PULCOM V4

In Process Electric Micrometer Control Unit

■ Features

Higher Functionality

A higher level of functionality enables utilization of a wider range of applications.

- Measurement of two items: Sizing + end face, sizing + post measurement and various other variations are available.
- P memory function: Measurement of even or odd number of teeth on notched workpieces.
- BCD/BIN output function: U1000A compliant data can be output by adding an I/O2 circuit board.

Easy Operation

LCD can display alphanumeric characters.

- Interactive operation for a wide variety of settings.
- Measured and offset values can easily be checked on the LCD.

Same type of rotary switch as on U400 (previous unit), V7 and V8.

- Rotary switch enables intuitive operation.
- Frequently used operations can be quickly selected.
- Unifying operation system with U400, V7 and V8 minimizes operator load when the control unit is changed.

DSP + RISC CPU Provide High Speed and Performance

The adoption of a DSP (digital signal processor) facilitates digital processing of various signals at high speeds.

- In addition to a smoothing filter, the unit has a standard 7-step LPF (low pass filter) selection function.
- Real-time processing of notch processes.

Superior Ease of Maintenance

Simplified I/O Monitor

- Wiring with machine can be easily checked.

Self-Diagnostic Program

- Interactive verifications enable user to perform primary maintenance.

Upper Level Compatibility with U400

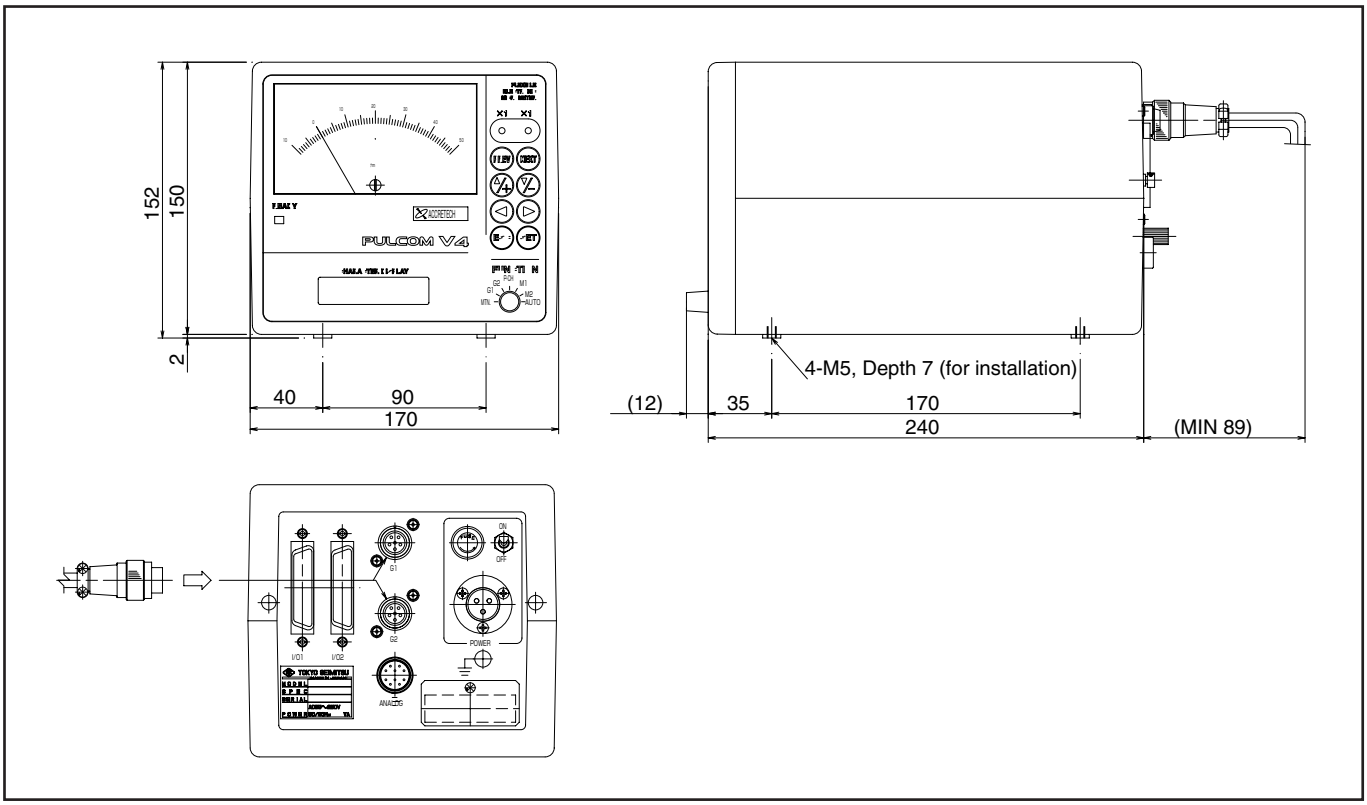
- The U400 can be replaced by using an optional I/O cable.

■ Optional Functions

- External offset (grade)
- Various memory functions (max., min, P-P, integration memory, etc.)
- BCD/Binary output function
- Addition of two measuring items
- Analog output
- Auto master function
- Tool compensation repeat counter, etc.

