



CAMPBELL[®]
SCIENTIFIC

WHEN MEASUREMENTS MATTER

Company Profile

July 2015

Campbell Scientific Canada Corp.
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Our Core Purpose:

“Always working towards making the best measurement possible.”

Introduction

Campbell Scientific (Canada) Corp. (CSC) is an ISO 9001 certified, Canadian-Controlled Private Corporation providing quality data acquisition systems, sensors and measurement instruments. Our systems feature wide operating ranges and dependable, stand-alone operation. In addition, they have low power consumption from a variety of sources, many telecommunications options, and have the flexibility to support a variety of measurement and control applications. These systems are suitable for use in industrial applications such as vehicle testing, structural monitoring, geotechnical monitoring, and mining. Our automatic weather stations, meteorological, hydro-meteorological, and other sensors are used in environmental applications such as agriculture, air quality, fire weather, water quality, weather, and climate reporting.

CSC is a leader in system design, service, support, integration, calibration, and training. Currently, CSC holds exclusive Canadian distributor rights for products manufactured by the following companies:

- Campbell Scientific, Inc. of Utah, USA
- R. M. Young Company of Michigan, USA
- Kipp & Zonen of The Netherlands
- Hach Company of Colorado, USA
- OTT Hydromet / Hydrolab
- UTC Aerospace Systems (formerly Goodrich Sensor Systems, formerly Rosemount Aerospace) Minnesota, USA
- Geonor of Norway

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Overview

Campbell Scientific (Canada) (CSC) began operations in May 1978 in Edmonton, Alberta and was federally incorporated in June 1980. Since its inception, CSC has been the exclusive Canadian distributor of Campbell Scientific, Inc. equipment, specializing in the development, sales, and maintenance of data acquisition systems.

With company sales growing rapidly, a repair and servicing facility was established in 1981. By 1986, a production facility to manufacture sensors and peripherals of various types was created in order to improve delivery times. In 1988, CSC secured the manufacturing rights for an ultrasonic snow depth sensor from Environment Canada (then the Atmospheric Environment Service). The original sensor went through three meticulous redesigns, making the unit more robust and sensitive to the demands of snow depth and water level measurement, and is now used worldwide in these applications. Currently, there are more than 6,000 SR50/SR50A ultrasonic sensors in use around the globe.

CSC continues to be dedicated to supplying instruments of the highest quality at a reasonable price. As the company has expanded and matured, we have also increased the variety of products we carry to better serve the demands of our customers. The most significant was the inclusion of the R. M. Young Company product line in 1990. The R. M. Young group of indicators, sensitive and operational wind instruments, and temperature sensors are a perfect complement to Campbell Scientific's line of compact, battery operated, programmable dataloggers. Initially designed to serve the stringent requirements of scientists and engineers involved in agricultural and meteorological research, both product lines are manufactured to the highest standards and capable of operating in a wide range of environments from the two poles and everything in between. Kipp & Zonen solar radiation sensors and Hydrolab water quality monitoring products were added to the CSC product line in 2000 to further broaden our ability to serve many different monitoring applications.

Our extensive product range addresses a broad spectrum of markets, from agricultural and hydrological research to environmental monitoring networks, with sophisticated communications and a wide range of industrial applications including vehicle testing (automotive, railway, mass transit), mining, oil and gas production, and engineering. As the expectations of scientists and engineers increase with advances in technology, Campbell Scientific (Canada) maintains our lead in the market and will continue to do so by taking advantage of the latest innovations. The combined worldwide sales of Campbell companies are now in excess of 250,000 dataloggers (approximately 8,000 in Canada).





CSC has recently introduced our second generation, state-of-the-art CC5MPX, a 5-Megapixel Digital Camera, which has been received with great enthusiasm where remote, unattended monitoring is required. In a partnership with Hydro Quebec, CSC manufactures the CS725 Snow Water Equivalent (SWE) Sensor. The CS725 is an innovative non-contact alternative to traditional snow pillows commonly used today. In 2013, we introduced the CS230 Temperature Profiler, a completely sealed probe assembly with external probes for temperature profile measurement in roadbeds, soils, and water (snow & ice).

