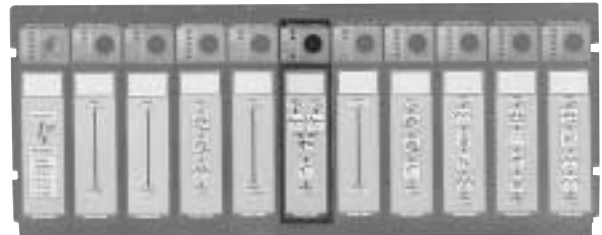


## IntellpaK Two-input Calculation Unit IP326

The IntellpaK IP326 is a microprocessor based two-input calculation unit which receives two linear input signals of DC current, or DC voltage, processes them and outputs the converted DC current or DC voltage signal. Calculation functions are set using the Handy Loader QN715A.

### Features

- Response time of 300ms, and accuracy as high as  $\pm 0.15\%FS$ .
- Both input range and output range permit scaling to be executed in the multi-range system.
- Up to four types of calculations can be selectively set.
- The input and output are isolated from each other.
- Remote switch input, and self-diagnostics, etc. are provided as standard.
- A communication function can be added.



### Specifications

Input part	<b>No. of inputs</b>	2 inputs (input 1, input 2)				
	<b>Input type</b>	DC current, DC voltage See Table 1 (page 3).				
	<b>Input sampling cycle</b>	100ms (TYP)				
	<b>Input digital filter</b>	First-order lag filter system: 0.0 to 99.9sec variable (filter off at 0.0)				
	<b>Input bias current</b>	mV input: $-0.15\mu A$ to $+0.15\mu A$				
	<b>Input impedance</b>	mA input: Max. $30\Omega$ Voltage input (V): Min $500k\Omega$				
	<b>Allowable wiring resistance</b>	mV input: Max. $250\Omega$				
	<b>Isolation</b>	The input 1 and 2 are not isolated from each other, but the input 1/2 and output are isolated from each other.				
Remote switch input (RSW)	<b>Function</b>	Signal source for various calculations requiring DI. Operation object is specified by the Handy Loader QN715A101.				
	<b>Input mode</b>	With contact provided, or no voltage semi-conductor contact.				
	<b>Input time</b>	ON or OFF held for a min. of 100ms.				
	<b>Input contact capacity</b>	20V DC, 10mA min.				
	<b>Isolation</b>	Not isolated between the remote switch input and output.				
Calculation part	<b>Type of setting</b>	Up to four types in total can be arbitrarily selected; three types from the groups A, B and M, and one type from the group C.				
	<b>Setting range</b>	See Table 3 (page 4 to 7)				
	<b>Setting sequence</b>	The group M is set first, followed by group A (necessary condition).				
	Calculation types		<b>Group A</b>	<b>Group B</b>	<b>Group C</b>	<b>Group M</b> Note (1)
			No operation	First-order lag filter	High-low selector	Low monitor
			Reverse	Bias ratio	Switch selector	High monitor
			Analog memory	Scaling	Change point selector	Deviation monitor
			Preset	Square root extraction	Soft switch selector	Arrival monitor
			—	High-low limiter	Temperature correction	Timer monitor (low)
			—	Change rate limiter	Pressure correction 1 ( $kgf/cm^2$ )	Timer monitor (high)
			—	Derivative	Pressure correction 2 ( $mmH_2O$ )	Keeping monitor (low)
			—	Lead, lag	Addition and subtraction	Keeping monitor (high)
			—	Absolute value	Multiplication	Keeping monitor (deviation)
			—	Linearize table	Division	Keeping monitor (arrival)
		—	Maximum value keeping		Change rate monitor	
	—	Minimum value keeping		—		
	—	Soft preset		—		
Note (1): The external contact output is connected with the M group monitor by the handy loader QN715A101.						

