: Morgan, Dan
Subject: Re: Testing

Dan: we're OK with you guys doing testing here at our lab, but we won't be able to host you until AR has finished his work on the IMW unit. I expect that work to be completed in approximately 6 weeks, but that's a rough estimate. AR is hoping to be done before then, but I doubt they will make it. Once he finishes that work, he then wants to take the IMW unit to Florida (where he lives) to begin operating it continuously (this is a requirement of our contract with him). So, he will shortly clear out of our space and we'll be able to more easily accommodate you guys for a test. We would prefer you come test it at our place initially, rather than us sending you something. Thereafter, both sides can work towards a potential contract to address further testing, development and commercialization of the technology, if both sides still feel that is warranted.

Everything above is confidential information--especially regarding AR's current work and our contract stipulations w/ him.

Let me know your thoughts.

Best,

JT

On Tue, Sep 2, 2014 at 7:31 PM, Morgan, Dan <dmhd@ti.com> wrote:

JT, any update?

Thanks,

Dan

From: JT Vaughn [mailto:jvaughn@industrialheat.co]
Sent: Tuesday, August 26, 2014 3:23 PM
To: Morgan, Dan
Subject: Re: Testing

Let me discuss internally and get back to you. Thanks for the note.

On Tue, Aug 26, 2014 at 4:21 PM, Morgan, Dan <dmhd@ti.com> wrote:

JT,

Another thought –

It seems the thing that put the brakes on TI testing is that it's hard for IH to make your labs available for us. Because of this situation, I'm thinking about trying again to get Kevin Ritchie to say it's okay to do limited, initial blackbox testing inside of a TI facility instead of at the IH site. If I could get him to agree to this, do you think that this would speed things up?

Dan

From: Morgan, Dan
Sent: Friday, August 22, 2014 10:18 AM
To: 'JT Vaughn'
Subject: Testing

JT,

It was nice to meet with you and Tom on Wednesday, and I think it's good that Tom had a chance to meet some of our team here.

Since Tom brought up the idea of TI doing some testing other than testing at the IH site, if we did this the test agreement that we almost signed could be used to cover this. I know that the fuel is the most sensitive IP, but if we tested it the test agreement should protect IH. We could do the testing of it within TI sites here in Dallas and we can strictly limit the number of people who see the fuel or any of the test results. I can provide a list of all people who have access.

Just looking for any ideas to keep things moving.

Regards,

Dan

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JT Vaughn

Industrial Heat

jvaughn@industrialheat.co

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T. Barker Dameron

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