

BACS North America

- Data Collection Group

CABA & BSRIA

A BSRIA World Market intelligence

11th of November, 2020



Collection group members

The group members so far include:

- Raphael Imhof & Roberto Torres, Siemens Inc
- Troy Maeder & Mead Rusert, ALC Carrier
- Kevin Graebel, Honeywell (include or exclude Tridium?)
- Steve Stanitzke & Michael Leblanc & Tom Daenzer, Belimo
- Boren Tucker, Distech Controls Inc./Acuity Brands, Inc.
- Andrew Tanskey, Schneider Electric
- Patrick Mulcahy & Chris Minning & Christian Lane, JCI
- Robert Hemmerdinger, Delta Controls

All suppliers are entitled to have 3 members in the steering group.

Collection group objectives and timing

Collection group

- A quarterly collection of top-line numbers
- Geographic coverage North America (USA + Canada)
- Output: aggregated market data (no market shares)

➤ First collection will include the **4 quarters for year 2020** to get a good baseline



Reporting format and meetings

- Quarterly aggregated data based on input from suppliers
- A yearly meeting/call to discuss trends and related topics
- Additional questions can be added over time, if members agree. To start with the consensus is to keep it simple.
- BSRIA will estimate based on previous numbers and general trend, if a supplier miss the deadline for the collection so individual supplier numbers are not revealed. The correct numbers will be re-issued when all have delivered.

Deadlines

Submit data (last Monday in each month):

➤ End of January, April, July, October

Collection group output (~ the 15th) :

➤ February, May, August, November

Timeline

	Round 1					Round 2				Round 3					Round 4				
	January		February			April		May		July		August			October		November		
	Mon 18th	Mon 25th	Mon 1st	Mon 8th	Mon 15th	Mon 19th	Mon 26th	Mon 3rd	Mon 10th	Mon 19th	Mon 26th	Mon 2nd	Mon 9th	Mon 16th	Mon 18th	Mon 25th	Mon 1st	Mon 8th	Mon 15th
Mail out of questionnaire																			
Return of questionnaire																			
Data Analysis and QA																			
Issue of data																			
NA BACS report																			
Yearly meeting/call																			

Collection Group - Products covered

Building Automation products

- ✓ All revenue numbers (USD) should be the first point of contact from the factory.
- ✓ Two sales revenue categories. 1) for branded products 2) OEM sales. OEM sales to members of the collection group need to be excluded to avoid double counting.

1. Software

- Supervisory software
- Analytics and Energy/BEMS software
- Total software revenue segmented by premise, cloud and SaaS

2. Routers & Gateways

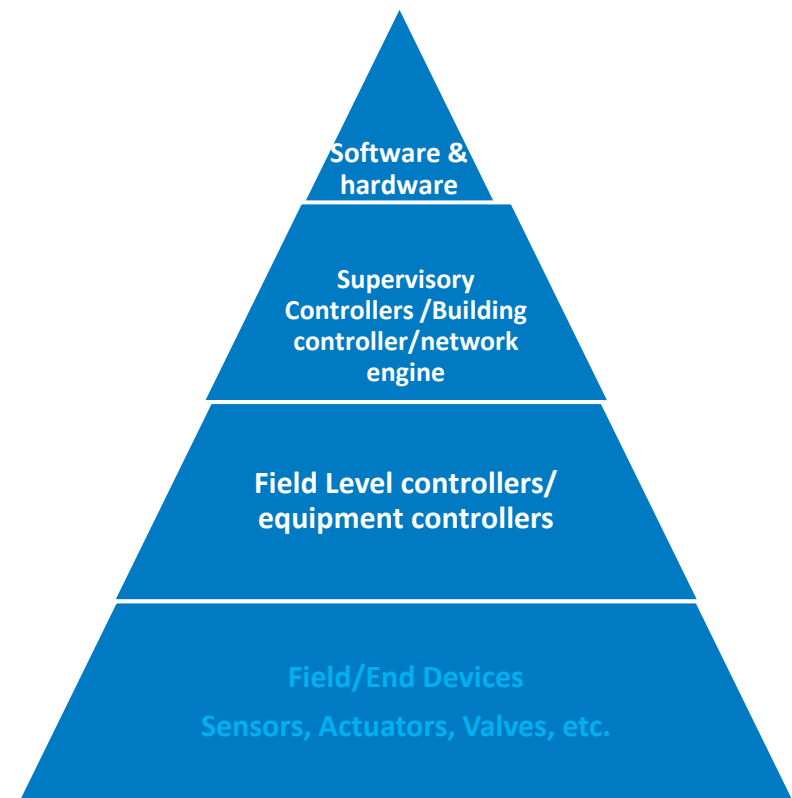
- BAS protocol gateways and BAS network routers
- BACnet SC hubs (hardware or software based security).

