Dracal TECHNOLOGIES

REMOTE DATA LOGGING STATION — SENSGATE

The SensGate Overview

The SensGate is a simple to operate multi-functional unit.
It allows you to remotely connect seamlessly one or more USB Dracal Technologies sensors and see all of them like if they were connected directly to a USB port on your computer. All of this without drivers or additional hardware.

Connecting to a SensGate is a breeze and is accomplished using one of the three available connection types: USB, Wi-Fi or Ethernet (USB over IP). No drivers are required. The use of a router to establish a Wi-Fi connection is possible but not mandatory since a SensGate can easily be set up as an Access Point (AP), creating a protected subnet to connect together all your other SensGates and your computer.

The SensGate not only allows you to access data from your Dracal sensors through our free DracalView software seamlessly as if they were right next to you, but also, simultaneously, to view and save your data locally on the device providing desirable redundancy for your valuable data.

For those who want to integrate their data with their own systems: we have thought of you. A set of intuitive tools is at your disposal so that you can be in full control of your data flow.

To maintain our promise of precision, advanced data synchronization and delay correction algorithms ensure that Dracal instrument data coming from multiple sources are all synchronized for robust and reliable time stamping.

With 3 gigabytes of dedicated flash data memory, your SensGate can record data for months without network access, all you need is a power source. The Sensgate will automatically resume your recording task following a sudden power outages, without corrupting the log file.

The SensGate can be powered by an external power adapter or by Power over Ethernet (PoE).

Firmware updates may be done in complete safety by wire or by Wi-Fi (firmware-over-the-air (FOTA)).

By using our data acquisition software, you'll be able to operate your SensGates while taking advantage of all the features our DracalView software already offers. You will be able to access, visualize and log data from all sensors connected to your computer, HUB, and SensGates simultaneously in just a few clicks.

Simply put, you will love it!

Visit our website for more information on our data acquisition and integration software.

