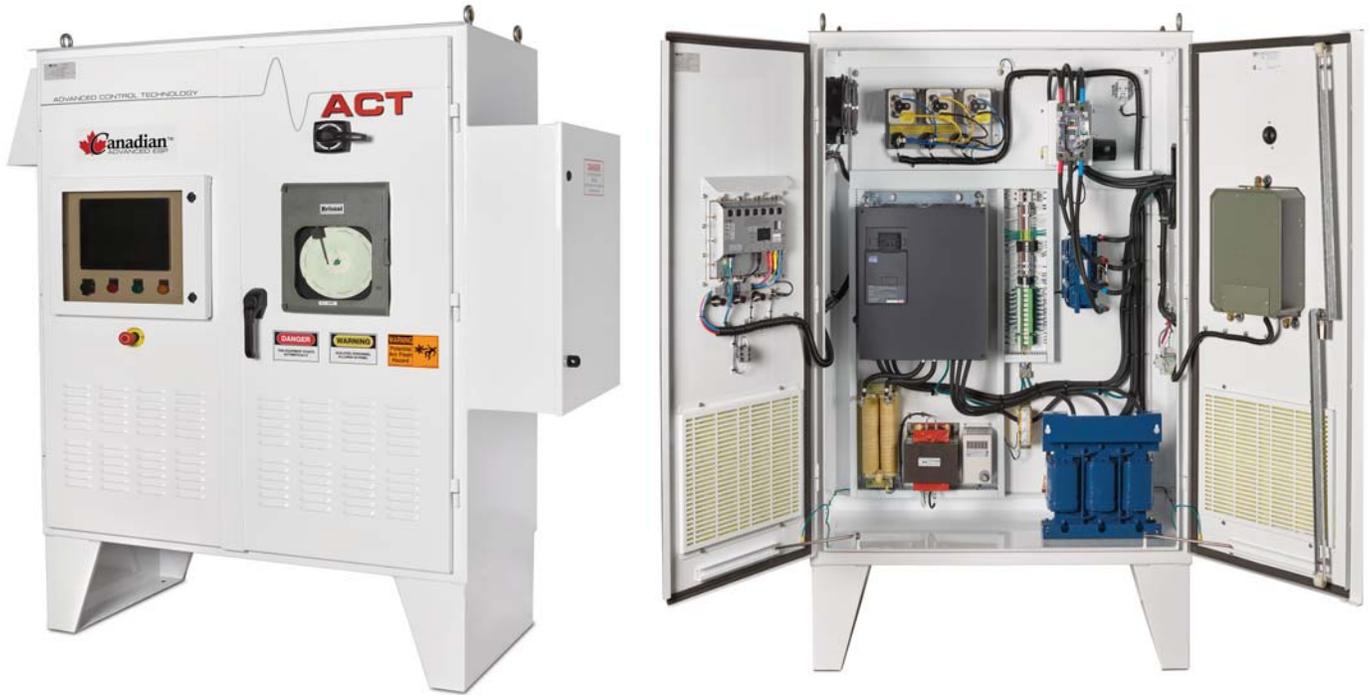


# Advanced Control Technology

# 4.0



Innovative Solutions for Moving Fluids to Power the World



## Innovative Solutions for Moving Fluids to Power the World

By bringing together a highly experienced team with state-of-the-art manufacturing and a deep commitment to customer service, Canadian Advanced is able to deliver superior high pressure pump applications and leading variable speed drive systems to the global oil

and gas industry. Located in the heart of Canada's energy sector, our focus is on Electric Submersible Pump Systems for Artificial Lift applications, Horizontal Pump Systems for a variety of high pressure applications and innovative Variable Speed Drive Systems.

**Engineered** Operating sophisticated production processes in challenging conditions, extreme climates and remote locations requires reliable pumping systems. Canadian Advanced pumping systems are the industry choice, producing more flow, more head, greater efficiency and wider operating ranges than most competitor's offerings.

Canadian Advanced creates high quality, innovative, safe and environmentally sound solutions by applying advanced state-of-the-art technologies, strict quality management and superior engineering capabilities. Our detailed process and application knowledge has allowed us to develop several patented engineering solutions as well as custom design systems when required.

**Quality and Safety** All Canadian Advanced operations are certified to ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 standards to ensure the highest quality products with the greatest value for customers worldwide. Quality assurance begins with a contract review and continues throughout the entire process. All products are inspected and performance tested in line with relevant API and other specification criteria before leaving the factory.