In 2012, CSC launched a Field and Data Services department in response to a growing demand for managed monitoring networks. Along with the responsibility of maintaining the physical network, CSC can also handle the collection, management, QA/QC, and reporting of the volumes of data being collected by the network for our clients.

CSC currently includes a product development group, a production and repair facility, and technical consultants who serve in our Sales and Technical Support groups. Additionally, CSC maintains an extensive inventory of products to support service, manufacturing, and improved delivery times of systems to our clients.

With our awareness of market demands, matched only by our commitment to research and development, Campbell Scientific is approaching the future with further development of a range of sophisticated new products, which are scheduled for release in the next few months.



Principal Products

Campbell Scientific Inc.

Campbell Scientific, Inc. manufactures rugged, battery operated dataloggers, data acquisition systems, measurement and control products used worldwide in research, government agencies, and industry. These systems are suitable for use in industrial applications such as vehicle testing, structural monitoring, geotechnical monitoring, and mining. CSI automatic weather stations, meteorological, hydro-meteorological and other sensors are also used in environmental applications such as agriculture, air quality, fire weather, water quality and weather and climate reporting. Campbell instrumentation is known for its flexibility, precision measurements, and dependability—even in harsh, remote environments. Since their inception in 1974, they have manufactured approximately 150,000 systems.

R.M. Young

The R.M. Young product group includes various types of indicators and sensors for monitoring wind, temperature, relative humidity, and barometric pressure. R.M. Young has been manufacturing quality meteorological sensors for over 40 years. Their extensive experience enables them to produce reliable, cost effective products to satisfy the most demanding requirements.

Kipp & Zonen

Kipp & Zonen is a leading manufacturer of solar and sky radiation sensors that are used in climate research, water resource management, agriculture, renewable resource, materials testing, and public health applications. Kipp & Zonen products include a complete range of ISO and World Meteorological Organization (WMO) class meteorological radiation sensors and accessories that cover the full solar spectrum, from UV through the far infrared (FIR). These sensors are widely used in various applications of climatologically research and routine solar radiation measurement

Hach Hydromet

Hach Hydromet has been a world leader for more than 40 years with their innovative designs and manufacture of multiparameter sondes for environmental water quality monitoring.

OTT Hydromet

OTT products have been leading level, discharge, and precipitation measurement for over 130 years. OTT is Europe's largest manufacturer of complete hydrometric systems. OTT is part of the Hach Hydromet group.

UTC Aerospace Systems

With a long history of ice detection in Canada and around the world, UTC Aerospace Systems manufactures the Goodrich (formerly Rosemount) ice detectors, which have an excellent reputation for performance and reliability. CSC distributes these ice detectors around the globe for all land-based applications.

Geonor

With 30 years of experience, GEONOR produces the well-known T-200B series automatic precipitation gauges for rain and snow.





Lufft

In 2015, the Lufft Company of Germany and CSC became partners in a mutual distribution agreement. Lufft has been producing professional environmental measurement products for over 130 years and their instruments are used throughout the world in meteorological, industrial, and road weather applications.





In-House Facilities

Product Design

Solid Works and AutoCAD are used for site drawings for station installations, and to produce working drawings, assembly guidelines and mechanical designs for new products. Protel is our program of choice for developing electronic circuit board designs.

Production

Our facilities include highly efficient and experienced personnel for the assembly of associated peripherals and sensors and the manufacture of complete systems tailored to the customers' requirements. Large production efforts, such as stuffing of circuit cards, are carried out by ISO 9001 registered and certified third party companies, with final assembly and testing completed in-house. Our inventory includes upwards of 4000 finished products, unfinished products, and spare parts.

