



MEASUREMENT. CONTROL & AUTOMATION ASSOCIATION

Quarterly Products Report Guidelines

January 2024



Measurement, Control & Automation Association Quarterly Product Bookings Report – Guidelines

Objective

The Quarterly Product Bookings Report (QPR) provides participants with data trends for domestic orders. Data is reported by participating member companies regularly to build a relevant and valuable industry data source.

Scope of Report

The data represents incoming orders for all industrial process measurement and control instruments, systems and services booked in the United States or Canada for use in the United States or Canada (without regard to the location of manufacture). Participants should not report items sold to other reporting companies; these items should be reported only by the reporting company that sells them to the end user (consumer) or to the end user through a distributor.

Administration

Participants are responsible for designating a person to report data regularly. Participants are asked to inform MCAA of personnel changes that affect the administration of the report.

MCAA Point of Contact: Elizabeth Horton, Programs Manager
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Electronic data requests are sent to participants at the close of the period covered. All data is submitted back to MCAA. After data is collected and verified, reports are compiled and published to the member portal on the MCAA website. Participants receive a publication notification via email.

Schedule

Data requests are issued on the last business day of the calendar quarter and are due before the 20th of the following month. Companies not providing data by the due date will be contacted by phone or email about their intention to report. If a company cannot provide current data, the agent will be authorized to carry forward data reported for a previous period. The delinquent member will restate data on the subsequent report to correct the year-to-date figures. Final reports will be published within 45 days of the data request. If necessary, participants will be notified of publication delays.

Submitting Data

Participating companies will follow the product category definitions outlined in this document when submitting data. This will assure consistency among companies in the calculation of dollars. Significant revisions affecting the dollar value by at least \$5,000 should be reflected in the next reporting period.

Confidentiality Assurance

MCAA holds all reporting company identities in strict confidence and has security measures to ensure that individual information cannot be revealed or determined. Individual company identity is never disclosed to any other reporting company.

Publication

MCAA will analyze the data and report the quarter-over-quarter change and the 3/12 and 12/12 rate of change data that helps identify the business phase. Commentary explaining the business phase and trends for all major reporting segments will be included.

Product Category Definitions

Group 1: FIELD MEASUREMENT

Combines various transmitter types determined by performance characteristics: moderate performance; traditional; and enhanced performance, including microprocessor-based smart types and highly accurate analog types, all producing standard electronic outputs (i.e. 4-20 milliamps). Excludes transducer types, generally those with a strain gauge, semiconductor, or slidewire electronic elements.

Pressure Instrumentation

Differential Pressure (Flow) Transmitters

Includes pipe-connected types that measure differential pressure and produce standard electronic outputs. These transmitters are used primarily for flow measurement with primary elements. However, this category excludes primary elements such as orifice plates, venturis, flow tubes, etc.

Differential Pressure (Level) Transmitters

Includes flanged types (and those with diaphragm seals) used primarily for liquid-level applications and that produce standard electronic outputs. But these transmitters may also be used for level and differential pressure measurements.

Absolute/Gauge Pressure Transmitters

Includes transmitter and transducer types that measure gauge, absolute pressures and produce or amplify standard electronic outputs. Report smart and traditional instruments in appropriate subcategories.

Multivariable Transmitters

Devices specifically designed to measure static pressure, differential pressure, and temperature to calculate the flow in an active industrial process.

Mechanical Pressure Gauges and Switches

Includes bourdon tube and direct drive types of process and stainless-steel gauges used in the process and industrial industries.

Electronic/Digital Pressure Gauges and Switches

Includes piezoresistive/strain gauge, capacitance, resonant based etc. gauges and switches.

All other Pressure Devices

Includes all pressure devices not reported above.

Temperature Instrumentation

Smart Transmitters are microprocessor-based with remote configuration, communication, and diagnostic capabilities.

Temperature Transmitters

Includes transmitters that convert signals from various primary elements such as thermocouples, RTDs and thermistors to a standardized current or digital signal. Includes both field-mounted types and rack-mounted types usually found in control rooms. Report smart and traditional instruments in appropriate subcategories. Excludes related signal conditioner products for multiplying, dividing, scaling, millivolt-to-current converting, etc. These products are considered to be electronic auxiliaries and would be reported in Group 5—Analog Display and Control Systems.

