Patented

Real-time measurement of angle and speed
by branching resolver signal lines in a state-controlled motor system.

RSM-100

Resolver system measuring instrument

Capable of detecting resolver signals in the control state without affecting control or connected measuring instruments which was previously impossible.

Branch detection	Detection without affecting control signals.
Angle/speed measurement	R/D conversion and analog voltage output of resolver signal detected by branching.
Corresponding shaft angle multiplication	Compatible with ×1 to ×20
Compatible with high velocity rotation	Compatible up to 60000r/min (electrical angle)

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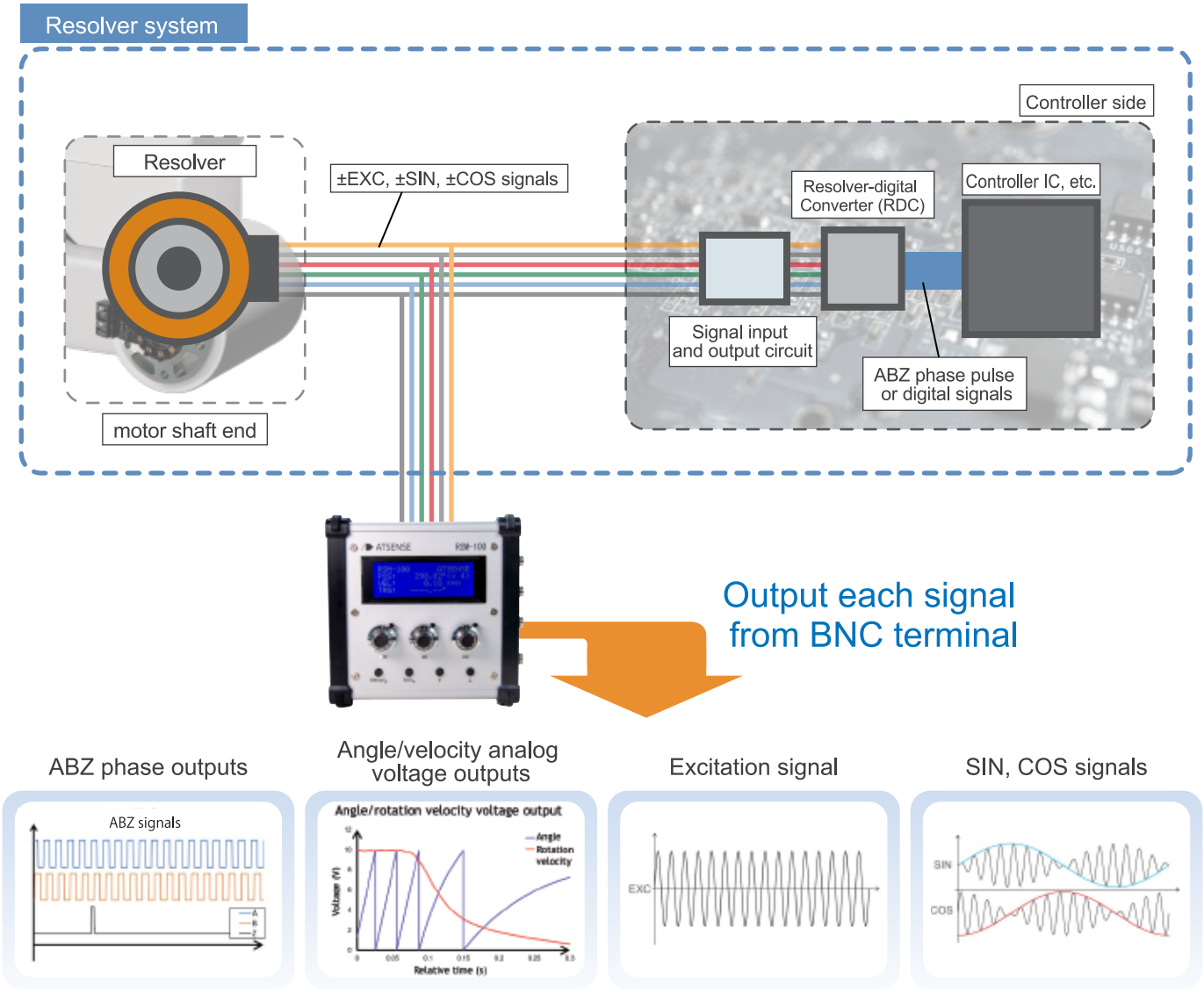
Capable of converting the signals branched from the resolver signal line of the system consisting of a resolver and

an R/D converter into A, B, Z pulses and analog voltage proportional to angle/velocity and furthermore of outputting excitation, SIN, and COS signals.



