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IEEE

THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Volume 63—No. 8 August 2017

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Generator/Transformer Protection

Mr. Wayne Hartmann, VP, Protection and Smart Grid Solutions with Beckwith Electric presented 33 attendees with an outstanding seminar, July 14, on IEEE C37.102, IEEE Guide for AC Generator Protection and IEEE C37.91, IEEE Guide for Protecting Power Transformers. Wayne also highlighted generator and transformer construction and operation, generator and power system interaction, lessons learned from the NE Blackout of 2003, and explored the setting, commissioning and event investigation tools. Attendees enjoyed the presentation and handouts and expressed thanks to Wayne for his presentation skills and ability to simplify the topic.



SoutheastCon 2018 Call for Papers

IEEE SoutheastCon 2018 (19 Apr - 22 Apr 2018 in St. Petersburg, Florida) welcomes prospective authors to submit short papers (1 or 2 pages), full-length papers (up to 8 pages), or posters of their original novel research work on any theoretical and applied aspects of engineering, science, and technology. All submitted papers will go through processes of plagiarism check and peer review. A group of selected papers will be presented at IEEE SoutheastCon 2018. Please, submit your papers or posters at the conference website: <http://www.ieeesoutheastcon.org/>.

Topic areas appropriate for technical program submissions include, but are not limited to, the following:

Power and Energy

*Intelligent Power Systems
Sustainable Energy*

Control, Automation, and Estimation

*Robotics and Computer Vision
Control and Automation
Sensor Networks
Instrumentation and Measurement*

Electrical, Electromagnetic, and Electronic Systems

*Optics and Optoelectronics
Devices and Semiconductors
Embedded Systems
Electromagnetics and Microwaves
Nanotechnology and Materials*

Computer Hardware, Software, and Big Data

*Big Data and Warehouse Architecture
Simulation and Game Development
Software Engineering*

Communications, Signal and Image Processing

*Geosciences and Remote Sensing
Bioengineering and Bioinformatics
Health Informatics and Healthcare
Communications and Networking*

Technology and Society

*Cybersecurity and Information Assurance
Applications and Interdisciplinary
Social Implications of Technology*

Important Dates

Abstract submission deadline: 30 Sep 2017
Full Paper Submission deadline: 31 Oct 2017
Notification of acceptance date: 30 Jan 2018
Final submission deadline: 28 Feb 2017

Technical Paper Submission Information

At IEEE SoutheastCon 2018, a regular paper and a poster will be presented in different manners. A regular paper will be presented as a complete work in the proceedings and in a technical session at the conference, while a poster will be published as a two-page extended abstract with less formality than a regular paper and as a poster at the conference. Each accepted paper/poster requires at least one author registered as an author to attend and present the work at IEEE SoutheastCon 2018. All paper submissions will be checked for plagiarism and fully peer reviewed (targeting at least 3 reviews per paper).

Upcoming Meetings

EXCOM Meeting

Tuesday, August 1, 2017 5:30PM at TECO Plaza
Register online at <http://time2meet.com/fwcs-excom/index.html>
Open to all FWCS Members

Tour of Tampa Electric Big Bend Solar

September 22, 2017 1:00PM to 3:00PM
Register online at <http://time2meet.com/fwcs-pes3/index.html>

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All material for THE SUNCOAST SIGNAL is due in electronic form by 1st Sunday after the 1st Tuesday of the month preceding the issue month.

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<http://www.ieee.org/benefits> Global Benefits Finder

<http://www.ieee.org/discounts> Discounts Page

PE Corner

Art Nordlinger, PE, Senior Member
Use of the Term "Engineer"

Florida, like most other states, has laws and rules that govern the use of the term Engineer. Section 471.003 F.S. states:

- (3) *No person other than a duly licensed engineer shall practice engineering or use the name or title of "licensed engineer," "professional engineer," or any other title, designation, words, letters, abbreviations, or device tending to indicate that such person holds an active license as an engineer in this state.*

Section 471.005 F.S. goes on to define:

- (5) *"Engineer" includes the terms "professional engineer" and "licensed engineer" and means a person who is licensed to engage in the practice of engineering under this chapter.*

Without a doubt, this has led to controversy in the engineering community, as many engineering graduates who do engineering work are not licensed engineers in their state. In fact, Section 471.003 (2) states:

- (2) *The following persons are not required to be licensed under the provisions of this chapter as a licensed engineer:*

and goes on for several paragraphs about practices that are allowed without a license. These include doing improvements to property a person owns, as long as it doesn't affect the health and safety of the public, design or manufacturing of products and services, and working for a public utility, among others.