Calculation part	Calculation pattern	Pattern type	6 types: One type selected.	
		Application	Asterisk (*) function: Applied only to group C. No mark function: Applied to group A, B and M.	
		Input 1		
		Input 2		
		Input 1		
Output part	Output type	DC current, DC voltage See Table 2 (page 3).		
	Output range	Range including 0mA: 0 to 110%FS Range not including 0mA: -10 to 100%FS		
	Output update cycle	100ms (TYP)		
	Output impedance	mA output: Min. 500kΩ		
		mV output: Max. 60Ω		
		Voltage output (V): Max. 10Ω		
	Load resistance	Max. 600Ω in 20mA range		
Manual output	Output value can be set irrespective of input by the Handy Loader QN716A101: -10.0 to 110.0%			
Self-diagnostics	Input underrange check	If PV input is less than -10% calculation is performed with the PV input set to -10%. Alarm is triggered.		
	Input overrange check	If PV input is more than 110%, calculation is performed with the PV input set to 110%. Alarm is triggered.		
	EEPROM adjustment area sum check	EEPROM adjustment area is sum checked only when power supply is turned ON.		
	EEPROM user area sum check	EEPROM user area is sum checked during normal operation. Minimum time for error detection is 13sec.		
	Error indication	OPR/ALM LED blinks at 0.5sec intervals when an error is detected.		
	Error type	Readable using the Handy Loader QN715A101.		
Optional functions	Communication	Connected to the mother board within the communication system 11ch rack (QN715A101) where the communication module (IP390A) is mounted.		
		For details, see Catalog No. CP-SS-1411.		
General specifications	Accuracy	±0.15%FS See Table 2 (page 3).		
	Response time	300ms (TYP). 95% response to step input.		
	Power supply type	AC	DC	
	Rated power voltage	100 to 240V, 50/60Hz	24 to 48V DC	
	Power voltage	90 to 264V AC, 50/60Hz	20 to 56V DC	
	Power consumption	Max. 12VA	Max. 12VA	
	Starting current	—	Max. 0.5A	
	Peak power current value and width when turning on power supply	20A, 2ms	20A, 0.2ms	
	Insulation resistance	Min. 50MΩ between each terminal and case, and between primary and secondary terminals by using a 500V DC megger.		
	Dielectric strength	1500V AC, 1 min or 1800V AC, 1 sec between primary terminal and case, and between primary and secondary terminals.		
		500V AC, 1 min or 600V AC, 1 sec between secondary terminal and case.		
		1000V AC, 1 min or 1200V AC, 1 sec between input and output		
	Temperature characteristics	For standard range : ±0.18%FS, ±57μV or ±3.3μV, whichever is larger (by an input conversion value per 10°C of ambient temperature).		
		For intermediate range : Standard range × 1.2, ±57μV or ±33μA, whichever is larger (by an input conversion value per 10°C ambient temperature).		
	Allowable ambient temperature	0 to 50°C		
	Storage temperature	-20 to +70°C		
	Allowable ambient humidity	Max. 90%RH at 40°C No dewing		
	Vibration resistance	Max. 4.9m/s <sup>2</sup> , 10 to 60Hz, XYZ directions, 2 hours		Excluding DIN rail mounted type.
	Impact resistance	Max. 490m/s <sup>2</sup> , three times in vertical direction		
	Case material	Polycarbonate		
	Case color	Gray, Munsell 2.5PB3.5/1		
	Wiring terminal screw	M3.5		
Insertion life of Handy Loader jack	Max. 1000 times (with the Handy Loader cord incorporated)			
Mounting	Rack mount			
	Wall mount: Vibration-absorbing bracket (Part No. 81404080-001) is used where there is wall vibration.			
	DIN rail mount: Not possible where there is vibration or shock.			
Weight	Approx. 0.6kg			

Attachments	Name of Article	Part No.	Q'ty	Options	Name of Article	Model	Weight (approximately)
	Mounting brackets	81403255-101	1 set		5ch rack (non-communication system)	QN717A101	2.6kg
	Vibration-absorbing bracket	81404080-001	1 set		11ch rack (communication system)	QN716A101	1.6kg
	Various labels	N-3218	1 set		Blind cover for rack	81403291-001	10g
	Test data	—	1 copy		Handy Loader *	QN715A101	400g
	Instruction manual	—	1 copy		Handy Loader case	81403304-001	74g
	—	—	—		Curled cord for Handy Loader	81403280-001	210g
	—	—	—		* With connecting curled cord, output cable and leather case provided.		

Model Configuration Table

I II III IV V VI VII

Ex.: IP326CC5A02T0

I	II	III	IV	V	VI	VII	Contents
Basic model	No. 1 Input range	No. 2 Input range	Output range	Power voltage	Optional function	Additional processing	
IP326							Two-input calculation unit
Selected from Table 1.	Selected from Table 1.	Selected from Table 2.					—
				A			100 to 240V DC, 50/60Hz
				D			24 to 48V DC
					00		None
					02		Communication
						00	None
						T0	Torrid zone processing

Table 1. Input Range

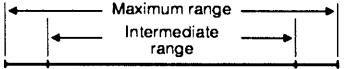
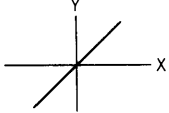