3. Controllers

- Building controller
- Room controllers
- Field level controllers, HVAC. 1) fully field programmable controllers and 2) application specific controllers.

4. Fully field programmable controllers and application specific controllers segmented by:

- IP vs non-IP based controller (IP and serial based communications options on-board from the factory)
- Wireless controller (i.e. controller to control wirelessly, not field devices). Actual wireless, not capable of having it.



Notes:

Field devices including sensors excluded might be included at a later stage

Definition and Scope - Software and Hardware

Product	Revenue own brand	Revenue – sales to OEM	Definition	Comment
Software				
- Supervisory software - BAS Server Software			Is a software program, usually part of an operating system, that controls the execution routines and regulates the flow of work. Typically one solution per project. Software that adds additional capabilities to the supervisory controllers such as long-term storage, UI, trending, alarming, scheduling and analytics.	
Analytics and Energy/BEMS software			BEMS helps to manage, control and monitor building technical services and the energy consumption of devices related to the building's use so that energy is used in the most efficient and appropriate way. Analytic software identify and display meaningful patterns and trends in large complex volumes of data. These trends and patterns can be used to identify anomalies, predict events and, ideally to correct problems, reduce cost and facility improvements.	Estimated revenue as software are sold on license, part of service contracts and SaaS. There will be overlaps between the two software categories.
Total software sales	<ul style="list-style-type: none"> • Software installed on premises • Cloud based software • SaaS (subscription based) 		Most software is cloud enabled, so the end-user choose to installed it on premise or in the cloud. SaaS is in most cases carry a monthly fee so should be trackable.	Best estimate as you might have less visibility of sales via channel.
BAS protocol gateways and BAS network routers			Are devices that connects/transmit data between two or more networks.	Controllers, that are capable of acting as routers and/or gateways are not included
BACnet SC hubs (hardware or software based).			Network security solutions	And also 3rd party network devices (such as IT switches and hubs, etc.).

Definition and Scope

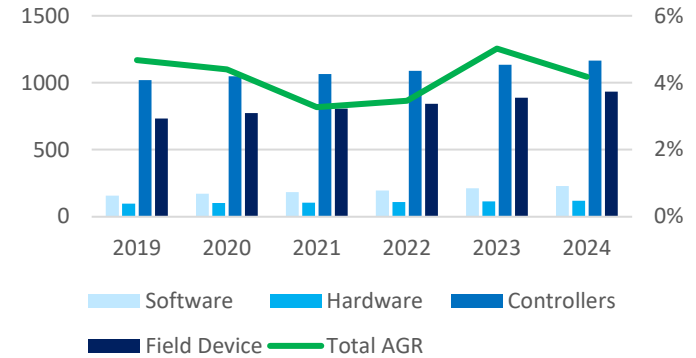
Product	Revenue own brand	Revenue – sales to OEMs	Definition	Control	Communicative	Application	Control panel	Comment
<ul style="list-style-type: none"> -Building controller -Advanced Digital data control (DDC). -Supervisory controllers -Network engines/network automation engines -System controllers. 			<p>Building controller/ advanced DDC takes a centralised network-oriented approach. Building Controllers should be inclusive of any embedded controllers that are designed for large equipment control, plant room control, and/or supervisory control of a subnetwork of controllers. Building controllers may or may not include additional features, such as: embedded user interface, routing capabilities, and/or local protocol integration capabilities.</p>	Primary control	Communicative to other controllers and field devices	Chillers, AHU, Remote Terminal Units	Capable of communicating with a programming device or human interface	It has programmable control logic'
<ul style="list-style-type: none"> Room controller - "Advance" thermostats 			<p>Is an application-specific function for individual or single zone room control. It includes communication functions, monitoring and control. Thermostat with a UI can be classified as a Room Controller if: (a) it is capable of communicating to a BAS; and (b) it is capable of controlling one additional application beyond its primary application (for example, if its primary application is controlling a heat pump, but it also has a spare output point that can be used to control a lighting circuit).</p>	Secondary control	Communicative to field devices and BACS/DDC	VRF, heat pumps (HP), simple (small) AHU, lighting, shade control, sensors etc.	Controller incorporates a "human interface". It cannot have functionality changed	Installed locally to the asset it is controlling
<ul style="list-style-type: none"> Field level controllers -Equipment controllers -Advanced application controllers -Application specific controllers -Asset application controllers - HVAC 			<p>The devices directly control HVAC equipment like VAV boxes, fan coils, packaged equipment, air handling equipment, fans, central plant equipment by interacting with sensors, actuators, etc. Controls that control dedicated equipment. The difference from a DDC is it dedicated purpose.</p> <ol style="list-style-type: none"> 1. Fully field programmable field level controllers 2. Application specific controllers 	Secondary control	Communicative to field devices and BACS/DDC	Fan coil unit (FCU), VAV, chilled beam, boiler, HP, fans	<ol style="list-style-type: none"> 1. fully field programmable VAV controller (in which the whole controller algorithm can be re-programmed 2. application specific - it can be configured, but the algorithms can't be changed). 	The controller is often build in and supplied with the product (sales by OEMs)
<ul style="list-style-type: none"> Programmable logic controller (PLC) 			<p>These are controllers that were originally developed to manage industrial processes, but are being installed in commercial buildings</p>					