Mechanical Temperature Gauges and Switches

Includes gas-filled and bi-metal type gauges, switches and indicators.

Electronic/Digital Temperature Gauges and Switches

Includes thermistors, resistance temperature detectors (RTD's) and thermocouples (TC's).

Temperature Sensors and Accessories

Includes standalone traditional 2, 3, or 4-wire primary temperature sensing elements such as thermocouples, RTD's and thermistors. Also included in this category are thermowells, protection tubes, connection heads and fittings.

All other Temperature Devices

Includes all temperature devices not reported above.

Volumetric Flowmeters

Vortex Shedding Flowmeters

Includes vortex meters and other fluidic meters for gas, steam and liquid flow measurement.

Magnetic Flowmeters

Includes flowmeters with separate flow tubes (sensors) and signal conditioners (or electronics), flow tubes with integrated signal conditioners (compact meters), and insertion probe types (often used in large diameter pipes or for less accurate measurement). For reporting purposes, flow tubes and signal conditioners, intended to be used together should be reported as one unit. Flow tubes or signal conditioners sold individually should be reported as spare parts.

Turbine Flowmeters

Include turbine flowmeters for industrial, pipeline and oil production applications. Report dollars for meter bodies plus value of signal conditioners intended to be combined with meter bodies to form a flowmeter.

Ultrasonic Flowmeters

Includes Doppler and time-of-flight (or transit time) meters for liquids and gases as clamp-on, spool piece or weld-in design.

Positive Displacement Flowmeters

Positive displacement flowmeters include liquid and gas meters used primarily for industrial purposes (e.g., pipelines, petroleum refineries and marketing terminals, chemical plants, food and beverage applications, etc.). Include PD meter accessories such as registers, ticket printers, air separators, and strainers when these items are sold, as an integral part of the flowmeter; otherwise, these items, if sold separately, are included in the spare parts category of Group 8. Excludes water meters for domestic and commercial service, and gasoline station dispensing pumps.

Rotameters/Variable Area Flowmeters

Rotameters (also called variable area flowmeters) include plastic, glass and metal flow tubes for direct reading, with indicators or built-in transmitters. Rotameters for laboratory instrumentation and similar applications are included.

Differential Pressure Producing Primary Elements (also known as Head Flow Meters)

Includes flow elements developing a differential pressure across a restriction related to the fluid flow rate, such as orifice plates, Venturi tubes, nozzles, Pitot-static tubes, elbow, wedge, and V-cone. Includes primary elements that use a restriction in the line to create a differential pressure. The most widely used type of flowmeter in the process industries for both liquid and gas flow measurement. Excludes Differential Pressure (flow) Transmitters and associated Instrumentation. Primary elements included: Nozzle, orifice plate, v-cone, averaging pitot tube, and wedges.

Flow Switches & Indicators

Includes all devices that indicate or display the presence of flow or the rate of flow.

Mass Flowmeters

Includes flowmeters commonly used for process applications—both gas and liquid flow measurement. Gas flowmeters are commonly based on differential temperature measurement. Liquid flowmeters are commonly based on the Coriolis effect. Excludes low-flow mass flowmeters and controllers commonly used for laboratory or semiconductor applications.

Coriolis Mass Flowmeter

Include flow meters for the measurement of liquids and gases with an element that operates on the Coriolis effect. Flowmeters can be of compact design (flow sensor and signal conditioner integrated) or separate design. For reporting purposes, flow sensors and signal conditioners intended to be used as one flowmeter should be reported as such. Individually sold flow sensors or signal conditioners should be reported under Group 8, Other Bookings, Spare Parts.

Thermal Mass Flowmeters

Include flowmeters, signal conditioners and integrated controllers/valves that measure gas or liquid flow with an element, which operates on thermal effect.

All other Flow Measurement Devices

Includes all flow measurement devices not reported above.

Electronic Level Instruments

Point Level Switches

This includes capacitance, conductivity, ultrasonic, tuning fork, optical, nuclear type switches. It does not include any level switch, which is mechanically activated (e.g. float-type)

Capacitance/Reluctance Level Measurement

Includes all continuous-level measurement devices based on changes in capacity or conductivity.

