**PACIFIC INSTRUMENTS**
A **VPG** Brand

The 6044 is a discrete I/O module that can be user configured to have 32 digital outputs, 32 digital inputs or 16 digital inputs and 16 digital outputs. The digital outputs may be directly programmed or programmed to change state when the output of one or more measurement channels in the same enclosure violate programmed alarm limits.

The discrete outputs may be configured via programming so that the limits of multiple channels control a single discrete output. This "OR'd" configuration can be expanded to any number of channels in the same enclosure.

Each discrete output has programmable persistence. If persistence is used, each alarm limit violation counts up until the persistence value is reached before setting the discrete output state. Likewise, absence of an alarm limit violation counts down before clearing the discrete output state. Alarm limits are checked for each sample of data with system in preview or record mode. The 6044 may be used to provide programmed discrete digital outputs and to respond to changes of state on the 6000 system-wide Warning and Alarm bus.

Discrete inputs may be TTL or up to 50 Volts. Input states are recorded with other 6000 measurement channels. Outputs are TTL or open collector. In the case of open collector, the maximum compliance is +5.5 Volts.
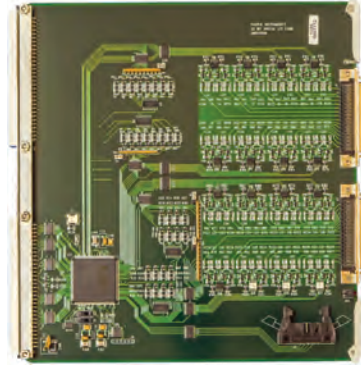
FEATURES

- **32 Discrete digital inputs/outputs**
- **TTL/CMOS or isolated (28V) inputs**
- **TTL or open collector outputs**
- **Program Mode for direct programming of discrete outputs**
- **Alarm Mode generates discrete outputs based on limits set for measurement channels**
- **Programmable persistence prevents false alarms**

SPECIFICATIONS

OPERATION

Number ....Thirty-two discrete channels that are configured by switches as 32 Inputs, 32 Outputs or 16 Inputs and 16 Outputs.

I/O States ....The state of the Inputs and Outputs is available for inclusion in the output data stream as two 16-bit data words identified as Channel 1 (0-15) and Channel 2 (16-31)

Rate ....Outputs to the 6000 data bus update at the maximum system sample rate.

DISCRETE INPUT

Type ....Each discrete has two input types: TTL/CMOS and Isolated. The input type used is determined by wiring of the connector.

Glitch Capture ....Enabled by software to detect and record events of 100 nS or longer duration that occur between sample periods. Reset on reading.

DISCRETE INPUT LEVELS

TTL/CMOS ....On is 2.5 Volts or greater, up to +5 Volts maximum. Off is 0.8 Volts or less.

Isolated ....On is 2.6 Volts or greater, up to a maximum of +50 Volts. Source must be capable of supplying up to 2.0 mA. Off is 2.0 Volts or less. Isolation is greater than 10,000 megohms.

DISCRETE OUTPUT

Mode.....................Each discrete output can respond to one of three data sources: 1) data words sent via the system interface, 2) comparison of data from measurement channels in the same enclosure to programmed limits (Alarm Mode) and 3) the 6000 system-wide alarm bus.

Programming ....Output data word is loaded by program instruction during time when measurement data is not being sent to the computer. Latency will depend on system throughput rate and scan table programming.

Alarm Outputs ....Preprogrammed output discrete set high or low in response to alarm violation. Latency is 2 sample periods from the digitizing of signal causing alarm.

Latch.....................Discrete outputs may be programmed to latch in which case they will not reset until cleared.

DISCRETE OUTPUT LEVELS

TTL ....On is +4.8 Volts minimum; off is +0.15 Volts maximum from 1K Ohm source impedance.

Open-Collector ....+5 Volt maximum external power source, 200 mA maximum sink current. Use external 5 Volt relays for isolated outputs.

GENERAL

Mounting ....Occupies one slot in Series 6000 enclosures.

Connectors............Two 68-pin Micro DB68 (SCSI-3) connectors. Connectors are located on the front and 6-foot cables with screw-terminal breakout panels are supplied.

Temperature...........0°C to +50°C.

Humidity ....Up to 95% without condensation.

ORDERING INFORMATION

6044.....................32-Bit Discrete Input/Output with Alarm

APPLICATION

The 6044 Alarm Mode is frequently used to monitor measurement channels for alarm conditions and issue a TTL output or use the open collector output to activate a relay that interfaces to external monitor and control devices.

The 6044 contains a table of 128 programmable "behaviors". A "behavior" is an action that includes an upper threshold limit, a lower threshold limit and output discrete to use. A lookup table assigns a "behavior" to the output of a measurement channel in the enclosure in which the 6044 is installed. Multiple "behaviors" can be assigned to the same output discrete providing a means to "or" the alarms of multiple channels to a single discrete output.

Persistence is programmed for each output discrete. When a limit is exceeded on any measurement assigned to the discrete, the persistence counter increments. The counter decrements when the limit on any measurement is not exceeded but does not go below zero. When the programmed persistence count is reached, the discrete output is enabled. Limits are independently programmed for each measurement in the alarm matrix. External logic can be employed to expand the alarm tree.

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