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The SensGate Key benefits

Features	What's in it for me?
3 MINUTES SET-UP TIME	
1. Power up the SensGate; 2. Connect it to a computer with the latest version of our free DracalView software installed; 3. Discover your SensGate with the scan button. You can now access your SensGate via its built-in WEB server and start logging.	Save valuable time by avoiding an exhaustive installation and configuration that requires computer know-how.
NO SOFTWARE DRIVERS REQUIRED	
Works right out-of-the-box with Windows, Mac OS or Linux.	Avoid the burden of periodic downtime and additional drivers configuration following an operating system upgrade.
NO ROUTER OR SWITCH NEEDED	
Although possible, no router, switch or Wi-Fi router is necessary to operate the SensGate.	A simpler and more secure installation to take full advantage of the SensGate's capabilities, without additional equipment expenses.
ENJOY SIMULTANEOUS ON-BOARD LOGGING AND DRACALVIEW FULL CAPABILITY	
The SensGate is capable of simultaneously running an on-board recording process while sending the sensor data to our DracalView data acquisition software.	Use every capabilities of DracalView, and your SensGates, simultaneously and without compromise
SECURE ACCESS AND AUTHENTICATION	
All accesses to a SensGate may be password protected. You may use a different password for each SensGate.	Have the peace of mind that no one will be able to access your data and recording tasks if you so choose.
SECURE DATA ENCRYPTION OVER WI-FI	
Developed by the Wi-Fi Alliance, communication using the Wi-Fi link is encrypted and protected by WPA, a more sophisticated data encryption than WEP.	Rest assure that your data are secured and protected.
CROSS PLATFORM COMPATIBLE	
The SensGate operate with Linux, Windows and Mac OS.	No matter what your operating system is, the SensGate will adapt seamlessly.
ROBUST USB CONNECTIONS	
Industrial grade USB connectors with a high retention mechanism for reliable robustness even in the most extreme environments.	Your connections won't vibrate or disconnect.
AUTO-RESTART MECHANISM	
Following a power interruption, the SensGate automatically resume any logging process, without corruption of the file(s), thanks to its built-in files, sensors and advanced FLASH memory management technology.	Log your data with peace of mind. Avoid cutting your weekend short because of a trip to the office or jeopardizing valuable data, especially for a long test.
BUILT-IN WEB SERVER	
The built-in web server is compatible with most browsers and allows a user to access the SensGate and log files at a glance.	Make it easy to access your SensGate from any computer, tablet or phone.
SUPPORTS SIMULTANEOUS SENSOR DATA ACCESSES	
A sensor may be accessed simultaneously by more than one log file processes on the same SensGate.	Execute multiple recording tasks simultaneously, at different acquisition intervals, on the SensGate or with our software on a computer.
INNOVATIVE USB CONNECTIVITY MANAGER	
Manages the connectivity status, errors and data transmission of all sensors, making them available for recording.	Eliminate "frozen" recording processes, avoid data loss, and seamlessly reconnect a disrupted sensor due to EMI or other disruptive events.
MIX & MATCH ECOSYSTEM	
All Dracal Technologies sensors can be connected to the SensGate simultaneously, regardless of the type and number of sensors.	Generate a single formatted data file for the measurements of all your sensors, ready to be used by your spreadsheet.
SENSORS EVERYWHERE	
A SensGate connected to an Ethernet network can be located as far away as you like, without additional equipment.	Take advantage of the ruggedness, reliability and true plug-and-play nature of our devices wherever you need them.
STAND-ALONE CAPABLE	
In remote areas where electricity is available but communication is not, the SensGate, with its dedicated 3 GB memory, can record data on-board from all the sensors you need.	Allows you to do remote logging with little or no configuration on-site. Just install your sensors and power-up the SensGate.
FIRMWARE OVER-THE-AIR (FOTA) UPDATES	
The SensGate supports firmware updates over the air, i.e. via Wi-Fi.	Eliminate the hassle of on-site upgrades.
SAMPLES RATES AS LOW AS 100 MILLISECONDS	
When you start a logging task on the SensGate, you can specify a sample rate ranging from 100 milliseconds to several days.	Allows short and long recording tasks to be performed simultaneously, at different time intervals, with the same sensors.
POWER OVER ETHERNET (POE) CAPABLE	
The SensGate has an Ethernet connection that supports Power over Ethernet (PoE). Power over Ethernet means you don't need to install a power outlet next to it.	Avoid the delays and costs of installing an additional power outlet. Also makes relocating the SensGate simple and easy.
REMOTE SYSTEM RE-BOOTING	
The SensGate can be rebooted on site, using its hidden reset switch, or remotely from your computer.	Save time and avoid the need for an on-site presence to reset units, especially when they are located in remote locations
AUTOMATIC DATA HARMONIZATION MECHANISM	
Thanks to its integrated synchronization module, data from all sensors are measured at the same time and recorded in the system with the same timestamp.	Save hours by avoiding the manual alignment of numerous log files.
ADVANCED DATA SYNCHRONIZATION ALGORITHM BETWEEN MULTIPLE SENSGATE	
At the heart of DracalView is an unparalleled data synchronization algorithm that ensures true synchronization of data from every connection source, whether it is Wi-fi, Ethernet (through the various SensGates) or a direct USB connection.	Allows you to freely exploit all connection sources offered by DracalView without affecting the quality and accuracy of time-stamped data.
WARRANTY INFORMATION	
The SensGate comes with a three (3) year limited liability warranty.	Thanks to its proven Canadian firmware design and robust housing.

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INSTALLATION TIME

Less than 3 minutes.

No additional driver or hardware is required.

NETWORK CONNECTIONS

Ethernet, USB and Wi-Fi.

Simplified connexion of an unlimited number of SensGate to DracalView.

Access point (AP) function for connection of up to 7 clients. (SensGates, computer, smatphone).

Command-line tools available for simplified data integration into your own systems.

INTEGRATED SERVICES

WEB page Management.

Multi-user connections.

Password management.

Integrated data acquisition logger (DAQ).

Real time data display.

Remote system reset.

System log file.

Integrated real-time clock with battery backup.

The RTC may be synchronize via a NTP server.

Firmware updates over-the-air (FOTA).

OPTIONS

Power over Ethernet (PoE).