Test, Repair and Calibration

CSC has acquired a comprehensive range of test equipment, which is serviced and calibrated yearly to NIST (National Institute of Standards and Technology) values. A series of environmental freezers, plus state-of-the-art environmental chambers for testing electronic equipment over the range of -65°C to +85°C, ensures that Campbell Scientific products will operate to specification in harsh conditions. This is a major segment in the testing and evaluation of our products and components.





Special Services

Data Services

We offer data collection, hosting, delivery and display services in support of your monitoring project. Our servers located in Edmonton, can easily collect your data and images from any location while providing secure backup. Delivery and display options are very flexible and we can accommodate your varied and unique requirements. At a glance, we provide the following Data Management services:

At a glance, we provide the following Data Collection services:

- Data and image collection, hosting, storage, and backup
- Flexible data delivery and display options (FTP, web display, etc.)
- Multiple communication options including Iridium, cellular, Ethernet, and landline.

Installations and On-Site Maintenance

Campbell Scientific (Canada) Corp. has a long history of installing turnkey systems for our customers throughout Canada including locations with harsh environments like the Arctic. This process includes the system design and programming of the logger in consultation with the client. As part of the installation phase and when required, Campbell Scientific will provide specific hands on training. Many of our customers find this the most efficient and cost effective method of commissioning a new system and even contract Campbell Scientific to do the on-site maintenance of their systems.

Monitoring/Data Acquisition Workshops

The majority of our client base is self-taught using our detailed instruction manuals. However, Campbell Scientific offers a variety of Monitoring/Data Acquisition Workshops, which are based on a hands-on approach.

General Courses

CSC routinely offers a two day General Course at our Edmonton facility. Individuals who complete the General Course will leave with a solid understanding of the logic behind a Campbell System, which will allow them to set up systems for almost any application.

Private Courses

We offer private courses either by travelling to the customer's facility or holding them at our Edmonton location, with the concept of the private course being similar to our in-house workshops but tailored to the client's specific application.

Advanced Courses

These courses are generally offered to clients who have already taken a general or private course. The advanced course focuses on advanced communications, programming and trouble-shooting.

Prewired, Quick Connect & Programmed Systems

In response to those customers with limited human resources, Campbell Scientific (Canada) Corp. offers systems with Quick Connectors which reside on the underside of the datalogger enclosure. This makes field deployment and maintenance of individual sensors easy. These systems are pre-wired, pre-programmed and tested before they are shipped to the client.



Custom Products

Campbell Scientific (Canada) Corp. understands that each measurement and control application is unique. We are committed to assisting our clients in the design of a custom measurement system for their specific monitoring needs, with the flexibility of the Campbell datalogger allowing us to connect to virtually any required sensor.





Key Personnel

Brian Day, President and CEO

Brian Day is a B.Sc. (Hon) graduate of Laurentian University and began network design and system integration of low powered monitoring and data acquisition systems when this technology first became available in Canada in 1978. As a consultant to leaders in the fields of scientific research, education, and government, Mr. Day works with these groups on developing standards in proper measurement techniques and data analysis. Mr. Day is the President & CEO of Campbell Scientific (Canada) Corp., with responsibilities that include all project management, operations, and supporting functions.

Carl de Leeuw, VP of Sales & Marketing (CMO)

Carl de Leeuw holds a B.Sc. in Physical Geography and graduated from the University of Toronto in 1986. Mr. de Leeuw has extensive experience in research, cartography, and hydrogeology and is the designer of the Canadian Military's Met Ranger 1 Quick Deploy Weather Station. He has been with Campbell Scientific (Canada) Corp. since 1988 beginning as an applications technician. He managed our Eastern Canadian operations for eight years. In 1999 he assumed responsibility of our Marketing/Sales/Support Department for all of CSC. He is a director of the company and serves on the CSC Board. In 2010 he became the VP of Sales & Marketing.