So when can a non-licensed person with an engineering degree use the title "Engineer"? Clearly, an engineer who isn't licensed by the state can't use the titles "Licensed Engineer" or "Professional Engineer". And I don't believe that those that govern the practice of engineering take issue with someone using the title "Engineer" or any variant thereof (except for Licensed and Professional), if they are working in one of the areas that don't require licensure under 471.003 (2). Where issues often arise is when someone offers engineering services that do require licensure.

However, a gray area seems to be when someone who is not a licensed engineer presents themselves publicly as an engineering professional in an area that isn't exempt. This was the case recently in Oregon, where Mats Järnlström, a non-licensed engineer who tests audio products and repairs test instruments, discussed traffic-light timing and red-light cameras in several public forums including on *60 Minutes*. The Oregon Board of Examiners for Engineering and Land Surveying fined him \$500 for engaging in the practice of engineering without a license under state law. Mr. Järnlström has filed a civil rights lawsuit against the licensing board, accusing it of violating his First Amendment rights. The case is still pending. Here is a link to an article in The Institute about the case if you are interested:

<http://theinstitute.ieee.org/ieee-roundup/blogs/blog/does-having-a-license-make-you-an-engineer>

Whether you are a PE looking to attain required CEHs, or an engineer looking to learn something new or keep current with the latest trends in the profession, IEEE has seminars that will meet your needs. Better start earning those CEHs now!

Free E-Book

Developing Your People - Commonsense Leadership in the Workplace – Vol. 2: Employee Development Strategies

By Harry T. Roman

Now through 15 August, IEEE members can download a free copy of this eBook. To download, sign in with your IEEE account, add the book to your cart and use promo code JULFREE17 at checkout.



How you do something can often become as important as what you gain doing it. In the Information Age, process has become as important as product. The first emphasis must be on quality in the process. Getting to the market quickly with inferior products and services is, at best, a waste of time and resources. Teaching process to employees is vital. It underlies other basic things they need to do in the workplace to be successful. It is an invaluable discipline that will yield dividends over and over for you (and them), because you will affect the way people approach and solve problems.

Are You Willing to Make the Next Step to Senior Membership?

Date: 9/05/17 **Time:** 5:30 pm to 7:30 pm **COST:** FREE

Location: TECO Hall North, 702 N. Franklin Street, Tampa, FL 33602

Reservations: <http://www.time2meet.com/fwcs-meetings/>

Questions: Herman Amaya - hamaya@tampabay.rr.com

The IEEE Florida West Coast Section is looking to assist those individuals who have been involved in Engineering for over 10 years apply for Senior Membership.

We will be holding a Senior Membership Roundup to assist individuals, who are eligible, to complete the nomination forms and connect them with Senior Members who can assist in the reference requirements.

If you have decided to become a Senior Member but are not sure what to do or need references then please register for this event and your Section can help in making the next steps towards Senior Membership.

Those that register will be contacted to ensure they know what is needed for the nomination process.

To be eligible for application or nomination, candidates must:

- be engineers, scientists, educators, or technical executives;
- have experience reflecting professional maturity;
- have been in professional practice for at least ten years (your degree years do count toward the 10 years);
- show significant performance for at least five years.

Senior Member is the highest grade for which IEEE members can apply. IEEE members can self-nominate, or be nominated, for Senior Member grade.

Do You Have the Skills and Drive to Lead an IEEE Chapter?

The FWCS is looking for an individual or individuals to lead our Joint Computer (CS) and Aerospace & Electronics Systems Society (AESS) Chapter.