*** Standard provision of infinite far point, zero adjust range enlarge function and W memory function (2 channel type only).**

Outer Appearance Diagram



Specifications

Model		E-PV41□	E-PV42□
No. of detector inputs		1	2 (1 input possible)
No. of measuring items		1 (2 optional)	
Judgment output		Max. 5 (1 measuring item), Max. 8 (2 measuring items)	
Display		Indicator + LCD character display	
Main functions	Auto master set	Option	
	Tool compensation repeat counter	Option (built-in zero shift function)	
	Offset compensation	Immediate offset function (external offset is optional)	
	Memory	Optional (max., min., P-P, integration memory, etc.) ¦ W standard	
	Data output	Optional (BCD/BIN output, O.C., O.E. and O.D.)	
	Dimension error detection	Optional	
	Work pass verify	Optional	
	Run signal output	Optional (valid when memory function is provided)	
	Analog output	Optional	
	2-item measurement	Optional	
Power source		AC85 - 250V, 30VA	
Dimensions and weight		170(W) × 240(D) × 150(H)mm (not including protrusions), 3 kg	

■I/O-1 Input/Output Signals

Standard port for basic functions
(1) Connector: 57E-30360-D76 (36P, made by DDK)
(2) Cable: Provided with 6m shielded wire cable, outer diameter ϕ10.8
(3) Output specifications: Select open collector or open drain
(4) Pin arrangement

Output			
Signal name		No.	ID
READY		9	Pink 9
Item 1	※※SZ5	10	Pink 10
	SZ4	11	Yellow 1
	SZ3	12	Yellow 2
	SZ2	13	Yellow 3
	SZ1	14	Yellow 4
	SZ0	15	Yellow 5
		16	Yellow 6
		17	Yellow 7
		18	Yellow 8
		19	Yellow 9
Retract OK		20	Yellow 10
		21	Green 1
		22	Green 2
Gauge broken wire error	* External offset limit	23	Green 3
* RUN signal		24	Green 4
N.C.		25	Green 5
N.C.		26	Green 6
N.C.		27	Green 7
N.C.		28	Green 8
N.C.		29	Green 9
N.C.		30	Green 10
N.C.		31	Gray 1
N.C.		32	Gray 2
N.C.		33	Gray 3
N.C.		34	Gray 4
N.C.		35	Gray 5
Output common terminal (COM 1)		36	Gray 6

Note: The above is an ordinary example. The relationship between the signals and pin numbers may change depending upon the specifications.

Input		
Signal name	No.	ID
Meas. No. 1 judgment start command	1	Pink 1
Memory reset	2	Pink 2
	3	Pink 3
	4	Pink 4
* External offset + shift	5	Pink 5
* External offset – shift	6	Pink 6
* External offset reset	7	Pink 7
	8	Pink 8
Input common terminal (+24V or 24VCOM)	26	Green 6

* Valid when option is provided.
** Judgment output is sizing signal for 6 points.

- Make sure to ground the shielded wiring.
- Do not connect any terminals to the empty items.
- Input signal: 10mA or less per signal.
- Output signal: Use at DC24V, 40mA or less.

Application example:
Simple sizing measurement (with external offset)
Only 1 measurement item.

■I/O-2 Input/Output Signals (Optional)

Expansion port for BCD/binary data output
(1) Connector: 57E-30360-D76 (36P, made by DDK)
(2) Cable: Provided with 6m shielded wire cable, outer diameter ϕ10.8
(3) Output specifications: Select open collector, open emitter or open drain
(4) Pin arrangement

Output		
Signal name	No.	ID
BCD output 1×10^{-1}	1	Pink 1
BCD output 2×10^{-1}	2	Pink 2
BCD output 4×10^{-1}	3	Pink 3
BCD output 8×10^{-1}	4	Pink 4
BCD output 1×10^{0}	5	Pink 5
BCD output 2×10^{0}	6	Pink 6
BCD output 4×10^{0}	7	Pink 7
BCD output 8×10^{0}	8	Pink 8
BCD output 1×10^{1}	9	Pink 9
BCD output 2×10^{1}	10	Pink 10
BCD output 4×10^{1}	11	Yellow 1
BCD output 8×10^{1}	12	Yellow 2
BCD output 1×10^{2}	13	Yellow 3
BCD output 2×10^{2}	14	Yellow 4
BCD output 4×10^{2}	15	Yellow 5
BCD output 8×10^{2}	16	Yellow 6
N.C.	17	Yellow 7
GND (chassis)	18	Yellow 8
"+" On	19	Yellow 9
"+" Off	20	Yellow 10
"Over" On	21	Green 1
"Over" Off	22	Green 2
Data valid On	23	Green 3
Data valid Off	24	Green 4
Outer signal common terminal	25	Green 5
Output signal common terminal	26	Green 6
N.C.	27	Green 7
N.C.	28	Green 8
N.C.	29	Green 9

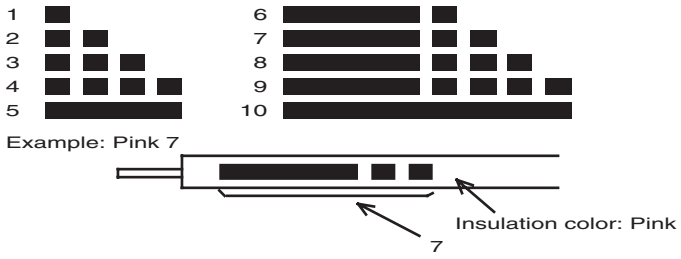
Note: The above is an ordinary example. The relationship between the signals and pin numbers may change depending upon the specifications.