Yearly publication

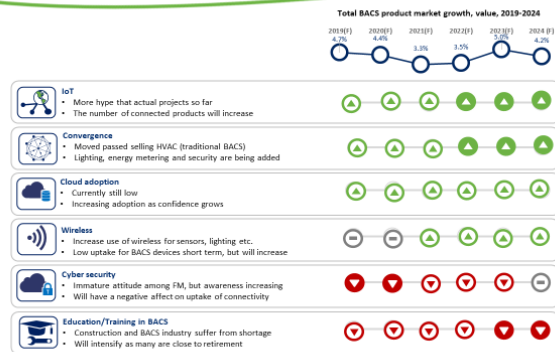
Yearly NA BACS report

- Total market North America 2020
- Market characteristics
- 5-year Forecast and trends
- Verticals
- Uptake of Convergence vs stand-alone systems
- Channel to market
- Installed base (BACS products + other products + labour)

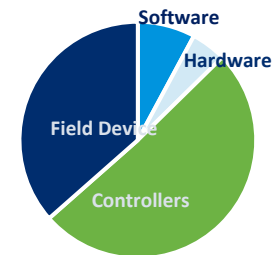
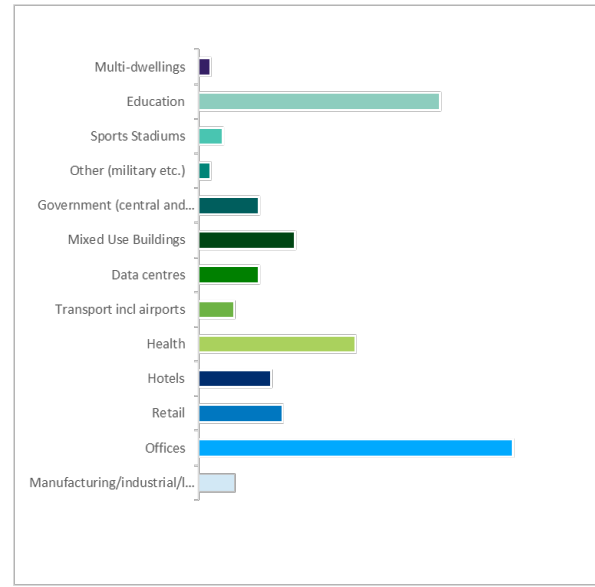
- Includes an opportunity to assess market coverage of the collection group.



Technology drivers



Technology Driver	2019	2020	2021	2022	2023	2024
IoT • More hype than actual projects so far • The number of connected products will increase	▲	▲	▲	▲	▲	▲
Convergence • Moved passed selling HVAC (traditional BACS) • Lighting, energy metering and security are being added	▲	▲	▲	▲	▲	▲
Cloud adoption • Currently still low • Increasing adoption as confidence grows	▲	▲	▲	▲	▲	▲
Wireless • Increase use of wireless for sensors, lighting, etc. • Low uptake for BACS devices short term, but will increase	●	●	▲	▲	▲	▲
Cyber security • Immature attitude among FM, but awareness increasing • Will have a negative affect on uptake of connectivity	▼	▼	▼	▼	▼	●
Education/Training in BACS • Construction and BACS industry suffer from shortage • Will intensify as many are close to retirement	▼	▼	▼	▼	▼	▼





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