ICS ELECTRONICS
division of Systems West Inc.

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MODULAR SWITCH CONTROL SYSTEM
ANNOUNCED BY ICS ELECTRONICS

PLEASANTON, CA, August 16 2016. Today ICS Electronics announced a new Modular Switch Control System that can be used to put together an almost un-limited size switching system, from small matrixes to systems with multiple chassis and hundreds of switches. Applications include systems with RF Switches, relays, digital signals, attenuators and electronic loads. The basis of the system is a Controller Board that provides the external interfaces and sends commands to intelligent Switch Modules via internal I^2C buses. The Switch Modules sit on and control the user's Driver boards which can hold relays, RF switches, attenuators or provide digital I/O lines. Short CAT5 cables connect the Switch Modules together and also connect to an optional front panel HMI touchscreen or a frequency synthesizer. ICS's Modular Switch Control System is an easily scalable solu-tion that lets a user get his desired switch system size with minimal engineering, virtually eliminates the interconnect wiring issues, reduces fabrication cost and gives the user enhanced control using ICS's proven switch system firmware.

BACKGROUND - ICS has been supplying GPIB, Ethernet and Serial to Parallel boards to switch system manufacturers for decades. Over time, ICS developed a library of unique SCPI commands for switching systems that let the users configure mutli-pole switches, sense switch read-back lines, run contact counters, control attenuators and control switch matrices. However, driving larger systems in parallel fashion by adding more I/O lines ran into messy wiring issues, consumed more space and generated more RFI as the systems grew. Using expander boards to expand the system size had definite size steps that did not fit all customers and customers still had to make complex driver and connector boards. The MSCS solution keeps ICS's firmware capabilities, neatly solves the interconnect issues, reduces fabrication cost and gives the user an incremental way of building any size smart switching system.

ICS's Modular Switch Control System has two major components. First is the Modular System Control Board that interfaces with the outside world and second are the satellite Switch Modules. The Modular System Control Board (MSC02) contains the control processor, Ethernet, USB and serial interfaces, the I^2C interfaces and the power regulator. The MSC02 board can be controlled by 10/100 MHz Ethernet, over a USB bus, or by RS-232C, RS-422 or RS-485 serial signals.   The three buffered I^2C bus ports drive the Switch Modules and an optional front panel HMI touch screen.

The Switch Modules (I2C01) are small daughter boards which mount on the user's Driver boards and bring a high degree of intelligent control down to the Driver board level. The Switch Module handles the I^2C interface protocol, command parsing and control outputs for switches, attenuators and parallel I/O. The Switch Module's firmware can be configured to check switch indicator lines, digital inputs etc and alert the user for command complete, a switching error or input signal change. Contact counters can count switch or individual position actuations and save the values in the local Switch Module.

The user's Driver boards can be simple 2-sided boards which reduces their design and fabrication costs since the logic is all on the Switch Module. The Driver boards can hold relays, mate to RF Switches, have digital input/output lines, attenuators, connectors or any mix the user needs to meet his design goals. The Driver board assumes the physical shape to fit his chassis with the appropriate mounting points. The user has to bring power to the board for switching the relays, RF switches and attenuators. The high voltage for driving the relays is kept on the user's Driver boards, helping to prevent accidental damage to the rest of the system. ICS supplies reference design information for designing the Driver boards.

Pricing for the Model MSC02 Control Board is $650 each and the I2C01 Switch Modules are $145 each in quantities of 1 to 4 units, FOB San Jose, California. OEM pricing discounts are available.

ICS Electronics is a pioneer and leader in the design and development of GPIB, Serial, VXI bus and Ethernet interface products. Many of ICS's GPIB, Serial and Ethernet to parallel Digital I/O boards have been used in all types of switching systems for the past 30 years.

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