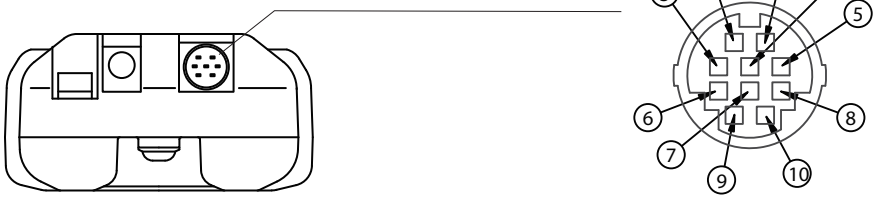
6. External Data Port

6.1 Pin Assignment

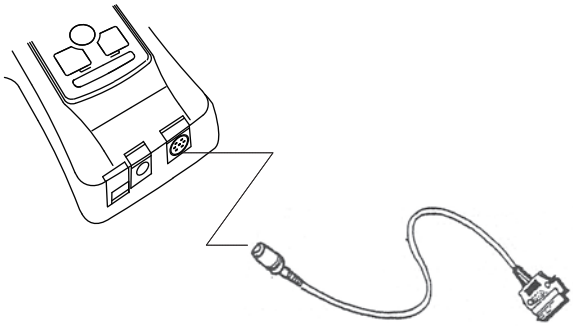


HR12-10RC-10SDL, by Hirose, is the output connector. We recommend HR12-10P10PCAE300 with 10 conductor shielded cable to make your own.

Please call your Shimpo dealer for information regarding optional cables and accessories.

Pin Number	Signal Name
1	Analog +
2	Analog GND
3	RxD (RS-232C Received Data) Host --> FGV
4	Digital GND
5	Connection Detection
6	TxD (RS-232C Transmitted Data) FGV --> Host
7	Not Used*
8	Compression Overload / LO Comparator Output
9	Tension overload / HI Comparator Output
10	Common (for Pins 8 and 9)

*Always leave pin 7 unconnected.



RS232C Output Cable
(Optional)

6.2.RS-232C Output

The RS-232C data connection allows control from external devices and data transfers.

6.2.1 RS-232C Interface

Baud rate*	2400, 4800, 9600, 19200 bps
Length of data bit	8 bit
Parity bit	None
Length of stop bit	1 bit
Flow control	None

*The baud rate is selectable through setting (f04). See section 4.5.4 for more information.

Default factory setting is 2400 bps. Consult your equipment's manual or manufacturer for the correct baud rate.

ASCII code, alpha numerics and carriage returns are used for RS-232C data transfer.

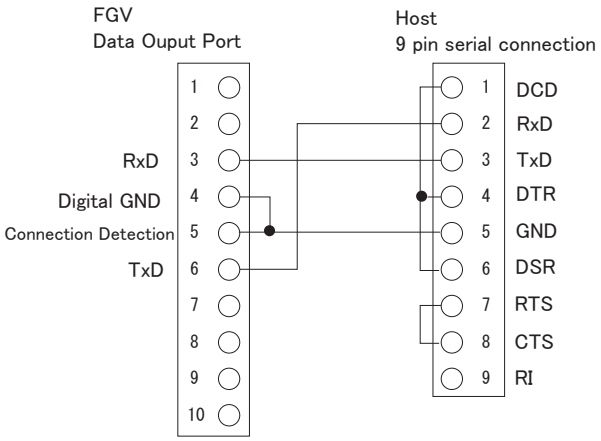
6.2.2 RS232C Communication Commands

Typical Host –> FGV commands.

″cr″means carriage return.

