SSI-1016G Manual

Caution:　Specifications and outline may be changed without notice

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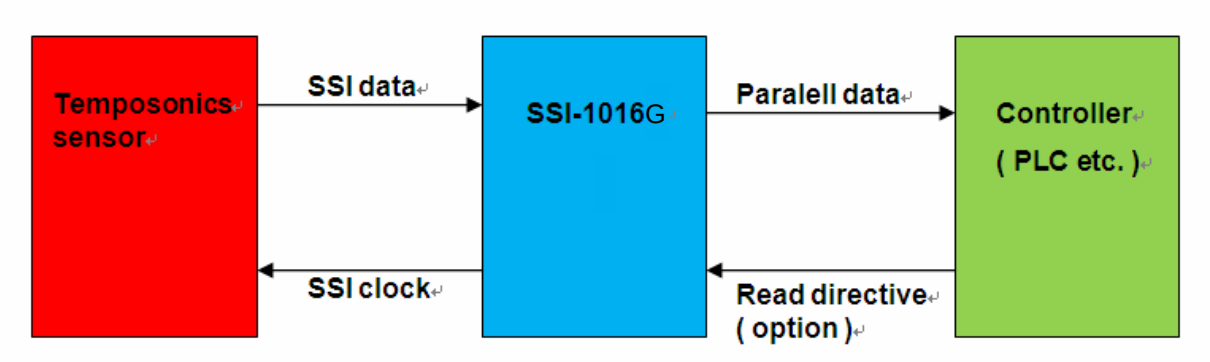
Revision information

2007.03.12: Data-ready output and 100ms update time are added.
2007.09.20: Revision B: Read directive mode, New outline and
0.5ms update time is obsoleted

1. Overview

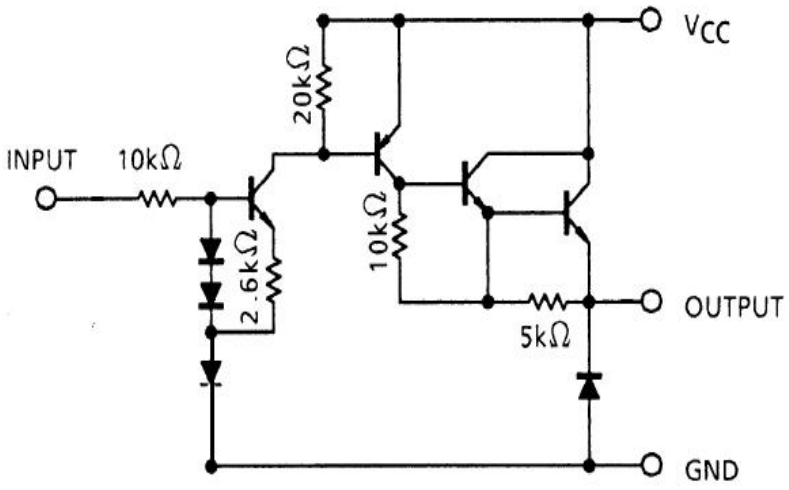
Some Controller(PLC etc.) does not have SSI Interface. In this case you need an interface to use Temposonics SSI sensors. That is SSI-1016G.
SSI-1016G changes SSI signal to parallel one for the controller to get data from the sensor. SSI is a serial communication which is used mainly in Europe. In SSI communication the sensor sends data from MSB to LSB synchronizing clock signal from SSI-1016G.
SSI-1016G interfaces with 24, 25 and 26 bit Temposonics SSI sensor and outputs parallel data as PNP open collector output



Block diagram

2. Specifications

Power supply	Voltage: 24VDC (+20% −15%) Ripple: <1%PP Current : 150 mA (typical.)
Communication	SSI (Synchronous Serial Interface)
Output data format	Binary or gray (depending on the sensor)
Output data length	24, 25 or 26 bits (depending on the sensor)
SSI clock frequency	100 kHz
Output	Transistor open collector with positive logic or negative logic Sustaining voltage: +50 VDC(max), Current: 500 mA(max) Update time: 1, 5, 10, 50, 100 ms
Output connector	D−sub 37 socket
Read directive input	24V (16mA) Photocoupler input See " 7. Read directive mode "
Connection of Sensor and Power supply	8 position screw connector Strand wire: 0.2 to 2.0mm^2 (AWG 24 to 14)
Mount	DIN rail (35mm width)
Operating temperature	0 to 70 degrees C (No dew formation)



Output circuit

3. Connection

D-sub Connector Note: Do not connect “Reserved” pins.
Pin1 and Pin32 are common.