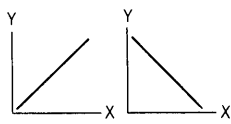

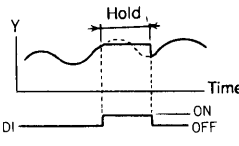

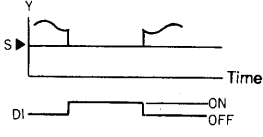

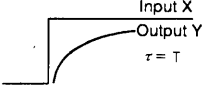

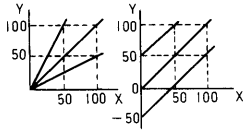

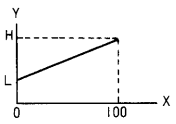

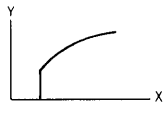

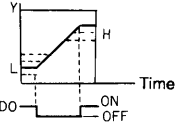

Range	Code	Indication, setting unit (on Handy Loader)	Range		Accuracy Note (1)		Note (1) • In all cases, input conversion accuracy • Reference conditions: Ambient temperature 23.5 ± 1°C Power voltage 105 ± 2V AC or 24 ± 0.5V DC
			Standard range (set at delivery time)	Maximum range (settable after delivery)	Maximum range	Intermediate range (maximum error)	
Current, voltage (linear)	C	mA	4 to 20mA	0 to 20mA	±0.15%FS	±0.030mA	 <p>Maximum error: The maximum error in an intermediate range (including the standard range) is an error which occurs when the relevant range is included within the maximum range. Example 1: When the intermediate range is 4 to 24mA, it is included within the standard range of 0 to 50mA. Therefore, the maximum error is ±0.75mA. Example 2: When the standard range is 4 to 20mA, it is included within the maximum range of 0 to 20mA. Therefore, the maximum error is ±0.030mA.</p>
	1	mA	10 to 50mA	0 to 50mA	±0.15%FS	±0.075mA	
	2	mA	2 to 10mA	0 to 10mA	±0.15%FS	±0.015mA	
	3	mA	0 to 1mA	0 to 1mA	±0.15%FS	±0.0015mA	
	4	V	0 to 10V	0 to 20V	±0.15%FS	±0.03V	
	5	mV	1 to 5V	0 to 5V	±0.15%FS	±7.5mV	
	6	mV	0 to 1V	0 to 1V	±0.15%FS	±1.5mV	
	7	V	-4 to +4V	-10 to +10V	±0.15%FS	±0.03V	
	8	mV	0 to 100mV	0 to 100mV	±0.15%FS	±0.15mV	
M	mV	0 to 10mV	-10 to +10mV	±0.15%FS	±0.03mV		

Table 2. Output Range

Range	Code	Indication, setting unit (on Handy Loader)	Range		Accuracy (Reference conditions: Ambient temperature 23.5 ± 1°C Power voltage 105 ± 2V AC or 24 ± 0.5V DC)	
			Standard range (set at delivery time)	Maximum range (settable after delivery)	Maximum range	Accuracy by scaling
Current, voltage (linear)	C	mA	4 to 20mA	0 to 20mA	±0.15%FS	80% or more: ±0.15%FS Less than 80%: $\frac{\text{Maximum output range width}}{\text{Intermediate output range width}} \times \text{Accuracy shown in Table 1}$ However, the input conversion value of ±5%FS, when scaling is within 0 to 1mA. Note: The accuracy is doubled where less than 0.5mA in the current output.
	2	mA	2 to 10mA	0 to 10mA	±0.15%FS	
	5	V	1 to 5V	0 to 5V	±0.15%FS	
	8	mV	0 to 100mV	0 to 100mV	±0.15%FS	
	M	mV	0 to 10mV	0 to 10mV	±0.15%FS	

Table 4. Calculation

Group	Name and Function		Calculation contents (Remarks: X = Input signal, Y = Output signal, DI = Digital input, DO = Digital output)	Parameter setting range Figure in parentheses ( ) means an initial value
	Symbol	Abbreviation		
A	<b>No operation</b> • Input signal is used as an output signal as is. • No calculation		 $Y = X$ DI, DO : None	—
		<b>NOP</b>		
	<b>Reverse</b> • Input signal is reversed and used as an output signal.		 $Y = 100 - X$ DI : Reversed when DI is OFF. DI : Not reversed when DI is ON. DO : None	—
		<b>RVS</b>		
	<b>Analog memory</b> • Output signal is held temporarily.		 $Y = X$ DI : Output is not held when DI is OFF. DI : Output is held when DI is ON. DO : None	—
	<b>ANM</b>			
<b>Preset value</b> • Preset value is output irrespective of the input signal.		 $Y = S$ DI : Preset value is not output when DI is OFF. DI : Preset value is output when DI is ON. DO : None	Preset value S = -999.9 to 999.9 (0.0)	
	<b>PRS</b>			
B	<b>First order lag filter</b> • An output signal is delayed against an abrupt change in an input signal.		 $Y = X \frac{1}{1 + TS}$ S : Laplace operator DI, DO : None	Filter constant T = 0.0 to 999.9s (0.0)
		<b>FLT</b>		
	<b>Bias factor</b> • An input signal is multiplied by a factor, and a bias is added to it to obtain an output signal.		 $Y = RX + B$ DI, DO : None	Ratio T = -9.999 to 9.999 (1.00) Bias B = -99.99 to 200.0% (100.0)
		<b>R/B</b>		
	<b>Scaling</b> • An input (output) signal is scaled by parameters.		 $Y = \frac{(H - L) X}{100} + L$ DI, DO : None	Low-limit value L = -999.9 to 999.9 (0.0) High-limit value H = -999.9 to 999.9% (100.0)
	<b>SCL</b>			
<b>Square root extraction</b> • A square root input signal is extracted into an output signal (with a dropout function provided).		 $Y = \sqrt{X}$ . However, Y = 0 when X < D. DO : Dropout is not activated when DO is OFF. DO : Dropout is activated when DO is ON. DI : None	Dropout D = 0.0 to 10.0%FS (0.0)	
	<b>SQR</b>			
<b>High-low limiter</b> • High-limit and low-limit values are set to the output signal and only the necessary range of an input signal is used.		 $Y = X$ . However, Y = L when $X \leq L$ , and Y = H when $X \geq H$ . DO : The high-low limiter is not operated when DO is OFF. DO : The high-low limiter is operated when DO is ON. DI : None	Low-limit value L = -999.9 to 999.9% (0.0) High-limit value H = -999.9 to 999.9% (100.0)	
	<b>HILL</b>			