Input		
Signal name	No.	ID
Data accept input	30	Green 10
Input common terminal (COMMON)	31	Gray 1
N.C.	32	Gray 2
N.C.	33	Gray 3
N.C.	34	Gray 4
N.C.	35	Gray 5
N.C.	36	Gray 6

- Make sure to ground the shielded wiring.
- Do not connect any terminals to the empty items.
- Input signal: 10mA or less per signal.
- Output signal: Use at DC24V, 40mA or less.

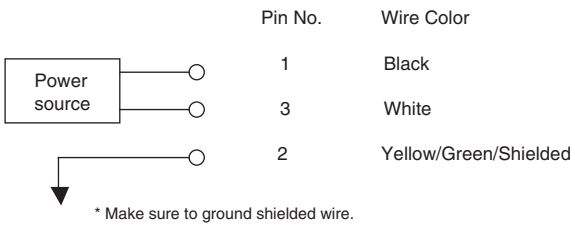
■I/O Cable Identification

(Common for I/O-1 and I/O-2)



■Power Source

(1) AC85 - 250V, Power consumption: 30VA Max.
(2) Connector: HS16P-3 (made by Hirose Electric)
(3) Cable: Provided with 6m 3-wire cabtyre, Outer diameter φ8.4mm



■Analog Output Function (optional)

(1) Connector: (made by Hirose Electric)
・RM15QRD-10S (unit side)
・RM15QPH-10P (cable side)
(2) Cable: 4-wire shielded (each, 4 × 0.3 sq.) Optional
(3) Output specifications: ±5V/F.S. ±5%, Output impedance: 1KΩ
(4) Pin arrangement

Signal name	No.	Wire color	Remarks
HI range	1	Red (Orange)	Do not connect anything to the empty pins.
LO range	2	Green	
COM	3	Yellow	

■I/O-1 Input/Output Signals

This is the I/O table when the 2 measurement item option is added.
Standard port for basic functions
(1) Connector: 57E-30360-D76 (36P, made by DDK)
(2) Cable: Provided with 6m shielded wire cable, outer diameter φ10.8
(3) Output specifications: Select open collector or open drain
(4) Pin arrangement

Output							
Signal name						No.	ID
READY						9	Pink 9
(*1) Item 1	SZ4	(*2) Item 1	SZ3			10	Pink 10
	SZ3		SZ2			11	Yellow 1
	SZ2		SZ1			12	Yellow 2
	SZ1		SZ0			13	Yellow 3
	SZ0		–NG			14	Yellow 4
Item 2	SZ3	Item 2	OK3			15	Yellow 5
	SZ2		OK2			16	Yellow 6
	SZ1		OK1			17	Yellow 7
	SZ0		+NG			18	Yellow 8
*** Workpiece pass or RUN signal						19	Yellow 9
Retract OK						20	Yellow 10
* Dimension error detect						21	Green 1
** Judgment complete						22	Green 2
* Auto master NG		* External offset limit				23	Green 3
* Auto master OK						24	Green 4
N.C.						25	Green 5
N.C.						26	Green 6
N.C.						27	Green 7
N.C.						28	Green 8
N.C.						29	Green 9
N.C.						30	Green 10
N.C.						31	Gray 1
N.C.						32	Gray 2
N.C.						33	Gray 3
N.C.						34	Gray 4
N.C.						35	Gray 5
Output common terminal (COM 1)						36	Gray 6

Note: The above is an ordinary example. The relationship between the signals and pin numbers may change depending upon the specifications.

Input		
Signal name	No.	ID
Meas. No. 1 judgment start command	1	Pink 1
Meas. No. 2 judgment start command	2	Pink 2
Memory reset	3	Pink 3
* External synchronize	4	Pink 4
* External offset + shift	5	Pink 5
* External offset – shift	6	Pink 6
* External offset reset	7	Pink 7
△△ Auto master command or change to analog meter	8	Pink 8
Input common terminal (+24V or 24VCOM)	26	Green 6

* Valid when option is provided.
** Valid when judgment mode is Y11.
*** Select workpiece pass or Run signal.
△△ When optional auto master is provided, cannot change to analog meter.

●Make sure to ground the shielded wiring.
●Do not connect any terminals to the empty items.
●Input signal: 10mA or less per signal.
●Output signal: Use at DC24V, 40mA or less.

Application examples:
Locator function, memory and post measurement
When optional "2 measurement items" is used.

(*1) Two measurements are examples for post measurement.
(*2) Example of In process measurement with post.