

LINEEYE

LE-3500 SPI communication

The 1st Edition

1 Overview

LE-3500 of version 1.03 can measure the SPI communication with OP-SB5G.

2 Setting of Communication Condition

SPI condition can be set at "CONFIG."

< SPI Setting >

<CONFIGURATION>		*SELECT*
PROTOCOL : SPI	←	0:ASYNC
R-SPEED : 1M		1:SYNC-BSC
CODE : HEX		2:HDLC-SDLC
CPOL : 1		3:ASYNC(PPP)
CPHA : 1		4:1-DA
SIM MODE : MASTER		5:12C
		6:SPI 7:BURST

PROTOCOL

Set to "SPI".

SPEED

Set the speed up to 2.048Mbps for Simulation mode.

Set the speed for Monitor mode.

CPOL

Select the clock polarity.

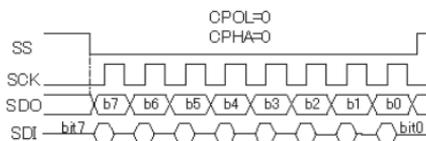
CPHA

Select the clock phase.

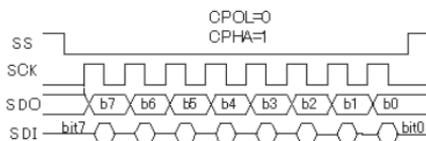
SIM MODE

Select "Master" or "Slave" for Simulation mode.

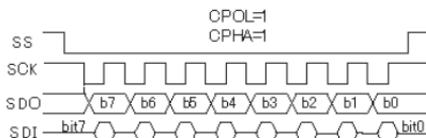
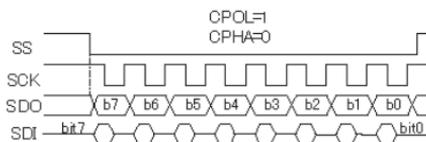
It is not necessary to set for Monitor mode.



The relationship between Clock and Data is changed by CPOL and CPHA setting.



SPI considers as one frame between the SS falling edge and SS raising edge.



3 Connection

When measuring SPI communication, the analyzer is connected to DUT like below.

SPI

Probe Pod	I/O direction*1		Color of the lead wire	Measuring Object
	MONITOR	SIMULATION		
SD	I	O*4	BROWN	MOSI
RD	I	I*4	RED	MISO
RS	I	I/O*3	ORANGE	SS
SD_CLK	I	I / O *3	BLUE	SCK
GND	-	-	BLACK	Signal Ground

*1
 I : Input to the analyzer.
 O : Output from the analyzer.

*2
 It is different by the simulation mode.
 Master : O
 Slave : I

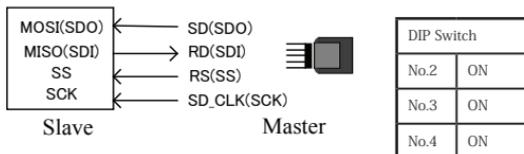
*3
 The direction of outputting is fixed. Arrange the connection without any collision.

< SPI >

□Master Mode

Set No.2, No.3, No.4 DIP switch ON.

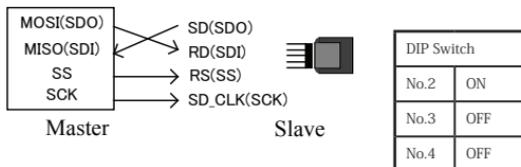
Connect SD to MOSI, RD to MISO, RS to SS, and SD_CLK to SCK.



□Slave Mode

Set No.2 DIP switch ON.

Connect SD to MISO, RD to MOSI, RS to SS, and SD_CLK to SCK.



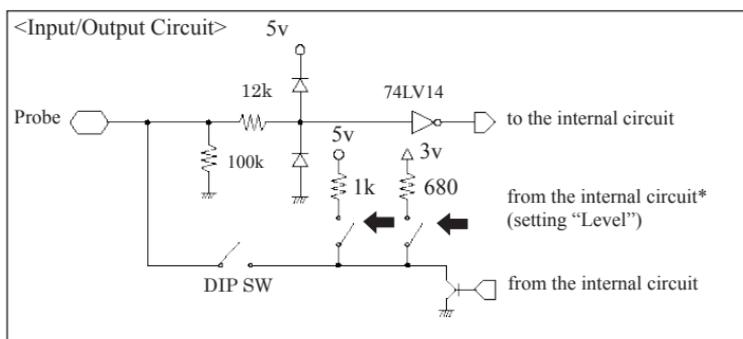
6 Specifications

Adaptation analyzer	LE-3500	
Interface	RS-232C, TTL, I ² C, SPI	
Probe Signal	SD(SDA/SDO), RD(SDI), RS(SS), CS, EX IN, SD CLK(SCL/SCK), RD CLK, TRG.IN, TRG.OUT	
Protocol	ASYNC, SYNC(BSC), HDLC, I ² C, BURST, SPI	
Function	Monitor/Simulation/BERT ^(*)	
Communication speed (transferring as I ² C master)	Monitor: Max 10Mbps ^(**) Simulation: Max 2.048Mbps I ² C Simulation: 100K/384K/1Mbps	
TTL C-MOS	MAX Input Voltage	±25V
	Input Impedance	100KΩ(0V≤Vin≤5V) 12KΩ(Vin<0V, 5V<Vin)
	Input Level Threshold	●High : Min 2.2V ●Low:Max 0.9V
	Output Level Voltage	●High : 3.0V, 4.5V without pull-up ^(***) ●Low : Max0.5V
Probe Pod size	78(W)×92(D)×22(H)	
Probe Unit	Lead length : 170mm	
Relay Cable	Cable length : 800mm	

*1: Only Monitoring is possible in BURST. (I²C/SPI do not support BERT)

*2: Max 2.048Mbps for the analyzers without "A" in the serial number.

*3: Can be set from the analyzer.



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