Radar/TDR Level Measurement

Includes all non-contact continuous Radar level measurement devices (FMCW/Pulse) and all contact continuous Radar level measurement devices TDR (Time Domain Reflectometry)

Ultrasonic Level

Includes all ultrasonic continuous-level measurement devices.

Other Electronic Level Measurement Instruments

This includes all continuous-level measurement devices not reported above, such as Laser, Magnetostrictive, Nuclear, and other devices

Mechanical Level Instruments

Mechanical Point Level Switches

This includes paddle switches, mechanical diaphragms and tilt switches.

Tank Gauges/Mechanical Level Measurement

Includes float, tape, servo, displacer type meters, plumb bobs and HTG for continuous level measurement.

Magnetic Level Gauges

Includes all devices that visually indicate level using magnetized floats.

Other Mechanical Level Measurement Instruments

This includes all mechanical-level measurement devices not reported above.

Group 2: ANALYTICAL AND SPECIALTY MEASUREMENT

Process Chromatographs

Includes process gas chromatographs, process liquid chromatographs (including process ion chromatographs), and process mass spectrometers used primarily for continuous, on-line applications for process monitoring or process control. Products include analyzers, programmers and sample modules designed to be sold as integral systems. Excludes general purpose recorders, general purpose micro/minicomputers and similar equipment often used in conjunction with process chromatographs. Also excludes laboratory (or bench top) analyzers, loose sample components, and houses or shelters.

Infrared/Ultraviolet Analyzers

Includes process analyzers that use infrared or ultraviolet absorption to measure composition in process, energy and pollution control applications. Products include both extractive types (i.e. those used with separate sample systems) and in-situ types (i.e. those used primarily for flue-gas monitoring). Excludes laboratory (or bench-top) analyzers and loose sample components.

Oxygen/Combustible Analyzers

Includes process analyzers that use paramagnetic or zirconium oxide sensors to measure oxygen in process and energy (flue-gas) applications. Also includes combustibles analyzers and combination oxygen-combustibles analyzers for flue-gas applications. Excludes dissolved oxygen analyzers using electro-chemical probes. Also excludes combustibles sensors for area monitoring of toxic gases.

Moisture Analyzers

Moisture, dew point, and relative humidity equipment include a range of products for a wide variety of applications (1) electrochemical and crystal sensors for trace moisture measurement; (2) expensive instruments based on dielectric,

infrared, nuclear, and microwave methods for moisture measurement in solids and on webs and moving belts; and (3) simple, low-priced indicating and recording instruments for dew point and relative humidity.

Environmental Hand-Held Analyzers

Includes battery operated analyzers used to measure emission/combustion gases from a source on a spot check (temporary) basis. Typical gases measured include CO, NOX, CO₂, SO₂ and O₂. The analyzer may or may not record. Applications include measuring stack gases and boiler combustion gas effluent.

Continuous Emission Monitoring (CEM) Analyzers

Includes analyzers that measure emission gases from a source on a continuous basis. Measured gases include CO, NOX, CO₂, SO₂ and NH₃. Analyzers are usually associated with an EPA requirement to measure effluent gases from a smoke stack or other pollution source. Signals from analyzers are recorded and maintained by the customer as part of their EPA permit to operate the source.

Other Gas Analyzers and Accessories

Include selected types often used for stationary and mobile pollution-related applications, although some of these analyzers are also used for industrial process monitoring. Specific product types include ambient air monitors, chemiluminescence analyzers, and flame ionization detectors/analyzers. Also include instruments used for continuous area monitoring of combustible gases and toxic chemicals such as H₂S. Includes total organic carbon (TOC) and total oxygen demand (TOD) analyzers. Also includes accessories. Excludes portable instruments and personal monitors/dosimeters.