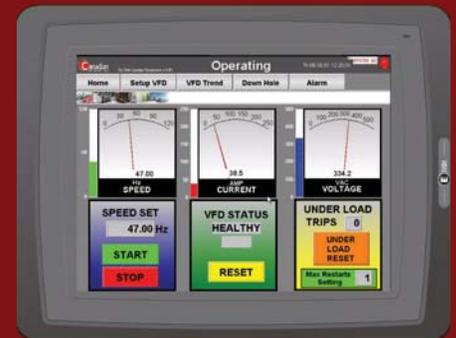
# Introduction to our new ACT-VFD Control Panel

Canadian Advanced is proud to introduce our new VFD product line - the Advanced Control Technology ACT-VFD. ACT-VFD is supplied with the latest, high performance, full vector drive technology. With superior starting torque, precise speed control, real time system information and touch screen operation, ACT-VFD rivals all other VFD technologies in the ESP industry today.

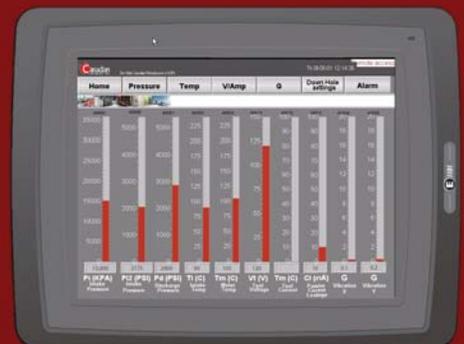
Models are available in a wide range of power ratings to suit most ESP and HPS control requirements. Each model is attractively packaged in a custom designed enclosure with a bright and visually stunning, color touch-screen. With the look and feel of a webpage, navigating and programming the user interface is simple and intuitive. The touch-screen also supports multiple communication options including remote screen and data access over modems and the internet.

ACT-VFD panels are pre-programmed to network directly with the downhole sensor. All operational system data is displayed geographically in real time and recorded for retrieval and analysis at a later date. Input and output filtering is standard on all ACT-VFD models to limit harmonic disturbance on the supply line and to deliver a clean output signal to the downhole components.

All ACT-VFD's are manufactured with full Canadian Standards Association (CSA) certification.



ESP Operating Screen



Downhole Sensor Readings Screen



HPS Operating Screen

## Options

- > Custom power ratings.
- > Custom cabinet designs.
- > Desert models rated for -35°C to +55°C ambient temperature conditions.
- > Skid mounted custom designed packages with step-down and step-up transformers pre-wired.
- > Provision for chemical pump, convenience outlet and internal work light.
- > Multiple communication connectivity options including Profibus.
- > Uninterrupted power supply feature.

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# ACT-VFD offers superior starting torque and precise speed control.

## Specifications

- > Available in sizes from 55 kVA to 870 kVA @ 460V.
- > Inverters utilized are Mitsubishi A700 Series and F700 Series.
- > Color touch-screen interface with fully customizable user interface software.
- > Data logging (4Gb will provide two years of data storage, monitoring 3-phase current, amperage, voltage, frequency in real-time and seven downhole sensor channels with a one second sample frequency).
- > Long lead output filters, 2 to 8kHz (92kVA and higher).
- > 3% input reactor to limit line noise.
- > Enclosure with display windows, side-mounted termination box, internal data pocket, lifting lugs and power coat finish.
- > High volume cooling fans and heater packages are standard on domestic models.
- > Fully tested with resistive load bank.
- > Manufactured with Canadian Standards Association (CSA) certification.

## Features and Benefits

- > All ACT-VFD's are backed by a three year parts and labor warranty.
- > Parameters are specific to ESP and HPS applications.
- > The built-in diagnostic check will forewarn of component failure.
- > The brilliant color touch-screen will operate effectively to -35°C.
- > The fully customizable user interface software is intentionally designed with the look and feel of a webpage, making programming simple, intuitive and offering a visual advantage over other existing designs.
- > Drive interface supports multiple communication protocols for remote access and connectivity to IO devices such as the downhole sensor. Over 230 protocols are available.
- > Current voltage and frequency is recorded and displayed in real time for on-screen charting and downloading.
- > Long lead output filters coupled with load reactors help improve system reliability by reducing harmonic disturbances and corresponding stress on the transformer, downhole power cable and ESP motor.
- > HMI has the option of being wireless, ready for ease of downloading data into Notepad and easily converted to Excel files.

## Contact Canadian Advanced ESP Inc. – Head Office

5307 - 72A Avenue, Edmonton, AB, Canada, T6B 2J1  
Main: 780.469.0770 Fax: 780.450.4592  
Toll Free: 1.888.480.7867  
[sales@cai-esp.com](mailto:sales@cai-esp.com)  
[www.cai-esp.com](http://www.cai-esp.com)

ISO 9001:2008, ISO 14001:2004  
OHSAS 18001:2007  
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