Glenn Bosch, VP of Operations (COO)

Glenn has been working with government and non-government organizations for several years providing management consulting, project management and business analysis. Notable achievements include his involvement with the Alberta Communicable Disease and Outbreak Management System and integrating the University of Alberta's Registrar's Office with a province wide registration process (Apply Alberta). Glenn's consulting career included time spent with a large international firm and also operating his own company since 2004. Glenn joined Campbell Scientific (Canada) Corp. in 2010. Glenn has a Master of Business Administration and Bachelor of Education Degree from the University of Alberta, and has attained a Computer Systems Technology Diploma from Northern Alberta Institute of Technology.



Industry Experience

Selected Application Installation References

These references are representative of a CSC customer and their application requirements. Please contact our office to discuss a specific application.

Centre for Mathematical Modeling and Computer Simulation (India)

In 2012, the Centre increased the measurement ability at 14 of their profiling stations (32 meter towers) by adding eddy covariance and cloud height sensors. They also added an LCD display to the reception area of the education facility. Running RTMC and using GPRS communications, the display presents data from sites throughout India. Atmospheric, solar, and soil parameters are measured using the CR3000. Although the network was originally set up for fog forecasting in 2008, the success of the project has warranted these new areas of study, making the profiling towers a major source of environmental data.

Solar Performance Monitoring Networks

Since the introduction of the 2009 FIT (Feed in Tariff) program in Ontario to encourage renewable energy development, this sector has grown significantly. CSC has been supplying and installing weather stations for various renewable energy applications, including wind and solar resource prospecting, and permanent monitoring stations. The permanent monitoring stations in photovoltaic (PV) projects help owners monitor performance of the PV panels by measuring incoming solar radiation using the Kipp and Zonen CMP11 pyranometer, back of module temperature using the 110PV temperature sensor, as well as various other meteorological parameters. In large-scale projects, the stations provide data to the IESO (Independent Electricity System Operator), who forecasts and monitors electricity consumption throughout the province. To date, CSC has installed CR1000 based weather stations in five 10 MW projects, and has equipment installed in solar installations over 100MW.

Canadian Climate Reference Network

Environment Canada began establishing a Climate Reference Network to World Meteorological Standards in 2001. This series of weather stations, located across Canada and in the Arctic, is now based on the CR3000 Micrologger.

Synchrude Reclamation Monitoring Project

Synchrude, near Fort McMurray, AB, is involved in its first ever reclaimed fen/wetland area. This fen includes low-lying wetland areas complete with boardwalks for visitor access, as well as hummocks built up from reclaimed soils. There are currently three CR1000 meteorological stations set up at various locations in this reclaimed area. CSC was involved with the installation of the CS725 Snow Water Equivalent Sensor at each of these three stations. This CS725 is the key in providing data to help forecast pooling potential of water in the low-lying areas. Data collected from these stations will facilitate further development with this reclamation project.

***Syncrude Canada Limited***

The data acquisition hardware that reads geotechnical sensors placed in the Mildred Lake tailings ponds was upgraded to the current version of Campbell Scientific hardware. The original Campbell equipment was approximately 20 years old and still functioning reliably to manufacturer's specification, it was replaced for life cycle management reasons.

Confederation Bridge Project

The Confederation Bridge linking Prince Edward Island to New Brunswick is being monitored using a network of seven CR9000 (high speed) Measurement and Control Systems and seven CR10X Measurement and Control Modules, which provide information to researchers on the effects of ice impacts and loading on the bridge during winter conditions. A 21XL-based weather station is also used to gather general background weather information in support of this project. The year 2012 marks the 15th year anniversary of this continuous monitoring project.