Our former Chapter Chair, Jim Cavanaugh, relocated out of the FWCS area, and we really hated to see him go, but understand when our very dedicated and skilled volunteers have to move on.

With that said, we know, out there somewhere in our area, we have another volunteer who can lead this Chapter for the FWCS. If you are looking for an opportunity to hone skills at leadership, this is your chance! Contact section officer (see Page 2 of this Signal) for details.

Leader's Center

Paul Schnitzler, Ph.D—Life Senior Member

Organizational Change—The Problem

Introducing change into an organization is often difficult. Notes in this space, below and in the future, will discuss how the change manager can have troubles and how to handle them. As a start, consider this case:

A contract engineering company was not winning as many bids as it had last year. The president believed the engineers were not using modern bidding methods. He blamed this on the use of a standard spreadsheet program to create their bids. He was very worried so he bought an expensive proposal development program and directed the engineers to use it.

A year later, the engineers were taking longer to write bids and still were not winning more contracts! Gradually the engineers surreptitiously moved back to their spreadsheet approach because the new program simply could not do things that they needed. Eventually the president agreed to allow the engineers to go back to the older methods.

What went wrong?

- The president never asked the engineers what they thought caused the problem.
- He did not ask for their help in solving it.
- He did not help them see that fixing the problem would be good for them as well as the company.

He believed that he knew what had to be done and so never tried to learn about the actual needs. Instead, by installing the new software, he created additional work for the engineers, did not actually solve the real problems, and, in the process, made his employees feel very anxious. None of that helped the company.

This is one example of how a needed change can fail. Did you know that change fails over 70 percent of the time? That need not be the case.

Going back to the president's action: If he spoke with the engineers he would have learned what was getting in the way of creating good proposals; employees often know more about the workings of a system than the manager. The engineers might have suggested solutions to the difficulties; they work with the situation and are familiar with available tools and approaches. Finally, the engineers would have felt involved and would have wanted to help make the changes work.

The president didn't want the engineers to think that he did not know what to do. In his fear, he lost the opportunity to increase the company's internal capabilities as well as win more contracts.

As a leader, remember that you do not have to know everything. Your employees can help you be more effective and in turn they will feel more valued. That builds a strong, successful organization.

Do you want to know more about introducing change? Watch this space for the next installment.

Don't want to wait? Then go to <http://leadchangewithoutfear.com/> and check the tab "Successful Real Change."

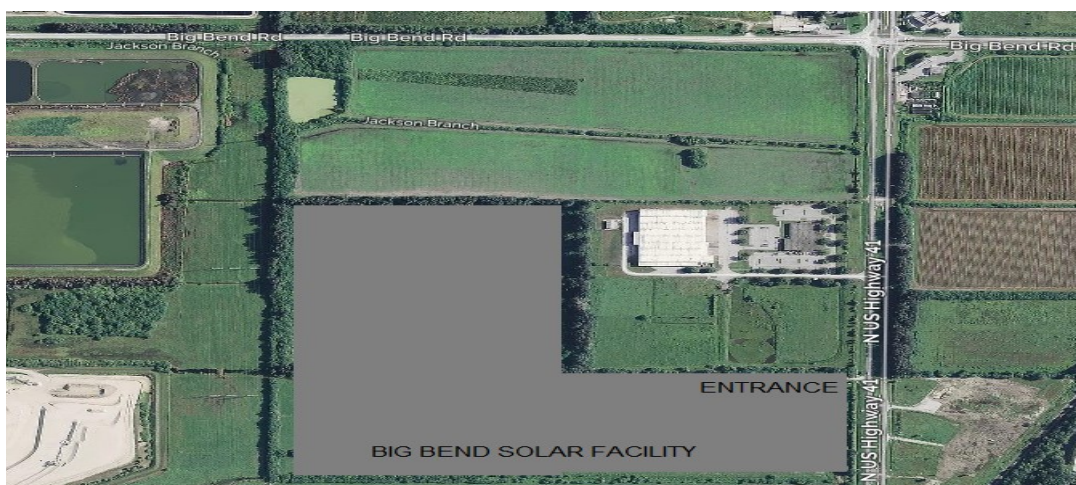
		
<h2 style="color: red; text-decoration: underline;">Tour of Tampa Electric Big Bend Solar</h2>		

