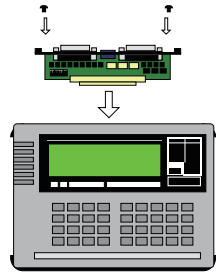


1. Outline

OP-SB10N is an expansion interface set for LE-3500XR/LE-2500XR/LE-3500R/LE-2500R/LE-1500R to use RS-530 port (Synchronous balanced communication such as X.21/RS-449/V.35).

How to change

- Screw off the two screws which is used to set the sub board to the analyzer, and pull the board out.
 - Attach the OP-SB10N with the screws.
 - The firmware of OP-SB10N automatically runs by turning on the power.
- For the detail of how to use measurement function, please refer to the manual of the analyzer.



2. Port

RS-232C Port

Measurement/Test port for RS-232C. Standard pin assignment is V.24. Input/Output specification changes depending on the setting of Monitor/Simulation DTE(SIM-DTE)/DCE(SIM-DCE).

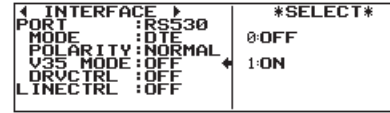
Signal name	RS-232C		Signal In/Out *1			LED
	DSUB25	PIN	MONITOR	SIM-DTE	SIM-DCE	
Shield ground	FG	1	-	-	-	
Signal ground	SG	7	-	-	-	
Transmission data	SD	2	I	O	I	SD
Receiving data	RD	3	I	I	O	RD
Request of transmission	RTS	4	I	O	I	RS
Capable of transmission	CTS	5	I	I	O	CS
Terminal ready	DTR	20	I	O	I	ER
Data set ready	DSR	6	I	I	O	DR
Data carrier detect	DCD	8	I	I	O	CD
Call indicator	CI	22	I	-	-	CI
Transmission timing of DTE	ST1	24	I	O	I	ST1
Transmission timing of DCE	ST2	15	I	I	O	ST2
Receiving timing DCE	RT	17	I	I	O	RT

*1: "I" is an input to the analyzer. "O" is an output from the analyzer.

This is the measurement/test port of RS-422/485. Standard pin assignment is RS-530 specification and can be used as X.20/21 port or RS-449 port by using a dedicated cable. This port can be used as V.35 port of RS-232C level by port setting.

Input/Output specification of each signal changes depending on the setting of Monitor/Simulation DTE(SIM-DTE)/DCE(SIM-DCE).

- X.20/X.21/RS-449 (When V.35 MODE of INTERFACE setting is OFF.)



*: The setting screen of LE-3500XR/2500XR is different from above.

Signal name	RS-530		X.20/21*1		RS-449*2		Signal In/Out*3			LED
	DSUB25	PIN	DSUB15	PIN	DSUB37	PIN	MONITOR	SIM-DTE	SIM-DCE	
Shield ground	FG	1	FG	1	FG	1	-	-	-	
Transmission data	TXD[A] :-	2	T[A]:-	2	SD[A] :-	4	I	O	I	SD
	TXD[B] :+	14	T[B]:+	9	SD[B] :+	22	I	O	I	
Receiving data	RXD[A] :-	3	R[A]:-	4	RD[A] :-	6	I	I	O	RD
	RXD[B] :+	16	R[B]:+	11	RD[B] :+	24	I	I	O	
Request of transmission	RTS[A] :-	4	C[A]:-	3	RS[A] :-	7	I	O	I	RS
	RTS[B] :+	19	C[B]:+	10	RS[B] :+	25	I	O	I	
Capable of transmission	CTS[A] :-	5	I[A]:-	5	CS[A] :-	9	I	I	O	CS
	CTS[B] :+	13	I[B]:+	12	CS[B] :+	27	I	I	O	
Data set ready	DSR[A] :-	6			DM[A] :-	11	I	I	O	DR
	DSR[B] :+	22			DM[B] :+	29	I	I	O	
Terminal ready	DTR[A] :-	20			TR[A] :-	12	I	O	I	ER
	DTR[B] :+	23			TR[B] :+	30	I	O	I	
Signal ground	SG	7	SG	8	SG	19	-	-	-	
Data carrier detect	DCD[A] :-	8			RR[A] :-	13	I	I	O	CD
	DCD[B] :+	10			RR[B] :+	31	I	I	O	
Transmission timing of DTE	TXC1[A] :-	24			TT[A] :-	17	I	O	I	ST1
	TXC1[B] :+	11			TT[B] :+	35	I	O	I	
Transmission timing of DCE	TXC2[A] :-	15			ST[A] :-	5	I	I	O	ST2
	TXC2[B] :+	12			ST[B] :+	23	I	I	O	
Receiving timing DCE	RXC[A] :-	17	S[A]:-	6	RT[A] :-	8	I	I	O	RT
	RXC[B] :+	9	S[B]:+	13	RT[B] :+	26	I	I	O	

*1: Defines DSUB type 15pin connector signal when the dedicated cable LE-25Y15 (optional) is used.

