

PYS Remote Consultation & Design Services

Thank you for considering PYS for your marine electrical design and consultation services. As fellow boaters, PYS understands the importance of a safe and reliable electrical system onboard a boat.

PYS Marine Electrical Technicians have consulted, designed, and worked on thousands of boats throughout the world, and this repetition makes us specialists at what we do. The marine electrical system is at the heart of every boat and, simple or complicated; these systems are based on industry standards to keep you and your crew safe. It is this "expertise through repetition" combined with our desire to do things right versus just making them work that has made us leaders in the industry.

A Systematic Approach to Electrical Design

From our extensive experience, PYS has developed a systematic two-phase approach to assist you in designing a marine electrical system that is safe and reliable while recognizing that it should be easy to understand and troubleshoot:

- 1) **Consultation phase:** PYS will work with you to define the requirements of your electrical system and select and size the fundamental electrical building blocks for your boat.
- 2) **Design phase:** PYS will create a schematic to show how your electrical devices should be interconnected.

Let's Get Started! The Consultation Phase.

The consultation phase is the most interactive portion of the process. We will discuss the requirements of your electrical system and how you want to use your boat to lay the groundwork for the design phase.

For the first meeting, and to save time and lower your consultation costs, we will ask you to prepare a Consultation Brief that contains:

- ↓ Your project objectives (stay at anchor longer, cruising offshore, fishing, etc.)
- ↓ What's currently not working on your electrical system
- ↓ The existing electrical components on your boat that you would like to incorporate into the new design
- ↓ A wish list of new equipment that you would like to purchase and install
- ↓ Any relevant pictures you may have of your existing system

We ask that you create one consolidated document (saved in pdf format), rather than multiple emails, and submit it as an attachment to solutions@pysystems.ca with the subject title "Consultation Brief."

Kick-Off Meeting

The purpose of the Kick-Off Meeting is to review your Consultation Brief with a PYS Marine Electrical Designer. Once an overview of the project is complete, we can start exploring some of the electrical building blocks that are required for your boat's electrical system. This is a great opportunity for you to ask questions and to discuss the nuances of selecting one electrical building block versus another. We have put together a list of the most common building blocks, and you can use this as a checklist for our discussion.

Electrical Building Blocks

Each building block has dedicated videos, published articles, blogs, and FAQs available on the PYS website <https://www.pysystems.ca/products/>.

We recommend reviewing this list while you are putting together your Consultation Brief. Include your questions, and a PYS Marine Electrical Designer will make recommendations. These are the most common building blocks of a marine electrical system:

- | | |
|-----------------------------------|-------------------------|
| ↓ AC & DC panel | ↓ External regulator |
| ↓ Alternator | ↓ Galvanic Isolator |
| ↓ Battery bank size and chemistry | ↓ Inverter |
| ↓ Battery combiner | ↓ Inverter/charger |
| ↓ Battery isolator | ↓ Isolation Transformer |
| ↓ Battery charger | ↓ Methanol fuel cell |
| ↓ Battery monitoring | ↓ Solar controller |
| ↓ DC to DC charger | ↓ Solar panel |

How Long Does the Consultation Phase Take?

Follow-up meetings will be scheduled as needed. This is an opportunity for you to fine-tune your decisions and ask questions that may arise from the Kick-Off Meeting.

On average, it can take anywhere between two and eight hours to discuss the appropriate building blocks for your boat.

Next Step.....The Design Phase

Now the magic happens. Once you decide what you would like to see on your boat, a PYS Marine Electrical Designer will put all of the building blocks together in a schematic. There are three stages to the Design Phase. Each design phase provides more and more detail. How far you decide to go on this journey with PYS depends on your skill level and budget.

Stage	Design Phase	Average Time to Complete
1	Conceptual Layout	2 – 6 hours
2	One-Line Schematic	4 – 12 hours
3	Detailed Design Package	TBD (based on detailed requirements)

Stage One: Conceptual Layout

Once the electrical building blocks are decided, the PYS Marine Electrical Designer will create a Conceptual Layout of how they will be connected. You will receive this basic schematic via email, and you will have the opportunity to review it with the PYS Marine Electrical Designer.

Stage Two: One-Line Schematic

If you are looking for more detail than a basic layout, then PYS recommends a One-Line Schematic. Following best practices and industry standards, your PYS Marine Electrical Designer will make specific recommendations and provide details on how your boat's electrical system comes together.

The One-Line Schematic includes the circuit protection type, location, and size of items such as breakers and fuses. The schematic will also identify the correct wire size based on the length of the wire runs and indicate the specific location of positive connections to battery switches, positive switched distribution, and positive unswitched distribution.

Stage Three: Detailed Design Package

The Detailed Design Package provides a wiring schematic for each electrical building blocks. Specific wiring details are resolved at this stage; this includes identifying each interconnection point on a device, including positive and negative connections—effectively this is an electrical blueprint that a professional or trained electrician could follow to wire a boat.

Moving Forward

Now that you understand our process and what to expect, we would like to answer some of our most frequently asked questions:

Once my retainer is paid, when can I expect to start my project with PYS?

Paying your retainer secures your project in the scheduling queue of your assigned PYS Marine Electrical Designer. On average, the lead time to project Kick-Off is two to four weeks from the payment of the retainer.

How is PYS time billed on my project?

PYS bills time spent on your project, in ¼ hour increments. Here is a list of PYS billable activities:

- ↓ One-on-one engagements (over the phone, video chat, in-person)
- ↓ Reviewing documents
- ↓ Creating documents (schematics, reports, analysis)
- ↓ Reading and responding to email inquiries

What is the best way to maximize my time with a PYS Marine Electrical Designer to reduce costs?

It always comes down to homework. If you spend more of your time consolidating and summarizing communications, then we can spend more time consulting and designing. Spend some time putting together your Consultation Brief and ask your questions there. Consolidate your follow-up questions and feedback in fewer emails. This will reduce the number of emails and billable hours.

How do I pay for my retainer?

We accept Visa, Mastercard, or a bank wire transfer

Let's Do This!

- 1) Send us an email at solutions@pysystems.ca
- 2) We will send you a retainer invoice for payment
- 3) Prepare and email your Consultation Brief
- 4) A PYS Marine Electrical Designer will contact you to schedule a Kick-Off Meeting either by phone, video chat or email

We look forward to working with you!