Department of National Defense (CFB Gagetown, NB)

Originally installed as a network of eight CR10-based fire-weather stations in 1989, the network at CFB Gagetown in New Brunswick continues to grow and evolve to meet the demands of NATO forces training at one of North America's largest live-fire exercise areas. CSC continues to maintain the network on a regular basis, as well as advising decision makers on what equipment can be provided to meet their ever evolving needs. Recent upgrades to the network have seen the numbers increase to ten CR3000-based stations, with new faster spread-spectrum radios, augmented measurement capabilities and remote cameras deployed at key locations. The stations provide ambient environmental conditions which are processed by a central computer to provide information such as: Fire Weather, Heat Stress Index, UV Index and Wind Chill data for the safety of troops in the training area and civilians beyond. The MetRanger 1 and MetRanger 2 are portable quick-deploy systems that CSC has been providing to CFB Gagetown since 2001 for global deployment by the Department of Defence.

Manitoba Hydro Civil Site Investigation Group

Manitoba Hydro Civil Site Investigation Group currently uses a network of Campbell Scientific CR1000 dataloggers with Ethernet and Radio Telemetry systems to monitor a series of dam and reservoir sites throughout Manitoba. Sensors include vibrating wire transducers for structural stress as well as pressure transducers for water levels. Monitoring equipment is installed once a construction site is chosen; it captures baseline conditions, and then continues to monitor conditions through construction, commissioning, and operation.

Ministry of Transportation (British Columbia)

The Ministry of Transportation in British Columbia has maintained a network of 100 stations (a combination of CR10, 21XL and CR10X dataloggers) throughout the province since 1985 for the purposes of supporting its Avalanche Forecasting Program. All the stations are polled using Campbell Scientific's telephone/RF Telemetry system, NL100 or digital cell phone. Since 2000, the Ministry has been expanding its extensive Road Weather Information System and Frost Probe Monitoring network by adding a combination of CR10X based RWIS Stations with Vaisala and Anderrea Road Pavement Sensors.



Other Clients

Consultants

AMEC Foster Wheeler
EBA Engineering Consultants Ltd.
ExactET Systems Inc.
Klohn-Crippen Consultants Ltd.
Fleet Technologies Limited
Genivar
Golder Associates
M.A. O'Kane Consultants Inc.
Rotek Environmental Inc.
RWDI
Stantec Consulting Ltd.
Zephyr North

Industry

Cameco
ConocoPhillips
Endurance Wind Power
General Motors Canada
Hydro Quebec
Inco
Lear Jet
Measurand
McCain Foods
Newfoundland & Labrador Hydro
Ontario Power Generation
Ortec
P. E. I. Wind Test Site
Rio Tinto Alcan
Shell Canada
Suncor
Syncrude
Union Gas Limited
Vestas

Federal Government of Canada

Agriculture and Agri-Food Canada
Bedford Oceanographic Institute
Canadian Coast Guard
Canadian Inland Waters
Environment Canada
Meteorological Services Canada
Natural Resources Canada
National Research Council (NRC)
Parks Canada
Water Survey Canada
Fisheries and Oceans
Forestry Canada
Aboriginal Affairs and Northern Development
National Hydrology Research Institute

Provincial Governments

Ministry of Agriculture
Ministry of Environment

Ministry of Forests
Ministry of Infrastructure
Ministry of Natural Resources
Ministry of Transportation

Municipalities

City of Edmonton
City of Gatineau
City of Guelph
City of Toronto
City of Kelowna
City of Markham
City of Moncton
City of Montreal
City of Ottawa
City of Regina
City of Saskatoon
City of St. John's
City of Vancouver
City of Victoria
City of Winnipeg
District of Mission
Town of Essex

Conservation Authorities

Credit Valley Conservation Authority
Essex Region Conservation Authority
Toronto and Region Conservation Authority
Maitland Valley Conservation Authority

Universities

(includes several departments at each university)

Carleton University
Laurentian University
McGill University
McMaster University
Memorial University
Queens University
Université Laval
Université de Montréal
Université de Québec
University of Alberta
University of Alberta
University of British Columbia
University of Calgary
University of Guelph
University of Manitoba
University of Regina
University of Saskatchewan
University of Toronto
University of Victoria
University of Waterloo
University of Western Ontario
University of Windsor
Wilfrid Laurier University