B	<b>Change rate limiter</b> <ul style="list-style-type: none"> <li>The change rate of an input signal is limited within a preset ramp in such a way that the process value changes rapidly.</li> </ul>		The rise rate of Y is limited to $\leq U$ , and the fall rate of Y to $\geq D$ . DO: The change rate limiter is operated when DO is ON. DI: The change rate limiter is not operated when DI is ON.	Rise rate $U = 0$ to 999.9%/s (100.0) Fall rate $D = 0$ to 999.9%/s (100.0)
		<b>DRL</b>		
	<b>Derivative</b> <ul style="list-style-type: none"> <li>An input signal change is predicted and output.</li> <li>Usable for feed forward.</li> </ul>		$Y = \frac{T_1 S}{1 + T_2 S} X$ S: Laplace operator DI, DO: None	Lead time $T_1 = 0.0$ to 999.9s (0.0) Lag time $T_2 = 0.0$ to 999.9s (0.0)
	$\frac{d}{dt}$	<b>LED</b>		
	<b>Lead, lag</b> <ul style="list-style-type: none"> <li>The dead time in a system is compensated for.</li> </ul>		$Y = \frac{1 + T_1 S}{1 + T_2 S} X$ S: Laplace operator DI, DO: None	Lead time $T_1 = 0.0$ to 999.9s (0.0) Lag time $T_2 = 0.0$ to 999.9s (0.0)
		<b>L/L</b>		
	<b>Absolute value</b> <ul style="list-style-type: none"> <li>The absolute value of an input signal is output.</li> </ul>		$Y =  X $ DO turns ON when $X < 0$ . DI: None	—
	$ SIG. $ <b>ABS</b>	<b>ABS</b>		
	<b>Linearization table</b> <ul style="list-style-type: none"> <li>An optional function can be prepared and output as up to 20 broken lines, when an input (output) signal is nonlinear.</li> </ul>		$Y = f(X)$ 20 broken lines conversion X: No. of broken lines + 1 Y: No. of broken lines + 1 DO, DI: None	X broken line $X_1$ to $X_{20} = -999.9$ to 999.9% Y broken line $Y_1$ to $Y_{20} = -999.9$ to 999.9%
		<b>TBL</b>		
<b>Maximum value keeping</b> <ul style="list-style-type: none"> <li>The current maximum value is output.</li> </ul>		$Y = X (\max)$ DI: The maximum value is kept when DI is OFF. DI: Reset when DI is ON. DO: None	—	
	<b>MAX</b>			
<b>Minimum value keeping</b> <ul style="list-style-type: none"> <li>The current minimum value is output.</li> </ul>		$Y = X (\min)$ DI: The minimum value is held when DI is OFF. DI: Reset when DI is ON. DO: None	—	
	<b>MIN</b>			
<b>Soft preset</b> <ul style="list-style-type: none"> <li>A preset value is bumplessly output.</li> </ul>		$Y = S$ DI: $Y = X$ when DI is OFF. DI: A preset value is bumplessly output with $Y = S$ when DI is ON. DO: None	Preset value $S = -999.9$ to 999.9% (0.0) Ramp $R = 0.1$ to 999.9%/s (10.0)	
	<b>SPR</b>			
C	<b>High-low selector</b> <ul style="list-style-type: none"> <li>One of two input signals, whichever is larger or smaller, is selected, and output.</li> </ul>		$Y = X_1$ or $Y = X_2$ Low selector: DO ON when $X_1 < X_2$ High selector: DO ON when $X_1 > X_2$ DI: None	Low selector: $S = 0$ High selector: $S = 1$
		<b>HLS</b>		
	<b>Switch selector</b> <ul style="list-style-type: none"> <li>One of two input signals is selected and output by the DI command.</li> </ul>		$Y = X_1$ or $Y = X_2$ DI: $X_1$ is output when DI OFF. DI: $X_2$ is output when DI ON. DO: DO ON $X_1 < X_2$	—
	<b>SWS</b>			

