VGM5 Series Application Examples

The VGM5-3 series supports both process input and strain gauge input, adding another step toward broader measurement range.









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VALCON

Multifunctionality and Various Display Modes to Step into a New Realm

Graphical Digital Panel Meter

VGM5 series

Process Input A/Bch Straingauge Input A/Bch Process Input A/Bch VGM5-3

Graphical presentation with bar and trend graphs, portrait and landscape modes of screen orientation, and intuitive status indication with 3 colors (R/Y/G). VGMS series, full of these features required on site, creates a new realm of panel meters.







Display Rotation Function

Standard feature includes the rotation of the screen by 90 degrees. You can choose between landscape and portrait modes. For example, addition of digital panel meter that was unexpected at the system development stage, can become another option.

Orientation selectable to suit the on-site needs







Selectable Input Modes and Highly Expressive Display, Stemmed from Pursuit of the Ideal Panel Meter.

Graphical Digital Panel Meter — Sampling rate Max. 4000times/sec *2ch : Max. 2000times/sec



Straingauge Input A/Bch Process Input A/Bch

-97.650

(I)



Two models: VGM5-1 and VGM5-3 are available. The former enables 2-channel (A/B) process input, and the latter supports 2-channel (A/B) strain gauge and process inputs. VGM5-3 flexibly supports measurement system from load cell (strain gauge). Besides multiple input, the VGM5 series supports graphs, waveforms, and color presentation on a large and clear display that can be set in portrait and landscape orientations.

Trend (Line Graph) Display

This graph allows you to grasp the trend in measurement (for example, any problem in press-fit or variations in multiple press).





Shows the percentage of the measured value in the whole, allowing it to be expressed relatively.



Easy-to-Identify Color Presentation

Background color that changes automatically when outputting alarms is selectable from red, yellow and green. Highly identifiable universal color design adopted.



Arithmetic Function (2-channel Input)

Measured values for each channel simultaneously show 1~3 results of arithmetic operations that can be chosen from 10 formulas respectively.



Self-diagnosis Function

This function is incorporated in order to prevent possible accidents with the connected equipment. It enables you to confirm safety before starting operation or inspection.



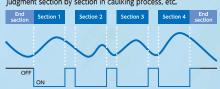


Alarm output and waveform log are enabled by comparing measured waveform and reference waveform. (2-channel simultaneous comparison available)



Multi-Hold Mode [VGM5-3 only]

Comparative output is made by comparing the hold value and the preset reference value for each section. This enables judgment section by section in caulking process, etc.



Wealth of Optional Functions

Communication/output functions are available from RS-485 (Modbus RTU), RS-232C, analog output and BCD output,



BASIC SPECIFICATIONS

For more information about the specifications, visit VALCOM website.

Number of input channel	1 or 2 (According to model codes)		AC power 7 AC100 to 240V±10% 50/60Hz
Display	A inch TFT liquid crystal display Used in 1ch input. A ch. measurement result. By Used in 2ch inputs. A ch. measurement result, B ch. measurement result, calculation result. A ch. and B ch. measurement results, A ch. or B ch. measurement result and calculation result.	Supply power	DC power 5 DC12V±10% DC power 8 DC24 to 48V±10%
		Power consumption	AC power 7 At AC100V:11VA max, At AC240V:15VA max DC power 5 At DC12V:6.5W max
Externalcontrols	5 functions can be assigned to control terminals (user-configurable).		DC power 8 AtDC24V:6.5Wmax, At DC48V:7Wmax
Ambient temperature range	-5 to 50°C 35 to 85%RH(Non condensing)	Weight	Approx. 350g
Storage temperature range	-10 to 70°C up to 60%RH	Vibration tolerance	10 to 55Hz half amplitude 0.15mm in X, Y, Z directions for 30 minutes
	Between Power terminals and inputs/external controls/comparative outputs/other outputs	Protective structure	IP66(front)
	AC power 7 AC3000V for 1 minute, DC power 5 or 8 AC1500V for 1 minute AC power and DC power Between input terminals and external controls/		EN61326-1(EMS:industrial electromagnetic environment/EMI:Class A)
Withstand voltage	AC yorkaye AC power and DC power Servees input terminals and external controls/ comparative outputs/other outputs AC1500V for 1 minute Between enclosures and each terminals AC3000V for 1 minute	Conformed EN	(Applicable to line length only under 30m)
		standard	EN61010-1, EN50581
	Between terminals mentioned above, at DC500V 100MΩ or higher	Material of application	polycarbonate(PC) black UL94V-0

