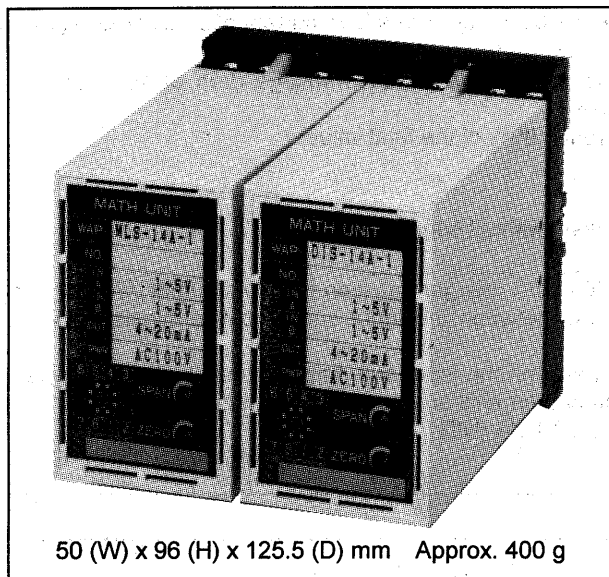# MULTIPLIER AND DIVIDER (MATH UNIT)
WVP- DID/MLS/DIS

50 (W) x 96 (H) x 125.5 (D) mm   Approx. 400 g

These are converters that receive two analog signals, and deliver a signal that is proportional to their product or quotient. They are ideal for performing temperature correction of viscosity or density.
and
The MLS and DIS types have their input, output and power supply isolated from each other; however, their input signals are not mutually isolated.

Features

– Highly reliable design that is hardly affected by signal source resistance or receiving resistance.
– Plug-in design to enable mounting on and demounting from DIN rails using a one-touch process.
– MLS and DIS models have a dielectric strength between their input and output of 2,000 VAC.

Model   WVP - ☐☐☐ - ☐☐ ☐ - ☐

	Multiplier	Isolated
MLS		Isolated
DID	Divider	Non-isolated
DIS	Divider	Isolated

	Power Supply
1	AC 100 V ± 10%, 50/60 Hz
2	AC 200 V ± 10%, 50/60 Hz
3	DC 24 V ± 10%
4	AC 110 V ± 10%, 50/60 Hz
5	AC 220 V ± 10%, 50/60 Hz

Input Signal		Input Resistance
11	DC 0–100 mV	1 MΩ
12	DC 0–1 V	1 MΩ
13	DC 0–5 V	1 MΩ
14	DC 1–5 V	1 MΩ
15	DC 0–10 V	1 MΩ
32	DC 0–1 mA	100 Ω
33	DC 0–10 mA	50 Ω
34	DC 0–16 mA	50 Ω
35	DC 0–20 mA	50 Ω
36	DC 4–20 mA	50 Ω
99	Other than the above (Please consult with us.): Over 10 mV·fs up to 300 V·fs Over 10 µA·fs up to 20 mA·fs	

Output Signal		Allowable Load Resistance
A	DC 4–20 mA	750 Ω or less
B	DC 1–5 mA	3 KΩ or less
C	DC 2–10 mA	1.5 KΩ or less
D	DC 0–1 mA	15 KΩ or less
E	DC 0–10 mA	1.5 KΩ or less
F	DC 0–16 mA	937 Ω or less
G	DC 0–20 mA	750 Ω or less
H	DC 1–5 V	2.5 KΩ or more
J	DC 0–10 mA	10 KΩ or more
K	DC 0–100 mA	100 KΩ or more
L	DC 0–1 V	500 Ω or more
N	DC 0–5 V	2.5 KΩ or more
P	DC 0–10 V	5 KΩ or more
S	Other than the above (Please consult with us.): Voltage output 10 V or less Current output 20 mA or less	

Specification

Input signal:	DC voltage, DC current (number of input signals: 2)
Output signal:	DC voltage, DC current (number of output signals: 1)
Accuracy (at 23°C):	Multiplier: ±0.2%·fs Divider: ±1.0%·fs
Allowable load resistance:	– For voltage output, use the converter with a load current of 2 mA or less (1 μA for an output below 1 V·fs). – For current output, use the converter with a voltage drop of 15 V or less between output terminals.
Response time:	0.2 sec (time needed to reach 90% of the final value)
Adjustable range:	Zero: -10–+10% fs Span: 90–110% fs
Operating temperature and humidity:	-5 to +55°C, 90% RH or less (without condensation)
Influence of ambient temperature:	±0.3%·fs/10°C
Insulation resistance:	100 MΩ or more with a 500 VDC megger between the input/output terminal and power supply terminal, and between the input and output terminals (isolated type)
Dielectric strength:	2,000 VAC for 1 minute between the input and output terminals (isolated type), and between the input/output terminal and power supply
Power consumption:	Approx. 4 VA (AC), approx. 140 mA (DC)

Operation Expression

WVP-MLD, MLS

$$C = (\frac{K_1}{100} \times A) \times (\frac{K_2}{100} \times B) \qquad \begin{array}{l} K_1, K_2: 10\text{–}100\% \\ A, B, C: 0\text{–}100\% \end{array}$$
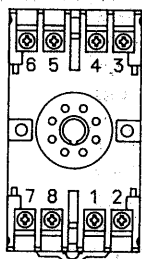
WVP-DID, DIS

$$C = (\frac{K_1}{100} \times A) / (\frac{K_2}{100} \times B) \qquad \begin{array}{l} K_1, K_2: 10\text{–}100\% \\ A: 30\text{–}100\% \\ B, C: 0\text{–}100\% \end{array}$$

When $\frac{K_1}{100} \times A > \frac{K_2}{100} \times B$, the output will reach a maximum.

The coefficients of K_1 and K_2 are factory set at the time of deliver and cannot be modified thereafter.

Explanation of Terminals

No.	Symbol		Description
1	OUTPUT	+	Output signal
2		-	
3	INPUT (A)	+	Input signal (A)
4		-	
5	INPUT (B)		Input signal (B)
6			
7	POWER	U (+)	Power supply
8		V (-)	