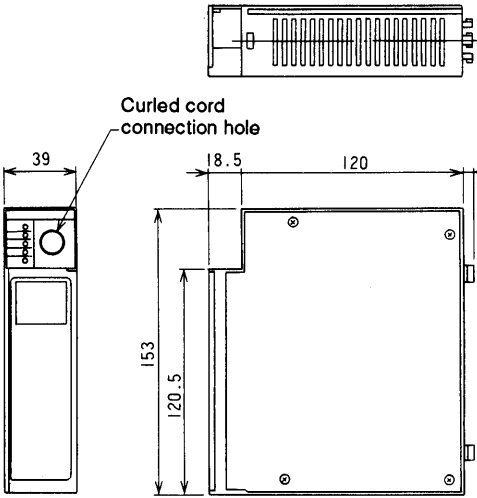
C	<b>Change point selector</b>			$Y = X_1 \text{ or } Y = X_2$ $X_2$ is output with DO ON when $S < X_1$ $X_1$ is output with DO OFF when $X_1 < S - D$ . DI : None	Change point $S = -999.9 \text{ to } 999.9\% \text{ (100.0)}$ Differential $D = 0.0 \text{ to } 99.9\% \text{ (0.0)}$
		<b>CPS</b>			
C	<b>Soft switch selector</b>			$Y = X_1 \text{ or } Y = X_2$ DI : $X_1$ is bumplessly output when DI OFF. DI : $X_2$ is bumplessly output when DI ON. DO : None	Ramp $R = 0.1 \text{ to } 999.9\%/s \text{ (10.0)}$
		<b>SSS</b>			
C	<b>Temperature correction</b>			$Y = \frac{X_2(T + 273)}{X_1 + 273} \text{ } ^\circ\text{C}$ $Y = \frac{X_2(T + 459.4)}{X_1 + 459.4} \text{ } ^\circ\text{F}$ DI, DO : None	Reference temperature $T = -300.0 \text{ to } 2000.0 \text{ (0.0)}$ Unit $S = 0 \text{ or } 1$ $S = 0 : \text{ } ^\circ\text{C}$ $S = 1 : \text{ } ^\circ\text{F}$
		<b>TCP</b>			
C	<b>Pressure correction 1 (unit: kgf/cm<sup>2</sup>)</b>			$Y = \frac{X_2(X_1 + 1.033)}{P + 1.033}$ DI, DO : None	Reference pressure $P = -999.9 \text{ to } 999.9 \text{ (0.0)}$ $(\text{kgf/cm}^2)$
		<b>PC1</b>			
C	<b>Pressure correction 2 (unit: mmH<sub>2</sub>O)</b>			$Y = \frac{X_2(X_1 + 1.033)}{P + 1.033}$ DI, DO : None	Reference pressure $P = -999.9 \text{ to } 999.9 \text{ (0.0)}$ $(\text{mmH}_2\text{O})$
		<b>PC2</b>			
C	<b>Addition and subtraction</b>		$Y = \frac{AX_1 + BX_2}{100}$ DO : DO ON when $X_1 < X_2$ DI : None	Ratio $A = -999.9 \text{ to } 999.9\% \text{ (100.0)}$ Ratio $B = -999.9 \text{ to } 999.9\% \text{ (100.0)}$	
		<b>ADD</b>			
C	<b>Multiplication</b>		$Y = \frac{X_1X_2}{100}$ DO : DO ON when $X_1 < X_2$ DI : None	—	
		<b>MUL</b>			
C	<b>Division</b>		$Y = \frac{X_1}{X_2} \times 100 + A$ DO : DO ON when $X_1 < X_2$ DI : None	Bias $A = -999.9 \text{ to } 999.9\% \text{ (0.0)}$	
		<b>DVD</b>			
M	<b>Low monitor</b>			DO : Monitor output ON when $X < S$ . DO : Monitor output OFF when $X < S + D$ . DI : None	Monitor $S = -999.9 \text{ to } 999.9\% \text{ (0.0)}$ Differential $D = 0.1 \text{ to } 200.0\% \text{ (1.0)}$
		<b>LMS</b>			
M	<b>High monitor</b>			DO : Monitor output ON when $S < X$ . DO : Monitor output OFF when $S - D < X$ . DI : None	Monitor $S = -999.9 \text{ to } 999.9\% \text{ (100.0)}$ Differential $D = 0.1 \text{ to } 200.0\% \text{ (1.0)}$
		<b>HMS</b>			