Date: September 22, 2017
Time: 1pm-3pm
Cost: Free for IEEE Members and Students, \$10 Non-Members and \$5 for non-IEEE Students
 Make checks payable to: IEEE FWCS
 Send checks to: Jim Howard, IEEE FWCS Treasurer
 3133 W. Paris Street
 Tampa, FL 33614-5964
Speaker: Ryan Copley, Tampa Electric Electrical Engineer
Location: US41, west side, ½ mile south of the US41 & Big Bend Road intersection
 (see map below)
RSVP: Online at: <http://time2meet.com/fwcs-meetings/>
 Space limited to the first 30 registrants!!!

Your local IEEE FWCS will host a tour of the new Tampa Electric Big Bend Solar Electric Generation station - the largest solar energy installation in the Tampa Bay area. The 23-megawatt (MW) photovoltaic array includes more than 200,000 thin-film solar panels that track the sun. Tracking solar arrays produce over 30 percent more energy than fixed solar arrays. The array will provide environmental savings of up to 30,000 tons of carbon dioxide every year – which is the equivalent of removing up to 6,000 cars from the road.

The project sits on 106 acres of company-owned land at the Big Bend Power Station in Apollo Beach and has the capacity to power nearly 3,300 homes. It began commercial operation in February 2017. "Tampa Electric is proud to have built the Tampa Bay area's largest solar array," said Gordon Gillette, president of Tampa Electric. "This investment in large-scale solar using the latest technology further demonstrates our commitment to clean energy, as part of our commitment to deliver affordable and reliable energy to our 730,000 customers."

The Big Bend installation is the third large-scale solar project for Tampa Electric since 2015. The first, a 2-MW facility on the top floor of Tampa International Airport's south economy parking garage, produces enough electricity to power up to 250 homes. Tampa Electric also installed a 1.8-MW solar facility at LEGOLAND® Florida Resort.



 <small>IEEE INDUSTRY APPLICATIONS SOCIETY</small>		 <small>Power & Energy Society™</small>
<h2 style="color: red;">Tampa Armature Works (TAW) Factory Tour</h2>		

Date: Friday, November 10, 2017

Time: Tour: Noon – 3PM

Location: 440 South 78th Street, Tampa, FL 33619

Cost: \$10 Members, \$20 Non-Members, \$5 IEEE Student Members

RSVP: Online at: <http://time2meet.com/fwcs-meetings/>

Make checks payable to: IEEE FWCS

Send checks to:

Jim Howard, IEEE FWCS Treasurer

3133 W. Paris Street

Tampa, FL 33614-5964

Questions: Tom Blair at 813-228-1111, ext 34407 or thblair@tecoenergy.com



IEEE invites you to a Tour of the TAW Motor Repair Facility in Riverview, Florida.

Tampa Armature Works Inc. is a family of integrated power solution providers. TAW has been providing design and repair services for electric motors, generators, transformers, pumps, drives, metal clad switchgear, metal enclosed switchgear, and all rotating apparatus since 1921. If it spins, turns or rotates, chances are TAW has seen it and repaired it.

TAW provides portable generator servicing, custom engineered switchgear, generator packaging, power controls and automation to power distribution equipment, motor repair, and service of all kinds of equipment — including wind and nuclear power.

This will be a great opportunity to discuss with the experts any motor control problems you may have had in the past with large motors or drives, as well as see the up-to-date equipment located at this TAW facility.



ITI/GE Instrument Transformer Presentation

Date: Friday, December 8th

Time: Presentation begins at 2:30 PM followed by the Tour!

Cost: Free for Members, \$10 Non-Members and \$5 for Students
Make checks payable to IEEE FWCS and mail a check in advance to IEEE PE/IA Chapter Treasurer:
Jim Howard
3133 W Paris Street
Tampa FL 33614-5964

Speaker: Claudio Morejon | Southeast Sales Manager for ITI/GE Instrument Transformers

Location: GE Plant; 1907 Calumet Street, Clearwater FL 33765

RSVP: Online at: <http://time2meet.com/fwcs-pes2/index.html>
Space limited to the first 45 registrants!!!