SPECIFICATIONS

Parameter	Condition	Value	
Ethernet port			
Ethernet Network Standards	802.3u	10/100	Mbits
Power-over-Ethernet	Optional	Optional	–
IEEE1588 compliance (NTP)	–	Yes	–
Connector type	8p8c	RJ-45	–
Shielded	–	Yes	–
Cable category	Minimum	CAT 5	–
Cable length	Maximum	100 (328)	m (ft)
Minimum cable requirements	2-pairs	4-pin	–
USB ports 0 to 7			
Protocol	USB Host	USB 2.0	–
Full-speed	–	480	Mbps
Number of port for sensors	Host	7	–
Type of connector	High-Retention[1]	Type-A	–
Retention force of the connector	–	15N (3.4)	N (lb-f)
Mating cycles	–	1500	cycles
Maximum current per port	–	100	mA
Limited current	–	Yes	–
Short circuit protection	–	Yes	–
Behavior during a short circuit	–	Retry	–
Cable length	Maximum	5 (15)	m (ft)
Galvanic isolation	–	No	–
USB port A (service)			
Protocol	USB	USB 2.0	–
Type of connector	5-pin	Mini B	–
Cable length	Maximum	5 (15)	m (ft)
Maximum current	–	100	mA
Limited current	–	Yes	–
Short circuit protected	–	Yes	–
Behavior during a short circuit	–	Retry	–
Wi-Fi port			
Ethernet Network Standards	802.11b/g/n	72	Mbps
ISM band	–	2.4	G
Transmission speed	Maximum	72	Mbps
Security Feature	IEEE 802.11	WPA	–
Soft-AP support	Built-in	Yes	–
Soft-AP connexion	Maximum	7	Clients
Wi-Fi Alliance certified	No. WFA72428	Yes	–
Wi-Fi sensitivity	1Mbps	-95	dBm
Wi-Fi sensitivity	54 Mbps	-73	dBm
Output power	Maximum[2]	17	dBm
Number of channels	Maximum[3]	13	–
Antenna connector	Female	RP-SMA	–
System			
Microcontroller	ARM® Cortex	A7	–
Microcontroller speed	–	528	Mhz
System memory	eMMC Flash	1	GB
Dedicated data memory	eMMC Flash	3	GB
SDRAM	DDR3	256	Meg
Integrated real time clock (RTC)	–	Yes	–
RTC drift in Stand-alone mode	At 25°C	5	min/yr
RTC network synchronization	NTP	Yes	-
RTC Power backup duration	At 25°C	8	mos

SPECIFICATIONS

Parameter	Condition	Value	Units
Temperature operating range	–	-10 to 50	°C
Humidity operating range[4]	Non condensing	10 to 90	%RH
IP protection class[4]	–	51	–
System galvanic isolation	–	None	–
USB cable length	–	1 (3)	m (ft)
Power adapter			
Voltage	–	12	V
Current consumption	Max, at 12V	1	A
PoE supply			
Supply voltage	–	44-57	V
Power consumption	Maximum	10	W
Current consumption	Maximum	350	mA
Supported modes	–	A or B	–
IEEE Compliance	–	802.3af	–
Mechanical			
Housing material	–	steel	–
Mounting options	Wall or flat	Yes	–
Height of mounting brackets	–	1U	–
Airflow	–	Convection	–
Physical dimensions	See schema below	–	–
Color	–	Black	–
Weight (without accessories)	–	585	g
Weight (with accessories)	–	890	g
Certification			
IC: 20266-WILC3000UA	Canada	20266-WIL-C3000UA	–
FCC ID: 2ADHKWILC3000U	USA	–	–
RoHS	T.B.D.	–	–
Miscellaneous			
Reset button	–	Yes	–
Factory reset button	–	Yes	–
Warranty	–	3	y

[1] More robust than standard USB ports, these connections will not vibrate or come loose

[2] Measured at the EVM/spectral mask meeting the IEEE 802.11 standard.

[3] According to the country's regulations.

[4] If condensation or splashing water is likely to occur, it is recommended that the unit be placed in a safe location to eliminate the risk of water entering the product. If water jets are likely to occur, take extra precautions to protect the unit. An additional enclosure may be considered for some applications.