<b>M</b>	<b>Deviation monitor</b>			<p>DO: Monitor output ON when <math>X &lt; S - B</math>, <math>S + B &lt; X</math>.</p> <p>DO: Monitor output OFF when <math>S - B + 0.1\% &lt; X</math>, <math>X &lt; S + B - 0.1\%</math>.</p> <p>DI : None</p>	<p>Monitor S = -999.9 to 999.9% (0.0) Differential D = 0.1 (%) fixed Bandwidth B = 0.1 to 200.0% (1.0)</p>
		<b>DMS</b>			
	<b>Arrival monitor</b>			<p>DO: Monitor output ON when <math>S - B &lt; X</math>, <math>X &lt; S + B</math>.</p> <p>DO: Monitor output OFF when <math>X &lt; S - B + 0.1\%</math>, <math>S + B + 0.1\% &lt; X</math></p> <p>DI : None</p>	<p>Monitor S = -999.9 to 999.9% (0.0) Differential D = 0.1 (%) fixed Bandwidth B = 0.1 to 200.0% (1.0)</p>
		<b>AMS</b>			
	<b>Timer monitor (low)</b>			<p>DO: Monitor output ON when <math>X &lt; S</math> is continued for T sec.</p> <p>DO: Monitor output OFF when <math>X &gt; S</math> (time count is cleared).</p> <p>DI : None</p>	<p>Monitor S = -999.9 to 999.9% (0.0) Time T = 0 to 5000s (0)</p>
		<b>TLM</b>			
	<b>Timer monitor (high)</b>			<p>DO: Monitor output ON when <math>X &gt; S</math> is continued for T sec.</p> <p>DO: Monitor output OFF when <math>X &lt; S</math> (time count is cleared).</p> <p>DI : None</p>	<p>Monitor S = -999.9 to 999.9% (100.0) Time T = 0 to 5000s (0)</p>
		<b>THM</b>			
	<b>Keeping monitor (low)</b>			<p>DO: Monitor output ON when <math>X &lt; S</math>. Once DI is ON, output continues even when <math>S &lt; X</math>, unless DI turns on.</p> <p>DI : Monitor output OFF when DI on.</p>	<p>Monitor S = -999.9 to 999.9% (0.0)</p>
		<b>KLM</b>			
	<b>Keeping monitor (high)</b>			<p>DO: Monitor output ON when <math>X &gt; S</math>. Once DO is ON, output continues even when <math>X &lt; S</math>, unless DI turns ON.</p> <p>DI : Monitor output OFF when DI ON.</p>	<p>Monitor S = -999.9 to 999.9% (100.0)</p>
		<b>KHM</b>			
	<b>Keeping monitor (deviation)</b>			<p>DO: Monitor output ON when <math>X &lt; S - B</math> or <math>S + B</math> = X. Once DO is ON, output continues even when <math>S - B &lt; X &lt; S + B</math>, unless DI turns on.</p> <p>DI : Monitor output OFF when DI ON.</p>	<p>Monitor S = -999.9 to 999.9% (0.0) Bandwidth B = 0.1 to 200.0% (1.0)</p>
		<b>KDM</b>			
	<b>Keeping monitor (arrival)</b>			<p>DO: Monitor output ON when <math>S - B &lt; X &lt; S + B</math>. Once DI is ON, output continues even when <math>X &lt; S - B</math> or <math>S + B &lt; X</math>, unless DI turns on.</p> <p>DI : Monitor output OFF when DI ON.</p>	<p>Monitor S = -999.9 to 999.9% (0.0) Bandwidth B = 0.1 to 200.0% (1.0)</p>
		<b>KAM</b>			
<b>Change rate monitor</b>			<p>DO: Monitor output ON when the change rate exceeds its high-limit or low-limit. (The high-limit and low-limit of change rate are set to positive values.)</p> <p>DI : None</p>	<p>High-limit value U = 0 to 999.9%/s (100.0) Low-limit value D = 999.9%/s (100.0)</p>	
	<b>DRM</b>				