Conductivity/Resistivity Instruments

Includes instruments used primarily for measuring dissolved solids in water. Products include continuous instruments used with either conducting electrodes or with electrodeless induction cells. Excludes portable instruments for intermittent measurements. Also excludes all electrodes and holders, whether for new installation, replacement, or spare parts.

pH and ORP Instruments

Includes instruments used to measure pH (hydrogen ion concentration) and ORP (oxidation-reduction potential) in process and utility applications. Products include continuous analyzers and transmitters only. Excludes portable instruments used for intermittent measurements. Also, excludes specific ion instruments for measurements such as ammonia, chloride, selenium, hardness, etc. Also excludes all electrodes and holders, whether for new installation, replacement, or spare parts.

Electrodes and Holders for Conductivity and pH/ORP Instruments

Includes electrodes and holders for all applications, whether new installation, replacement, or spare parts.

Other Liquid Analyzers and Accessories

Includes dissolved oxygen, chlorine and turbidity, density, viscosity and consistency, colorimeters, refractometers, oil in water, water quality, wet chemical analyzers and accessories. Excludes oxygen matter (TOC, TOD) analyzers.

GROUP 3 - PNEUMATIC/MECHANICAL PRODUCT

Pneumatic Transmitters

Includes pipe-connected and flanged types that measure differential pressure and produce standard pneumatic outputs (i.e. 3-15 psig). Pipe-connected types are used primarily for flow measurement with primary elements, but these transmitters may also be used for level and absolute pressure measurements. Also includes transmitter types that measure gauge, absolute, and draft pressures and produce standard pneumatic outputs. Also includes filled-bulb types that measure temperature and produce standard pneumatic outputs. Excludes primary elements—orifice plates, venturis, flow tubes, etc.

Pneumatic Panel Board Display and Control

Includes large-case (chart diameter or scale larger than 6 inches) receiver-type indicating and recording controllers and small-case (chart diameter or scale smaller than 6 inches) receiver-type controllers and control stations (station and associated control module, either integral or remote). Also includes large/small-case receiver-type recorders without control or setpoint functions. Also includes miniature vertical bar-type indicators without control or setpoint functions. Includes pneumatic auxiliary stations (such as manual loaders, auto/manual stations, ratio stations, indicating alarm stations, etc.), analog computing devices (such as arithmetic units, totalizers, integrators, square-root extractors, etc.) and instrument-grade pneumatic -to-current (P/I) transducers, and current-to-pneumatic (I/P) transducers that are sold separately from those installed on and sold with control valves and pneumatic actuators. Excludes pneumatic controllers incorporated in direct-connected instruments. Also excludes round, gauge-type indicators.

Traditional Direct-connected Instruments

Includes instruments whose sensors or primary elements are inseparable from the receivers that provide recording, indicating or controlling functions. The category is intended to include traditional large-case instrumentation manufactured by many broad-line process control companies. Examples of traditional direct-connected instruments are flow recorders with case-mounted bellows assemblies, filled-bulb temperature recorder-controllers, and buoyancy (or displacer) type level controllers. Newer displacer-type level transmitters are also included in the direct-connected level category. Report dollars for temperature, pressure, level and flow instruments as an aggregated number.

GROUP 4 – DISPLAY AND CONTROL SYSTEMS AND SOFTWARE

Computer Hardware/Workstations/Servers

Includes all fully assembled general-purpose industrial computers and specialty process control computers used for:

- mainstream process control when computers are used to provide regulatory control
- host computers in systems to perform information processing tasks and communication to high-level networks
- other in-plant computational needs, including data acquisition and monitoring and the main computers in plant management systems.

Includes PCs used as technical workstations, operator stations, and maintenance stations within the system. Excludes PCs, board-level computers, and general-purpose micro/minicomputers incorporated into other equipment (e.g., DCS operator consoles) and have lost their identity and general utility characteristics as well as associated application software that is covered by its own project category in this Group. Also excludes fully assembled general-purpose micro/mini-computers used in specialty systems (e.g. SCADA, sheet and coating, weighing, etc.) as well as computers used for business data processing/MIS applications. Also excludes PCs for generic applications unrelated to process control. Also excludes associated applications software that is covered within this Group. Network communication devices, such as communication interfaces, routes, switches, etc. which are part of the DCS system.

Control Stations

Includes computers/processors dedicated to performing the control functions within the system. These may be classified as hybrid controllers, performing a combination of continuous, logic and sequence control, process automation which is dominated by regulatory control.