Pin number	Function		
	24 bit sensor	25 bit sensor	26 bit sensor
1	GND	GND	GND
2	Reserved	Reserved	Reserved
3	Data-ready	Data-ready	Data-ready
4	Reserved	Reserved	Output Parity
5	Reserved	Output Bit0(LSB)	Output Alarm
6	Output Bit0(LSB)	Output Bit1	Output Bit0(LSB)
7	Output Bit1	Output Bit2	Output Bit1
8	Output Bit2	Output Bit3	Output Bit2
9	Output Bit3	Output Bit4	Output Bit3
10	Output Bit4	Output Bit5	Output Bit4
11	Output Bit5	Output Bit6	Output Bit5
12	Output Bit6	Output Bit7	Output Bit6
13	Output Bit7	Output Bit8	Output Bit7
14	Output Bit8	Output Bit9	Output Bit8
15	Output Bit9	Output Bit10	Output Bit9
16	Output Bit10	Output Bit11	Output Bit10
17	Output Bit11	Output Bit12	Output Bit11
18	Output Bit12	Output Bit13	Output Bit12
19	Output Bit13	Output Bit14	Output Bit13
20	Output Bit14	Output Bit15	Output Bit14
21	Output Bit15	Output Bit16	Output Bit15
22	Output Bit16	Output Bit17	Output Bit16
23	Output Bit17	Output Bit18	Output Bit17
24	Output Bit18	Output Bit19	Output Bit18
25	Output Bit19	Output Bit20	Output Bit19
26	Output Bit20	Output Bit21	Output Bit20
27	Output Bit21	Output Bit22	Output Bit21
28	Output Bit22	Output Bit23	Output Bit22
29	Output Bit23(MSB)	Output Bit24(MSB)	Output Bit23(MSB)
30	Reserved	Reserved	Reserved
31	Reserved	Reserved	Reserved
32	GND	GND	GND
33	VCC(+)	VCC(+)	VCC(+)
34	Read-	Read-	Read-
35	Read+	Read+	Read+
36	Reserved	Reserved	Reserved
37	Reserved	Reserved	Reserved

8 position screw connector

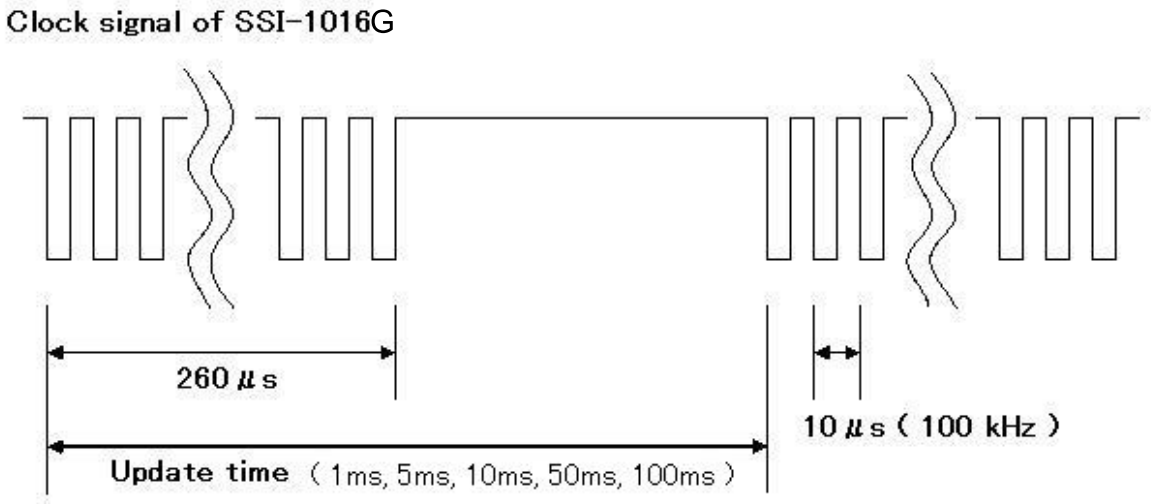
Positions	Function
1	Sensor: +24VDC (SV)
2	Sensor: DC Ground (SG)
3	Clock + (C+)
4	Clock − (C−)
5	Data + (D+) (1)
6	Data − (D−) (1)
7	Power supply: 24VDC (V)
8	Power supply: 0V (G)

(1) Positive logic → Position 5: Data＋, Position 6 : Data－
Negative logic → Position 5: Data－, Position 6 : Data＋