Commands	Content	Response	Explanation of Response
AA cr	Tare	AA cr	Tare
AB cr	Cancel data transmission	AB cr	Cancel data transmission
AC cr	Switch to positive peak mode	AC cr	Switch to positive peak mode
AD cr	Switch to standard measuring mode	AD cr	Switch to standard measuring mode
AL cr	Switch to negative peak mode	AL cr	Switch to negative peak mode
AE cr	Clear peak values	AE cr	Clear peak values
AF cr	Switch unit to Kg, g	AF cr	Switch unit to Kg, g
AG cr	Switch unit to N	AG cr	Switch unit to N
AH cr	Switch unit to lb	AH cr	Switch unit to lb
AK cr	Switch unit to oz	AK cr	Switch unit to oz
BA cr	Request current measurement	BA cr NA xxxxxx cr	xxxxxx: Polarity, decimal point, 4 digit value
BB cr	Request continuous transmission of measurement data (10 times/second)	BB cr NA xxxxxx cr	
BB1 cr	Request continuous transmission of measurement data (20 times/second)	BB1 cr NA xxxxxx cr	
BB2 cr	Request continuous transmission of measurement data (50 times/second)	BB2 cr NA xxxxxx cr	
BB3 cr	Request continuous transmission of measurement data (100 times/second)	BB3 cr NA xxxxxx cr	
BC cr	Transmission request of model	BC cr NE xx cr	xx: 2-digit number indicating model 02: FGV-0.5, 03: FGV-1, 04: FGV-2, 05: FGV-5, 06: FGV-10, 07: FGV-20, 08: FGV-50, 09: FGV-100, 1A: FGV-200
BD cr	Transmission request of unit	BD cr NH x cr	x: one-digit number indicating unit 0: N, 1: kg, 2: g, 3: lb, 4: oz
BE cr	Transmission request of plus peak value	BE cr NB xxxxxx cr	xxxxxx: Polarity, decimal point, 4 digit value
BF cr	Transmission request of minus peak value	BF cr NC xxxxxx cr	
If the FGV-XY detects a communication error, the following error codes are sent.		OB cr	Format error (Command error)
		OF cr	Flaming error
		OH cr	Overrun error

6.2.3 Connection between FGV and Host



Without the connection between the Digital GND and pin 5, RS-232C communication will not work.

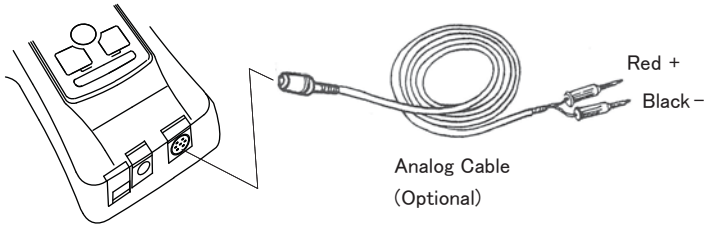
6.3 Analog Output

± 1V Analog Output
The output voltage's polarity corresponds to the polarity shown on the display during standard measurement mode.
The voltage will adjust to any tare command performed.

Output signal	± 1V
Signal method	12 bit D/A converter
Output update	1000 times/second*
Load resistance	>10 k Ω
Output accuracy	± 50mV

The analog output has a default update rate of 1000 times/second. The output voltage is linearly scaled so that the current zero point of the gauge corresponds with 0V, and so that 1V corresponds with 100% of the gauge's rated capacity. This means that the tare function, or any change in the gauge's zero point, will change the maximum voltage shown before the gauge is overloaded.

*This rate is determined by setting f05. Please refer to 4.5.5.



6.4 Overload/Comparator Output

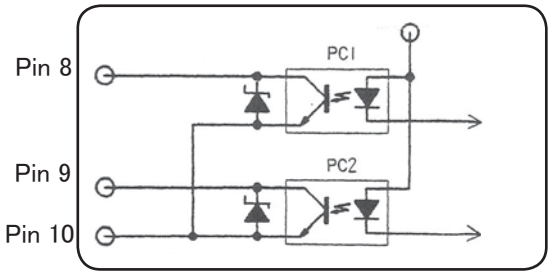
Output overload/comparator signal.
Switch of output overload/comparator signal is set by external output setting (f06) of function mode.

I/F Circuit

Compression Overload / LO Comparator Trigger

Tension Overload / HI Comparator Trigger

Common (For Pins 8 and 9)



30V / 5mA Maximum

Overload Output

When the overload condition is triggered, the corresponding overload output turns on. This can be used to stop a motorized test stand, or an alarm to prevent damage from accidental overload.
When compression overload occurs photo-couple 1(PC1) turns on, and allows current to flow between Pin 8 and 10.
When tension overload occurs photo-couple 2(PC2) turns on, and allows current to flow between Pin 9 and 10.
If no overload condition exists, PC1 and PC2 should be closed, and will not allow current flow.
Overload occurs at about 120% of the gauge's rated capacity. This includes any weight zeroed during any tare operation.

Comparator Output

When the LO limit is reached, photo-couple 1(PC1) turns on, and allows current to flow between pins 8 and 10.
When the HI limit is reached, photo-couple 2(PC2) turns on, and allows current to flow between pins 9 and 10.
Refer to section 5.5 for information regarding the activation and setting of comparator limits.