Subcategories are:

- Process Automation Control – multi-loop / multi-function control, performs continuous logic and sequencing
- Programmable Logic Controllers – primarily designed for logic and sequencing
- Process Loop Controllers – formerly unified digital controllers
- Safety Systems – Secure control systems used to ensure the safe shutdown of a process unit.

This category includes the control processing devices required to perform the function described above. Operator consoles associated with these controllers should be reported in the computer and workstation category. I/O that is packaged integral to the controller should be reported in this section, I/O that is connected via a communication link should be reported in the I/O section below.

I/O Subsystems and Gateways

All devices that interface the automation system to sensors, analyzers, transmitters, motors, actuators, field communication networks, etc. These devices are not integral to a controller or computer defined above. The I/O devices communicate to a computer, controller, workstation via a digital network.

Systems Software

Core Operating System Software

Includes all software licenses required to operate the basic control system. This includes primary workstation licenses, boot hosts, bundled configuration, and systems management software.

Core Control System Software

Includes all software licenses required to operate the core control functions in the system. If the software is resident in the controller or is bundled in the hardware price, include this revenue in the hardware category.

Advanced Control Software

Includes control application software with functionality (such as model predictive control) not typically included in a multifunction or process loop controller. This software is sold separately to run on a process computer in the system.

Asset Management Software

Includes application software designed to help the plant personnel manage the various assets of the plant. Functions may include instrument record keeping, inventory records, maintenance records, work orders, preventative and predictive maintenance procedures, etc. This software is sold separately from the core software of the system.

Batch Software

Includes application software that is designed to simplify the operation of dis-continuous processes. Functions include management, lot tracking and record keeping, This software is sold separately from the core software of the system.

Configuration/Engineering Tools Software

Includes engineering and configuration software programs that assist the user in developing the control strategy, the configuration of the field devices, the engineering of the system configuration. This software is not part of the core software of the systems and is sold separately.

Historian Software

Includes application software that manages the collection and storage of data within the system. This program can provide data to the various stations within the system or to user on the plant information network. Historians that are included in the core software of the system are included in the computer / workstation category, report separately packaged historian software in this category.

Other Software

Include all software sold in connection with control systems not otherwise accounted for.

Project Services

Include all pre-sale and post-sale services for control systems, including consulting, control system design, field installation or construction, systems integration, training and education for use, and vendor-neutral online resources. Services provided for instrumentation or other equipment not sold within a system or project should be reported in Group 7, "Other Bookings, Repair, Maintenance, Services and Training."

SCADA Systems

Includes dedicated SCADA system equipment (master terminal units, computers), remote terminal units, telemetry and other system hardware used in complete SCADA systems and for expansion and replacement needs. Excludes tone-type telemetry equipment and systems, which should be reported under Group 7, "Other Bookings" also excludes applications software and project services which are reported as indicated above.

IIOT/Wireless Products

Sensor systems used for measuring, monitoring, transmitting, and maintaining data in remote environments.

GROUP 5 – ELECTRONIC DISPLAY AND CONTROL PRODUCTS

Direct-Connected Indicating Controllers

Includes controllers used primarily for temperature control. When used for this application, controllers receive their signals directly from primary sensors such as thermocouples, RTDs and thermistors. Controllers are typically packaged in 1/4 DIN through 1/16 DIN configuration although some suppliers provide non-DIN formats. Excludes unified analog electronic controllers (reported elsewhere in this category) and unified digital electronic controllers (Systems).

Electronic Panel Display and Control

Includes receiver-type single-loop controllers (including computer-directed types) that use unified architecture (control/signal conditioning functions integral with display/operator interface) and non-unified architecture (control-signal conditioning functions separate from the display/operator interface). Also includes individual analog system components such as indicators, manual stations, computing devices, signal converters, and other auxiliary items. Also includes remaining parts of non-unified analog systems not reported in the electronic analog controller category as non-unified controllers. Excludes unified digital controllers covered below and direct-connected indicating controllers and recorders covered elsewhere in this Group.