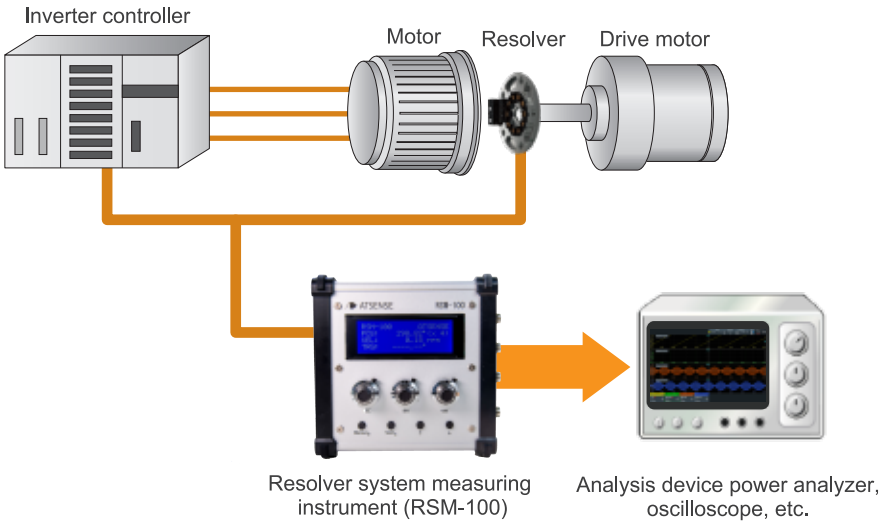
Branch detection of resolver signals

Typical resolver signals are floating signals, so simply branching them with passive probes or clips may cause insufficient excitation current due to an increase in current paths, and noise inflow due to GND connection of another device, etc. Thus, it will affect the signals and measurement of the existing measuring system and result in the impossibility of measurement.

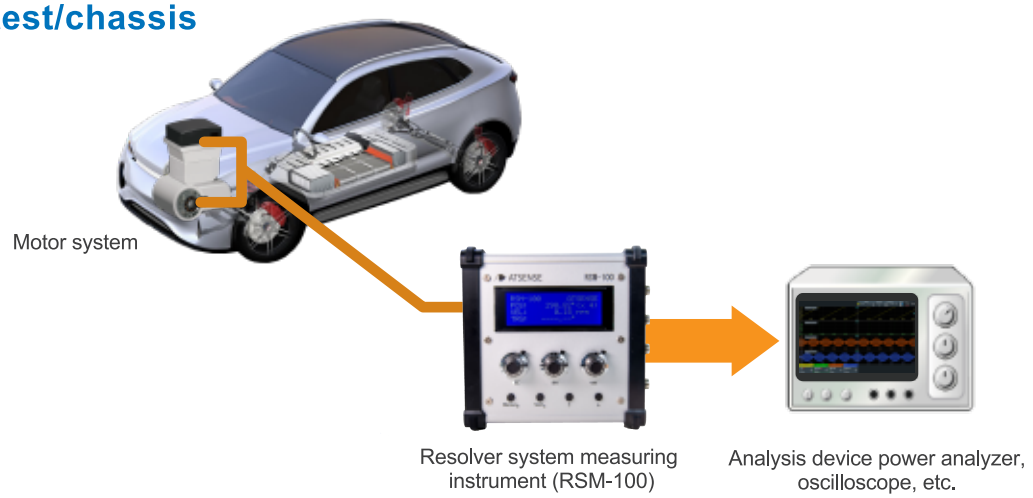
Our device with a high impedance detection section will make it possible to branch and measure resolver signals without affecting the existing system.

Measurement examples

Motor bench



Driving test/chassis



Application examples

Benchmark

Capable of utilizing the real-time angle/velocity data by branching resolver signals when performing measurements of motor systems manufactured by other companies or whose origins are unknown,

Control sequence study and mapping verification

Capable of utilizing the angle/velocity data from the resolver signals used for controlling the motor.