Process/Straingauge (VGM5-3 only) INPUT SPECIFICATIONS

		Process: ±5V, 0~5V, 1~5V, ±10V, 0~10V, ±20mA, 0~20mA, 4~20mA	Conversion method	⊿Σconversion method
	Measurement rar	Straingauge: -3.5mV/V~3.5mV/V	Input signal	Single ended
	Input resistant	Approx, 1MΩ(±5V, 0~5V, 1~5V, ±10V, 0~10V), Approx, 10Ω(±20mA, 0~20mA, 4~20mA)	0	Max, 4000times/sec (1ch product)
	Maximum arrowable	put ±100V(±5V, 0~5V, 1~5V, ±10V, 0~10V), ±50mA(±20mA, 0~20mA, 4~20mA)	Sampling rate	Max. 2000times/sec (2ch product)
	Accuracy	±(0.05% of FS+1digit) (23±5°C 35~85%RH)	Display updating period	10sps, 1sps
0,00	Adjustment range o	an 1mV/V~3.5mV/V	Zero display	Leading zero suppress
	Calibration accu	cy ± (0.1% of FS+1digit) (23±5°C 35~85%RH)	Decimal point	Settable freely
	Nonlinearity	±(0.02% of FS+1digit) (23±5°C 35~85%RH)	Display resolution	1/99999
	Applicable bridge resi	ince 350Ω	Display range	-99999~99999
	Bridge voltage	DC5V±10% 60mA		Process: DC12V±10% 100mA max, DC24V±10% 50mA max,
		DC10V±10% 30mA, DC2,5V±10% 30mA	Sensor power supply	When used with a combination of DC12V and DC24V, power consumption is 1,2W max.
	Temperature charact	sic 100ppm/°C		Straingauge: 5V, 10V, 2,5V

COMPARISON OUTPUT SPECIFICATIONS

	Output rating NPN:Sink current 50mA max. PNP:Source current 50mA max.	Judgement value settable range	-99999~99999
Open collector output	Applied voltage 30V max. Output saturation voltage ≤1.2V at 50mA	Hysteresis	Settable within the range of 1-99999 digits for each judgement value independently
	Number of outputs 4 transistor outputs	Comparison action	According to sampling rate (circulate period)
	Contact rating:AC250V 2A, DC30V 2A Mechanical life:20 million times	Setting condition	Condition of comparison can be set to AL1 to AL4 independently
	Electrical life:100 thousand times or more 4 A contacts, AL1 and AL2, AL3 and AL4 share common		Level judgement mode, Zone judgement mode, Difference judgement mode
Control method	Microcomputer calculating method	Comparison formula memory	8 pattern memory

ANALOG OUTPUT SPECIFICATIONS

	Conversion method	D/A conversion method	Output	0~10V, ±10V, 1~5V, 0~20mA, 4~20mA
	Resolution capability	Equivalent of 13bit	Load resistance	≥2kΩ(0~10V, ±10V, 1~5V), ≤550Ω(0~20mA, 4~20mA)
	Scaling	Digital scaling	Accuracy	±(0.1% of FS) (23±5°C 35~85%RH)
	Output objective	An item can be selected from source displayable values		±50mVp-p(0~10V, ±10V, 1~5V)
	Circuit response	Up to 300µs(0→90% response)		±25mVp-p(0~20mA, 4~20mA) @Ripple is at load resistance 250Ω, 20mA output

BCD OUTPUT SPECIFICATIONS

	Output type	Open collector output NPN/PNP type	Synchronized signal (PC)	Transistor is ON for a fixed period every time data becomes valid
	Measurement data	Negative logic transistor is ON at logical "1"	Transistor output capability	Voltage 30V max. Current 10mA max. Output saturation voltage up to 1.2V at 10mA
	Polarity signal	Negative logic transistor is ON at minus display		By shorting the enable terminal to -D.COM or bringing to same voltage level,
	Over signal	Negative logic transistor is ON at over display		the BCD output transistors become OFF.

RS-232C/RS-485 SPECIFICATIONS

@Supply power

3Input A ch.

Communication protocol	RS-232C:Modbus-RTU,OriginalCommand,OriginalOutput RS-485:Modbus-RTU	Stop bit	RS-232C:1bit, 2bit RS-485:1bit
Synchronization method	Asynchronous	S Delimiter	CR+LF, CR
Communication method			Code ASCII
Baud rate	9600bps, 19200bps, 38400bps	Transmission control procedure	No control sequence
Data length	RS-232C:8bit, 7bit RS-485:8bit	Used signal names	RS-232C:TXD, RXD, SG RS-485:Non-inverting (+), Inverting (-)
Start bit	1bit	Number of connectable units	RS-232C:1 RS-485:31
Parity bit	None, Odd, Even	Cable length	RS-232C:Max 15m RS-485:Max 1.2km (total) *Conforming CE mark, less than 30m

(6)Output

(6) Comparative outcut

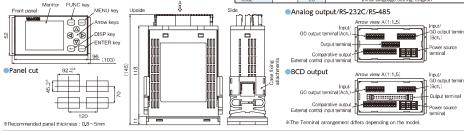
(7)Test report

® Additional cod

(Input B ch.



External dimensions [Unit:mm]



Graphical Digital Panel Meter VGM5 series