Recorders Strip Chart Recorders

Continuous recorders include potentiometer types, servo-balanced types and microprocessor-based (or hybrid) types. Excludes continuous recorders that are aggregated in other product categories: Large-case and small-case pneumatic receivers are combined in Pneumatic Display and Control (Group Traditional direct-connected instruments include a significant percentage of recorders for flow, pressure and temperature measurements in particular. Excludes direct-writing galvanometer recorders. Report Continuous Record Strip Chart Recorders of all chart widths.

Circular Chart Recorders

Continuous recorders include potentiometer types, servo-balanced types and microprocessor-based (or hybrid) types. Excludes continuous recorders that are aggregated in other product categories: Large-case and small-case pneumatic receivers are combined in Pneumatic Display and Control (Group Traditional direct-connected instruments include a significant percentage of recorders for flow, pressure and temperature measurements in particular. Excludes direct-writing galvanometer recorders. Report Continuous Record Circular Chart Recorders only.

Multipoint Recorders

Includes both large and small multipoint recorders. Large recorders have chart widths ranging from 125mm to 250mm. Small recorders are closely related to small continuous strip chart recorders with 100mm chart widths. Multipoint recorders include potentiometer types and microprocessor-based (or hybrid) types.

Paperless/Video Recorders

Includes dedicated monitoring, display, trending and data acquisition devices that uses a graphical display such as a CRT, LED or LCD in lieu of traditional paper chart and other indicators as the operator's display/interface and an electronic medium for data storage.

Dataloggers

Includes self-contained, computer and non-computer-based, environmentally hardened units that acquire and process analog or digital input information, store the information in digital form and present the information in various ways. Dataloggers are typically packaged in integrated configurations but may include external peripheral devices such as remote I/O, printers, displays, etc. Includes other equipment or parts that performs data acquisition functions, e.g., large computer-based systems, combinations of computer “front-ends” with computers, assemblies of printed circuit boards with multipoint recorders, etc. Also excludes personal computer-based systems.

Mass Flow Computers

Includes dedicated products that are commonly used with various types of measurement equipment differential pressure transmitter/orifice combinations, turbine flowmeters, density sensors, pressure and temperature transmitters to compute mass flow in accordance with standardized formulas such as those published by the American Gas Association or the American Petroleum Institute.

GROUP 6 - FINAL CONTROL DEVICES

Control Valves Linear

Includes non-rotary types which consist almost entirely of globe body valves.

Rotary

Includes rotary control valves: ball, butterfly, and other types such as plug valves. Includes rotary and non-rotary (or sliding stem) valves for modulating or powered on-off service. Excludes manually operated valves.

Actuators

Includes electric and pneumatic actuators, both diaphragm and piston types, sold separately. Actuators sold permanently mounted to control valves are part of the control valve. Electric actuators include electromechanical and electrohydraulic types used with control valves, dampers and fans, variable speed drives, metering pumps, etc. Pneumatic diaphragm actuators are used primarily with previously installed control valves and metering pumps. Pneumatic piston actuators are used primarily with dampers, louvers, and fans in electric utility applications. Excludes very small electric actuators (or positioning motors) for commercial HVAC and related process control applications in heat treating, furnaces and ovens.

Positioners

Includes devices that convert the signal from a process control system (4-20mA or digital) and regulate the pneumatic or electric power required to operate the actuators described above. These devices may be sold as part of the control valve/actuator assembly or separately. These devices commonly include a feedback element to sense the position of the valve/damper/louver being moved. Report I/P devices in this category.

Accessories

Includes all other accessories used primarily for control valve service and valve operation, including pneumatic, electro-pneumatic and other types. Excludes mounting accessories and adapters. Also excludes instrument-grade transducers, both P/I and I/P types, commonly used for signals related to transmitters and control room instruments. These are reported in Group 5— Pneumatic Display and Control.

GROUP 7 - OTHER BOOKINGS

All Other Instruments

This category includes all products and solutions specific to industries (e.g. life science products) and instruments not elsewhere classified.

Spare Parts for All Products

Includes parts, spare, charts, operating supplies, mounting cases, power supplies, etc.

Repair and Maintenance, Service, Training

Includes services supplied after final customer acceptance of process control instruments and systems.

Calibration Equipment

Equipment used with all products in the various sections above, including special calibration equipment sold with analytical and special measurement instruments (Group 2).