Actual vehicle test

Capable of utilizing the angle/velocity data by branching resolver signals even in narrow spaces where it is difficult to install a rotation sensor,

Utilization for performance evaluation of motors and e-axles

No need to install a rotary encoder on the drive side of the motor bench.Applicable for higher resolution/higher rotation range than a rotary encoder. Compatible with e-axles where the axis cannot be extended.Capable of inputting the output signals from this device to a power analyzer, etc.

Simultaneous measurement with sound and vibration signals

Simultaneous measuring is achieved by using ABZ pulse output from this device or analog/velocity analog voltage output.

Malfunction investigation

To be utilized when wanting to check resolver signals in case of motor system malfunction.

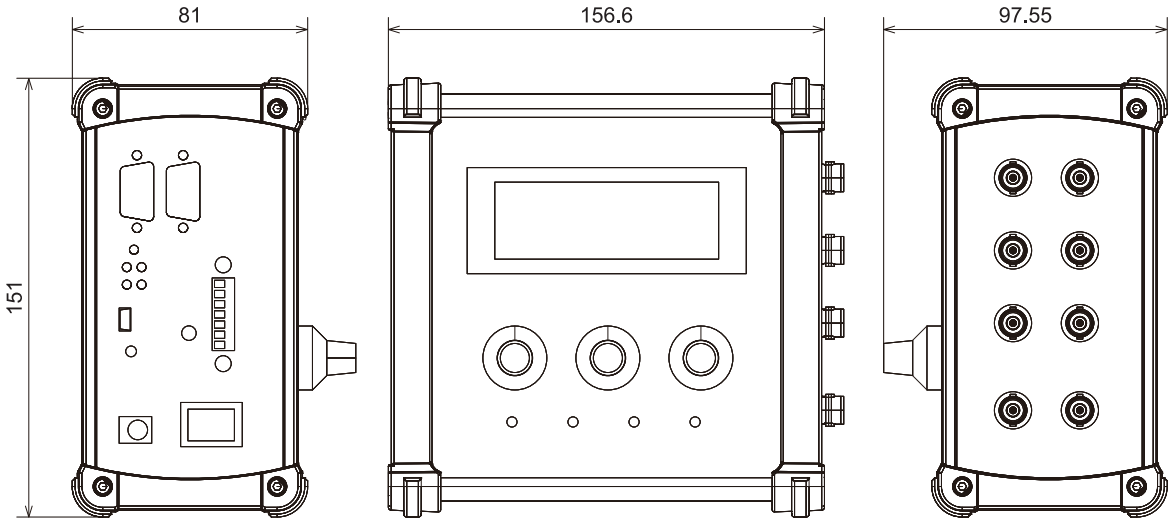
Specifications：Resolver system measuring instrument　RSM-100

resolver	
type	amplitude modulation type
shaft angle multiplication	X1 ～ X20 (arbitrary setting possible)
resolver signal input	
signal type	differential or single ended
kind of signals	excitation signal (sine wave)
	sine-modulated and cosine-modulated
	excitation signals
excitation signal frequency	10kHz ～ 20kHz
	(Pulse deteriorates below 10kHz)
input impedance	200GΩ (maximum)
voltage limit excitation signal	40Vp-p (differential maximum)
sin,cos signals	16Vp-p (differential maximum)
resolver measurement	
rotation speed range	0 ～ 60000r/min
angular resolution (electrical angle)	12bit
delay time	8 ～ 12μs
filter	50kHz low pass filter
external input signal (event input)	
voltage range	±10V
threshold	selectable from ±9.9V

digital output		
voltage		0 ～ 5V
pulse rate		12bit/rev for electrical angle (1024 pulse/rev)
analog output		
output change time		about 10μs
output resolution		16bit
angle voltage	output voltage	0 ～ 5V or 0 ～ 10V or ±5V or ±10V
	angle scale	0 ～ 360° or ±180°°
speed voltage	output voltage	±5V or ±10V
	speed scale	1 ～ 100000r/min
monitor signal	voltage range	0 ～ 5V
	output signal	excitation, sine. cosine
general specifications		
PC communication		USB (USB-serial bridge)
isolation specification		power supply - ground -
		analog and digital output GND - resolver GND
power supply		DC12V (10 ～ 18V)
body case		EMC-measured aluminum case
external dimensions		W151×D157×H98 mm (including protrusions)
weight		about 1.1kg
operationg temperature range		0 ～ 40℃ (no condensation)

External dimensions

(mm)



The specifications, appearance, etc. listed in this catalog
are subject to change without notice due to product improvement.

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