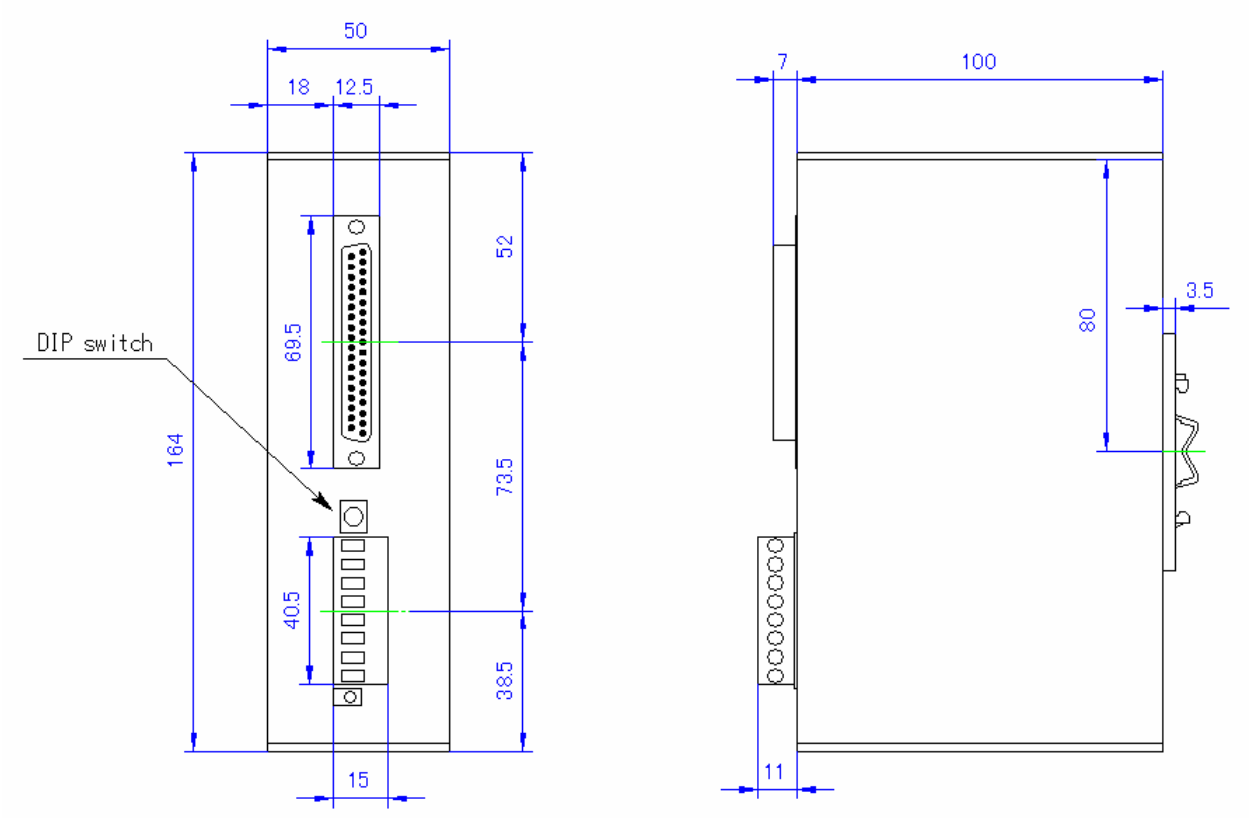
Update time change DIP switch (implemented on front)

Number	Update time [ms]
0	1 (default)
1	5
2	10
3	50
4	Reserved
5	100
6 − 9, A − E	Reserved
F	Read directive mode

Note: After you change the configuration of the DIP switch,
be sure to reset the power of SSI-1016G to activate the new configuration.