When measuring X.21 interface by using exclusive cable LE-25Y15, set the item "Clock" of the communication clock at the communication condition setting to "RT" or "AR".

*2: Defines DSUB type 37pin connector signal when the dedicated cable LE-25Y37 (optional) is used.

*3: "I" is an input to the analyzer. "O" is an output from the analyzer.

- V.35 (When V.35 MODE of INTERFACE setting is ON.)

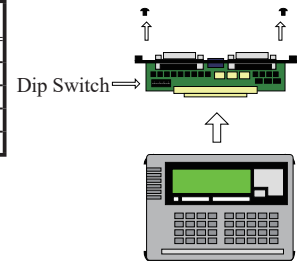
Signal name	Port status *1		V.35 *2		Signal In/Out *3			LED
	DSUB25	PIN	M type 34	PIN	MONITOR	SIM-DTE	SIM-DCE	
Shield ground	FG	1	FG	A	-	-	-	
Transmission data	TXD[A] :-	2	TXD[A]:-	P	I	O	I	SD
	TXD[B] :+	14	TXD[B]:+	S	I	O	I	
Receiving data	RXD[A] :-	3	RXD[A]:-	R	I	I	O	RD
	RXD[B] :+	16	RXD[B]:+	T	I	I	O	
Request of transmission	V24_RTS	18	RTS	C	I	O	I	RS
Capable of transmission	V24_CTS	21	CTS	D	I	I	O	CS
Data set ready	V24_DSR	6	DSR	E	I	I	O	DR
Terminal ready	V24_DTR	20	DTR	H	I	O	I	ER
Data carrier detect	V24_DCD	8	DCD	F	I	I	O	CD
Ring indicator	V24_CI	10	CI	J	I	I	O	CI
Signal ground	SG	7	SG	B	-	-	-	
Transmission timing of DTE	TXC1[A] :-	24	TXC1[A] :-	U	I	O	I	ST1
	TXC1[B] :+	11	TXC1[B] :+	W	I	O	I	
Transmission timing of DCE	TXC2[A] :-	15	TXC2[A] :-	Y	I	I	O	ST2
	TXC2[B] :+	12	TXC2[B] :+	AA	I	I	O	
Receiving timing DCE	RXC[A] :-	17	RXC[A] :-	V	I	I	O	RT
	RXC[B] :+	9	RXC[B] :+	X	I	I	O	

*1: RS-422/485 port status of when V.35 MODE is ON.

*2: Defines M type 34pin signal when the dedicated cable LE-25M34(optional) is connected.

*3: "I" is an input to the analyzer. "O" is an output from the analyzer.

Switch Number	Signal	Switch Number	Signal
1	TXD	6	RTS
2	TXC1	7	DTR
3	RXD	8	CTS
4	RXC	9	DSR
5	TXC2	10	DCD

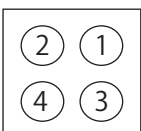


4. After Service

After Service

- For malfunction, please contact LINEEYE distributors or LINEEYE.
- Repair within the warranty
LINEEYE repairs, following the repair regulations.
Please provide the details of malfunction.
- Repair after the warranty
LINEEYE will repair the products at your own expense.

External In/Out port



Pin	Signal name	In/Out	Function
1	TRIGGER OT1	O	External trigger output 1 (TTL level output) (*3)
2	TRIGGER IN1	I	External trigger input (TTL level input) (*2)
3	TRIGGER OT2	O	External trigger output 2 (TTL level output) (*1)
4	GND	Common	Signal ground

Connector specification:
2.54mm pitch
Pin header type

*1: Open drain output, +5V, 12KΩ pull-up
*2: Input voltage range is from -0.5V to 6.0V.

3. Terminating resistor

When you execute simulation on RS-422/485(RS-530) port and the analyzer is at the terminal such as 1 to 1 connection, set the terminating resistor. In general, set only the resistor of input signal line of this unit when it is RS-422 and set the resistors of all the signal line of this unit when it is RS-485.

- How to set the resistor

Remove the sub-board from the analyzer and turn on the dip switch.

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This instruction manual is used recycled paper.

Printed In Japan