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On-board view of a real-time log file on a SensGate

Created: Mon Sep 26 12:42:07 2022

Comment: Autoclave-7 process #b Bob King Building-A

Interval: 1 s

DateTime	USB-SPECTRUM E13576:07 VEML6030 WHITE [White light] arb.unit	USB-CO2-TEST E14368:02 Mass Concentration PM2.5 [Concentration] µg/m³	USB-CO2-TEST E14368:13 SCD30 CO2 GAS PPM [CO2 Gas PPM] ppm	TMC-200K E16495:00 Type-K Thermocouple [Temperature] °C	USB-TRH450-CAL E17685:00 SHT31 Temperature [Temperature] °C	USB-TRH450-CAL E17685:01 SHT31 Relative Humidity [Relative Humidity] %	VCP-BAR20 E20310:00 MS5611 Pressure [Pressure] kPa	USB-RTD300 E20337:00 3-Wire PT100 Temperature sensor [Temperature] °C
Mon Sep 26 12:42:07 2022	4590	1.95547	489.825	22.8181	21.7769	51.1269	99.793	22.7156
Mon Sep 26 12:42:08 2022	4579	2.00153	489.682	22.8187	21.7769	51.1666	99.791	22.7171
Mon Sep 26 12:42:09 2022	4583	2.02952	489.682	22.8205	21.7769	51.1269	99.79	22.7187
Mon Sep 26 12:42:10 2022	4584	2.04029	489.643	22.8205	21.7636	51.1254	99.791	22.7199
Mon Sep 26 12:42:11 2022	4586	2.05375	489.643	22.8203	21.7342	51.0933	99.794	22.7219
Mon Sep 26 12:42:12 2022	4588	2.05375	489.895	22.8222	21.7636	51.0719	99.793	22.7232
Mon Sep 26 12:42:13 2022	4592	2.06088	489.895	22.8236	21.7769	51.0857	99.792	22.7244
Mon Sep 26 12:42:14 2022	4595	2.06281	489.895	22.8265	21.7636	51.1116	99.79	22.7257
Mon Sep 26 12:42:15 2022	4595	2.01625	489.705	22.827	21.7636	51.0719	99.794	22.7277
Mon Sep 26 12:42:16 2022	4597	1.98219	489.705	22.826	21.7636	51.1254	99.792	22.7289
Mon Sep 26 12:42:17 2022	4592	1.95155	489.75	22.8263	21.7769	51.075	99.791	22.731
Mon Sep 26 12:42:18 2022	4597	1.94074	489.75	22.8255	21.7475	51.0704	99.791	22.7322
Mon Sep 26 12:42:19 2022	4598	1.91257	489.75	22.8248	21.7342	51.0536	99.792	22.7334
Mon Sep 26 12:42:20 2022	4605	1.87902	490.08	22.8248	21.7475	51.0842	99.791	22.7356
Mon Sep 26 12:42:21 2022	4604	1.87902	490.08	22.825	21.7475	51.0704	99.791	22.7367
Mon Sep 26 12:42:22 2022	4601	1.8395	490.084	22.8243	21.7475	51.0567	99.792	22.7386
Mon Sep 26 12:42:23 2022	4603	1.81435	490.084	22.8254	21.7636	51.0719	99.794	22.7398
Mon Sep 26 12:42:24 2022	4603	1.7926	489.727	22.8264	21.7769	51.0338	99.792	22.7417
Mon Sep 26 12:42:25 2022	4604	1.77382	489.727	22.828	21.7769	51.0857	99.79	22.7429
Mon Sep 26 12:42:26 2022	4600	1.74925	490.043	22.8296	21.7636	51.0979	99.79	22.745
Mon Sep 26 12:42:27 2022	4600	1.72862	490.043	22.831	21.7636	51.0582	99.792	22.7469
Mon Sep 26 12:42:28 2022	4590	1.703	489.907	22.8329	21.7636	51.0857	99.79	22.7481
Mon Sep 26 12:42:29 2022	4587	1.67361	489.907	22.8353	21.7769	51.0338	99.79	22.749
Mon Sep 26 12:42:30 2022	4572	1.67497	490.115	22.8365	21.7769	51.075	99.79	22.7512