Questions: Steve Antman at 863 701-4170 or steveantman@gmail.com

Typical questions addressed in the presentation and tour:

- What is a CT and how does it work?
- How is a CT fabricated?
- How is a CT tested at the factory and what ANSI & IEEE test standards must be met?
- What is the difference between metering accuracy CTs and relay accuracy CTs?
Can you have one that is both?
- What is the CT thermal rating factor and what does it mean?
- What are the different kinds of CTs? ...window; split core; wound; etc...
- What is the difference in construction between a multi-ratio CT and a single ratio CT?
- Is there any time when a single ratio CT is preferred over a multi-ratio CT?
- What are the specific considerations for high voltage equipment bushing CTs?
- What are the specific considerations for low voltage (600V) CTs applied for HV applications?
- How do the standards get used – specific application examples

Advertising Section

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The CTs, actuators, and wiring harness from the original AC-PRO® can be used with the AC-PRO-II®.

Communications

RS485 Modbus RTU communications is standard.

Programming

Settings are programmed using the OLED multi-line display and "smart" buttons that change their function according to the information displayed. All of the settings are entered using simple parameters (no percentages or multipliers required).

OLED Multi-Line Display

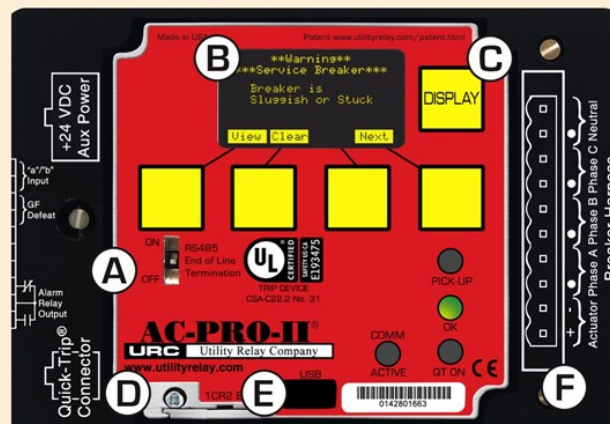
The easy to read multi-line display provides real time monitoring of 3-phase, neutral, and ground fault currents. The display unit can be rotated to allow the trip unit to fit in a variety of different breaker configurations.

Last Trip Data

The trip units retain all of the trip data for the last 8 trip events. This data includes the date, time stamp & waveforms of each event using the integrated real-time clock.

USB Port

The electrically isolated front mounted USB port allows for easy access of trip data and protection settings. It can also be used to upload the trip unit settings, making commissioning the trip unit much faster.



- A** RS485 MODBUS RTU COMMUNICATIONS IS STANDARD
- B** EASY TO READ OLED MULTI-LINE DISPLAY
- C** DISPLAY CAN BE ROTATED FOR VARIOUS INSTALLATION OPTIONS
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- E** ELECTRICALLY ISOLATED USB CONNECTOR
- F** BACKWARDS COMPATIBLE WITH THE ORIGINAL AC-PRO® ACTUATOR & HARNESS CONNECTION



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The green LED indicates that the trip unit is operating properly. This feature:

- ☐ Continuously monitors the trip unit
- ☐ Verifies that the actuator is connected
- ☐ Monitors the software routines
- ☐ Monitors the micro-controller

50 Hz or 60 Hz Operation

The AC-PRO-II® is user selectable for 50 Hz or 60 Hz applications.

Construction

- ☐ Conformal coated circuit boards
- ☐ Contamination resistant membrane keypad
- ☐ All metal nickel plated enclosure

Warranty

All AC-PRO-II®s come with a 2-year limited warranty.

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IEEE, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331 or call (800) 678-4333
Or fax your address changes to (732) 562-5445

August 2017 Calendar of Events (For more information see P. 1) in this Signal...

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 <i>EXCOM Meeting 5:30 TECO Plaza</i>	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		