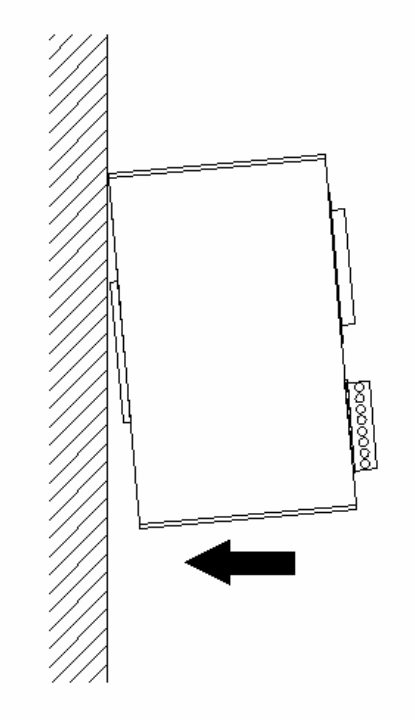


4. Outline in mm.

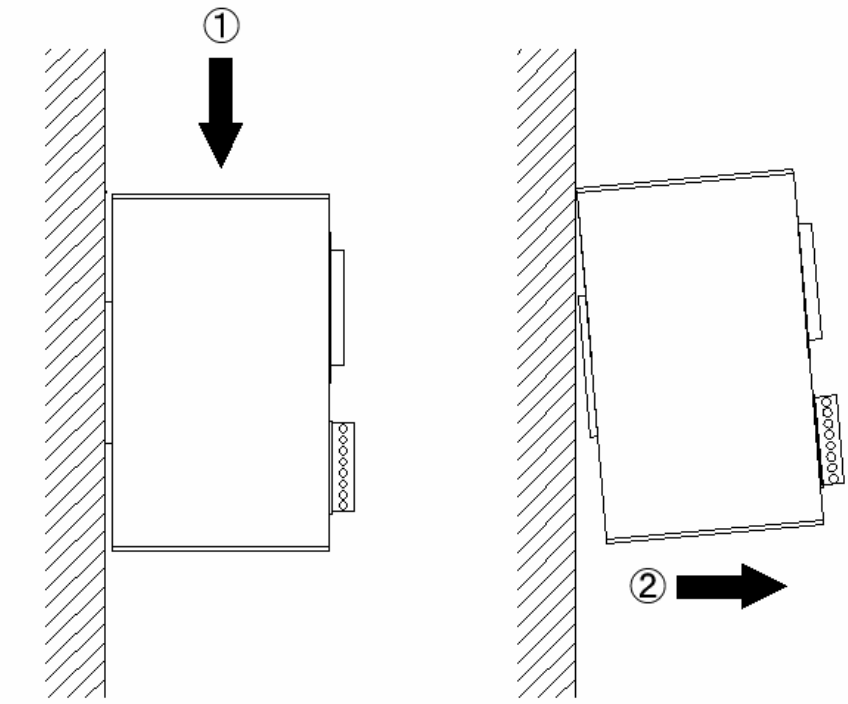


5. Attachment and Detachment

5-1. Attachment



5-2. Detachment



Caution: Unless follow this way, the attachment or case may be broken.

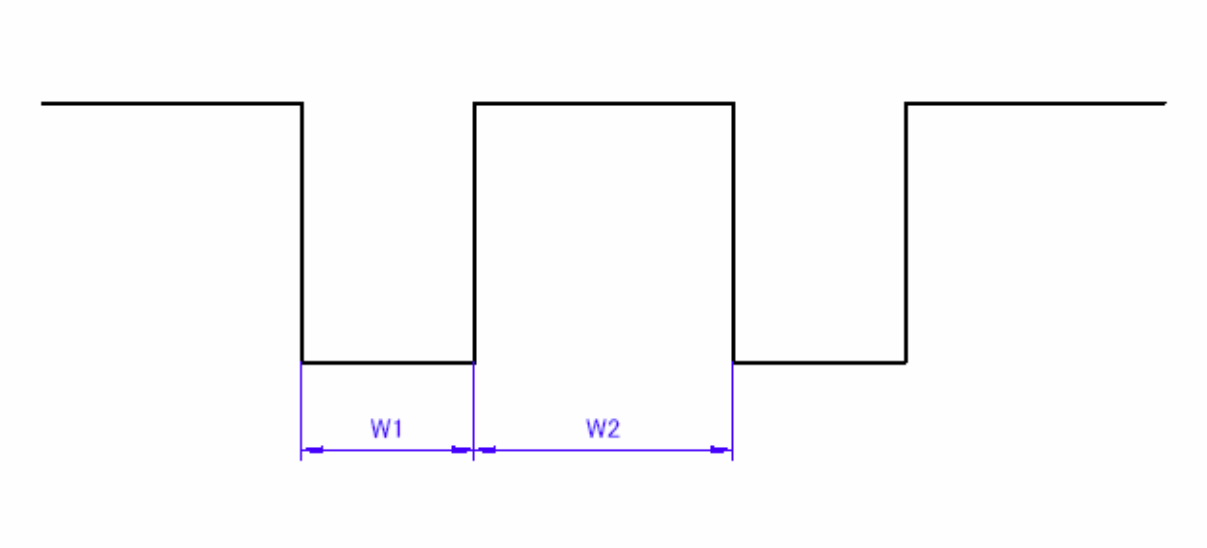
6. Data-ready output

Parallel output is latched. However if you want to acquire parallel data more certainly, Data-ready output can be used.