On-board view of the sensors connected to a SensGate

SensGate Logging

Connected Devices

Live Data

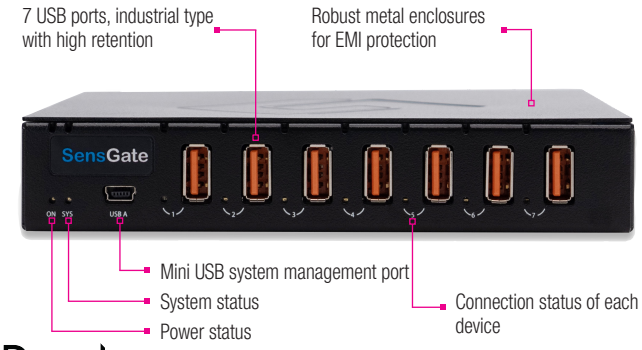
Device #1: USB-TRH450-CAL, E17685, v2.1
- Channel 0: SHT31 Temperature [Temperature]
- Channel 1: SHT31 Relative Humidity [Relative Humidity]
- Virtual Channel 256: Dew point [Dew point]
- Virtual Channel 257: Humidex [Humidex]
- Virtual Channel 258: Heat index [Heat index]

Device #2: TMC-200K, E16495, v1.0
- Channel 0: Type-K Thermocouple [Temperature]
- Channel 1: Thermocouple cold junction temperature [Temperature]

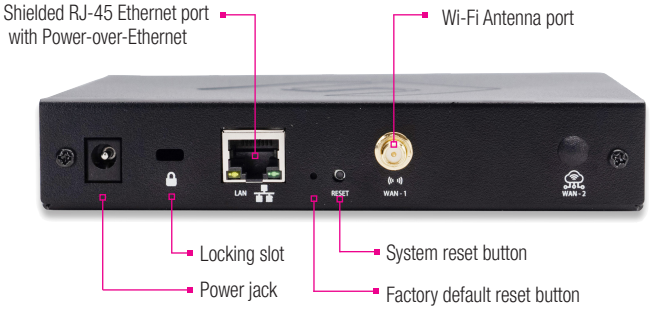
Device #3: VCP-BAR20, E20310, v2.1
- Channel 0: MS5611 Pressure [Pressure]
- Channel 1: MS5611 Temperature [Temperature]
- Virtual Channel 262: Altitude [Height]

Device #4: USB-CO2-TEST, E14368, v1.0
- Channel 0: MS5611 Pressure [Pressure]
- Channel 1: Mass Concentration PM1.0 [Concentration]
- Channel 2: Mass Concentration PM2.5 [Concentration]
- Channel 3: Mass Concentration PM4.0 [Concentration]
- Channel 4: Mass Concentration PM10 [Concentration]
- Channel 5: Number Concentration PM0.5 [Concentration]
- Channel 6: Number Concentration PM1.0 [Concentration]
- Channel 7: Number Concentration PM2.5 [Concentration]
- Channel 8: Number Concentration PM4.0 [Concentration]
- Channel 9: Number Concentration PM10 [Concentration]
- Channel 10: Typical Particle Size [Size]

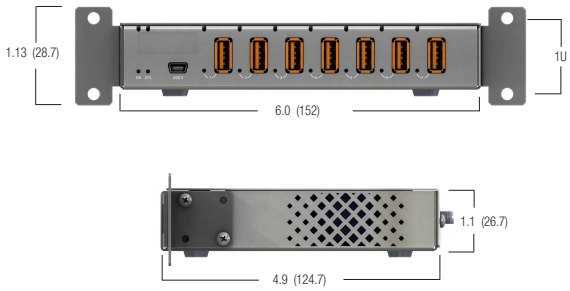
PRODUCT DESCRIPTION (FRONT)



PRODUCT DESCRIPTION (BACK)



PRODUCT DIMENSIONS



Dimensions are in inches [mm]

ORDERING

PRODUCT(S)						
PART NUMBER	PRODUCT	NAME	USB-TO-IP	WI-FI	LOGGER	POE
614200	SG200	SensGatePRO	√	√	√	√

Warning: Do not use this product in applications where product failure could result in personal injury.

Note: While every effort has been made to ensure accuracy in this publication, no responsibility can be accepted for errors or omissions.
Specifications are subject to change without notice and it is strongly recommended to download the most up-to-date data sheet.

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