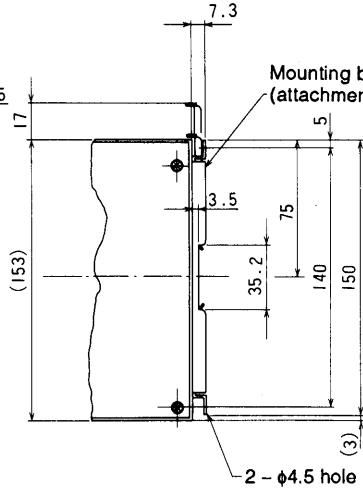
**External Dimensions**

Unit : mm

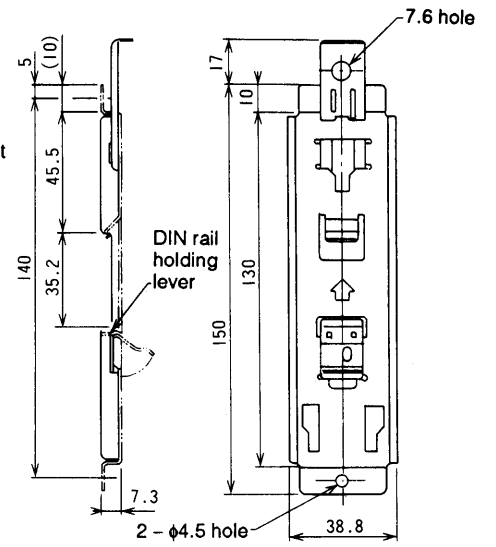
**External Dimensions of Instrument**



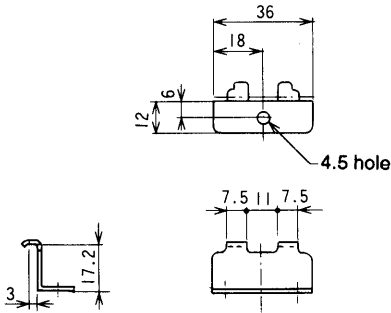
**Mounting dimensions of mounting bracket**



**Mounting bracket Part No. 81403255-101**

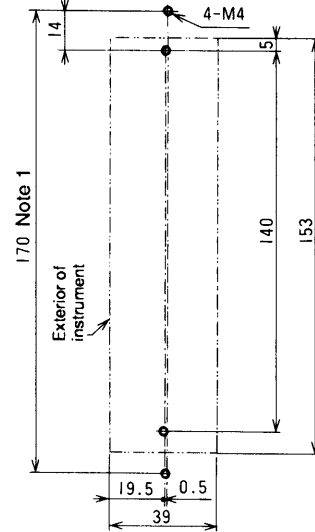


**Vibration-absorbing bracket Part No. 81404080-001**



Material: Steel plate SPCC t1.6  
Galvanized black  
chromate processing

**Mounting dimensions of vibration-absorbing bracket**

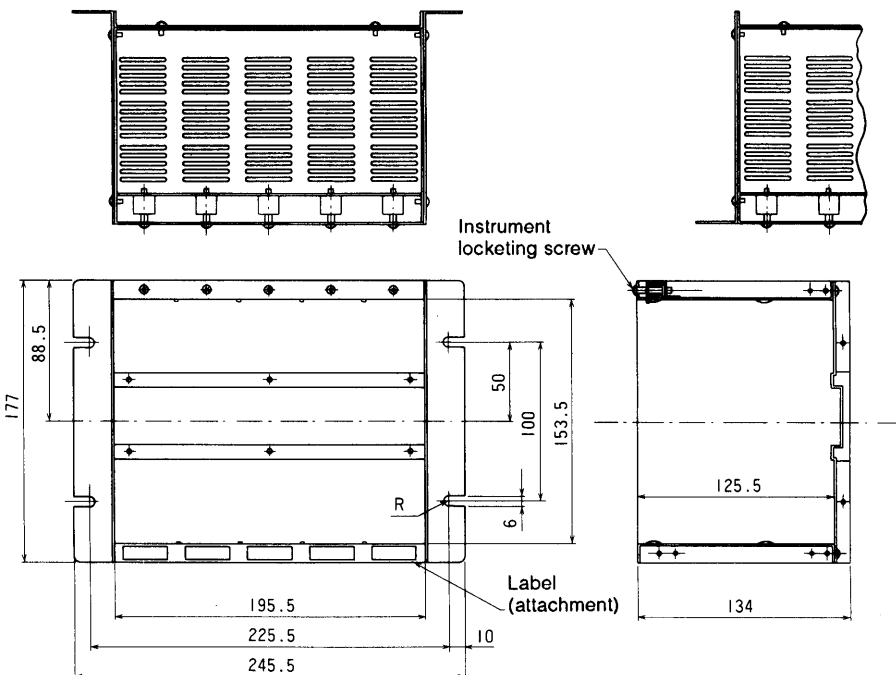


Note 1: The two outer holes (170 pitch) need not be used when the instrument is mounted where there is no vibration.