During Data-ready output is high (transistor is on), parallel output is not updated.

During Data-ready output is low (transistor is off), paralle l output is updated.

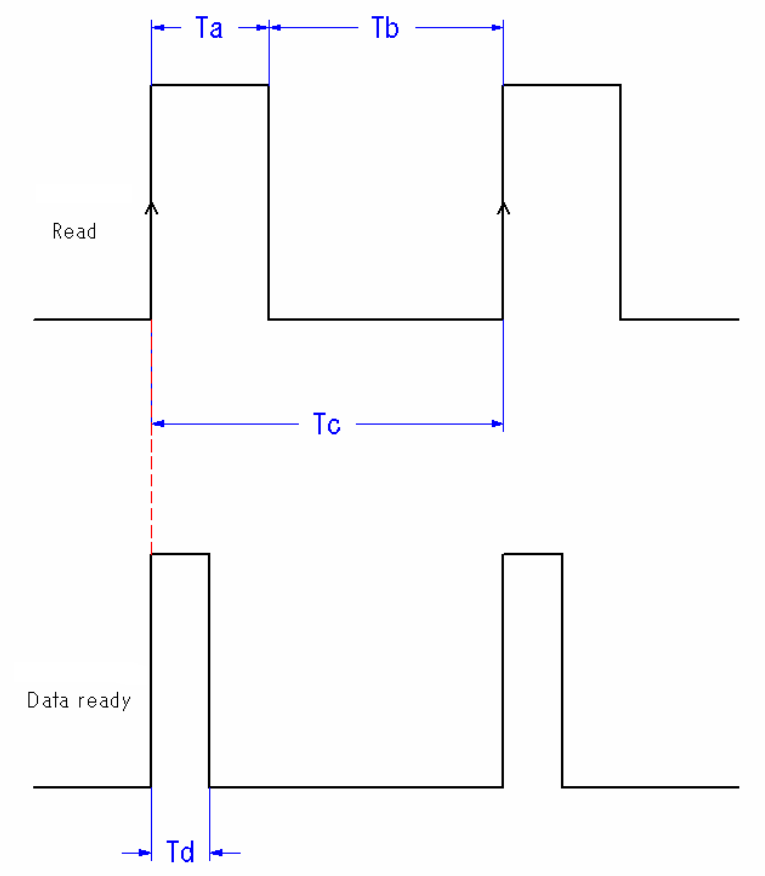
Data-ready output depends on update time like the following.



Update time [ms]	W1 [ms]	W2 [ms]
1	0.37	0.63
5	2.4	2.6
10	5	5
50	25	25
100	50	50

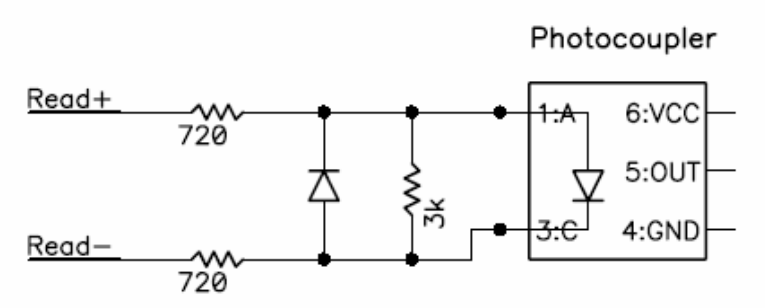
7. Read directive mode

To use Read directive mode, Update time change DIP switch should be set 15 and send Read directive signal between Read+ and Read− like the following.
SSI−1016G sends SSI clock to the sensor at the rising edge of Read directive signal.



Ta: more than 100us
Tb: more than 100us
Tc: more than 1ms
Td: 500us

Data ready output is set low for 500us from the rising edge of Read directive signal.
During data ready output is low, paralell output is updated.
Read paralell output during data ready output is high.



Warning and Caution

1. Use twisted pair wire with shield between SSI-1016G and the sensor.
Make sure voltage of the power supply is in the voltage range described in specification, 24VDC +20% −15%, taking into account the line drop.

2. Operating temperature for SSI-1016G is 0 to 70 degrees C.
Make sure SSI-1016G is in the temperature range before you operate it.
If SSI-1016G is put in a control box and so on, use fan so that temperature does not go over 70 degree C.

3. Keep wires belonging to SSI-1016G away from high current wires and cables so as not to get noise from those.