**5ch rack (non-communication system) Model QN717A101**

**Wall mount**

**Panel mount**

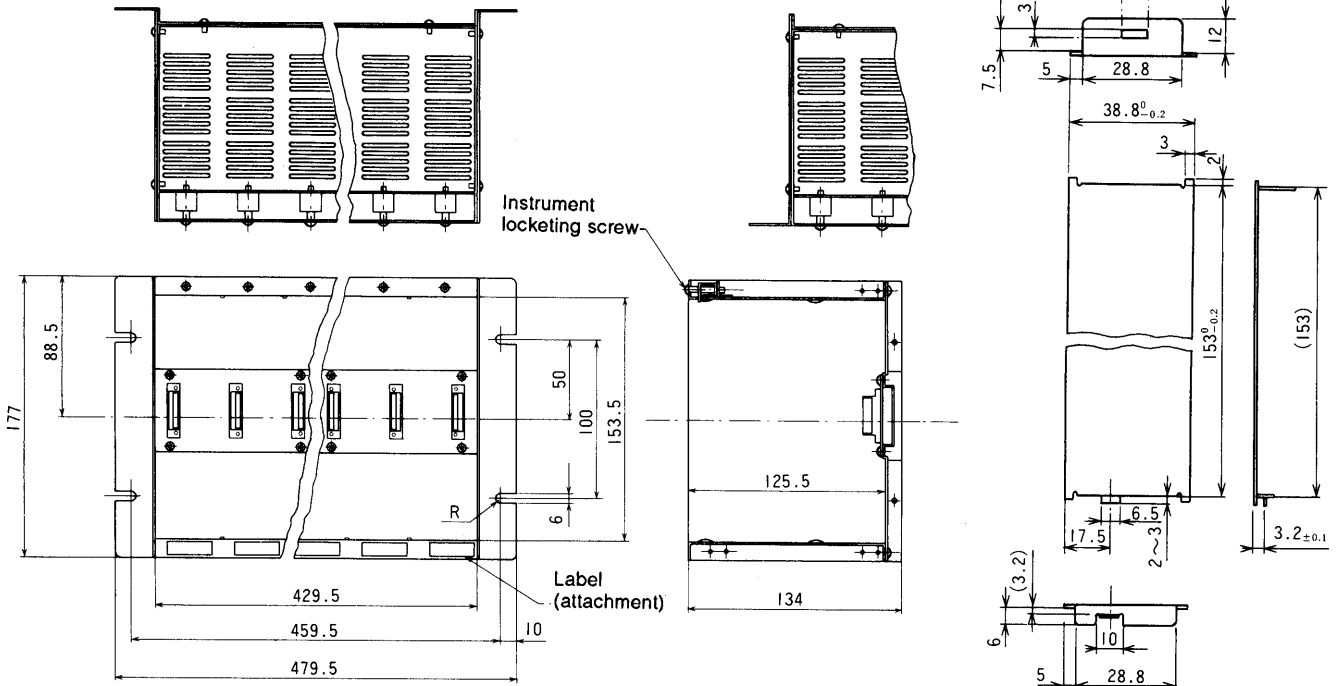


11ch rack (communication system) Model QN716A101

Blind cover for rack Part No. 81403291-001

Wall mount

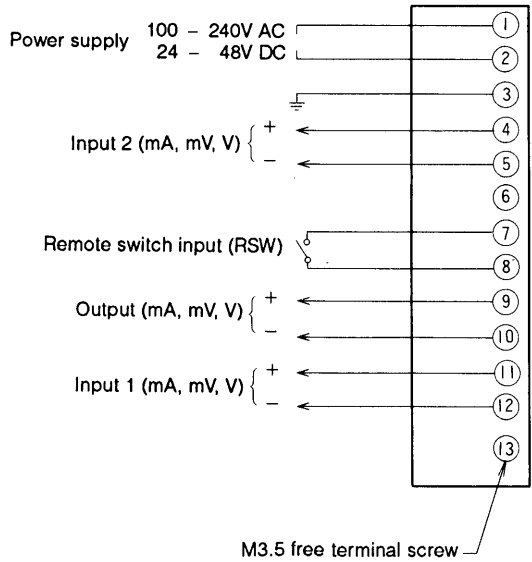
Panel mount



**Caution: Rack mount**

When two or more racks are stacked, keep a minimum space of 100mm between the upper and lower racks, and install a fan for forced ventilation.

**External Terminal Connection Diagram**



**Cautions :**

1. **Power supply**  
Take the starting current of the instrument power supply into account (with DC power supply).
2. **Combination with data input device, etc.**  
When the output of this instrument is applied to an A/D converter or analog scanner, etc. a dispersion error may occur in the read data.  
To prevent this error, take any of the following measures.
  - (1) For A/D conversion of the output of this instrument, use a low speed integral A/D converter. If a sequential comparison high-speed A/D converter is used, check the functions by combination tests in advance.
  - (2) Insert an isolator with no switching power supply between this instrument and the A/D converter.
  - (3) Perform mean processing via personal computer, etc. during data reading.

 **CAUTION**

The product has been designed, developed and manufactured for general purpose applications for machinery and equipment. The product shall be handled with extra caution to provide fail-safe and/or redundant design in the applications that require strict safety as those listed below.

- **applications pertaining to the protection of human life**
- **applications pertaining directly to controlling transportation equipment and machinery (start/stop control, etc.)**
- **applications pertaining to aircraft - applications pertaining to spacecraft - applications pertaining to nuclear reactors**

Do not use this device in applications where the device's functions are directly responsible for human safety.

*Specifications are subject to change without notice.*

**YAMATAKE**

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