PRODUCTION SYSTEM

LP335 CTU

Connection Test Unit for industrial applications

- Error proofing of harness assembly
- Standardized electrical interface
- Standardized cables
- Visual information of test sequence in cable adaptor

New!

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LP335 Connection Test Unit

To be able to manufacture at low cost, it is very important to keep high quality throughout the whole process and not only assure quality at the EOL, but also at every workstation where assembly is done.

In a modern car, there are a lot of electrical consumers like LEDs, speakers, sensors, switches, outlets and so on. Those components are assembled onto parts like seats, interior door panels, interior roofs, bumpers and cockpits. If one of those sensors, switches etc. is not functioning when the car is checked at the EOL, there is often a major cost to correct it.

The LP335 CTU, Connection Test Unit has a standardized electrical interface that may be used to quality assure assembly of electrical harness. The most common method is to power up those parts that has been connected to the harness, and measure that there is a current consumption. Or measure the impedance. For the more intelligent modules connected to the harness, there are three channels CAN, LIN and Serial (RS232) that can be used. Those channels require a specific driver to be developed for each case.

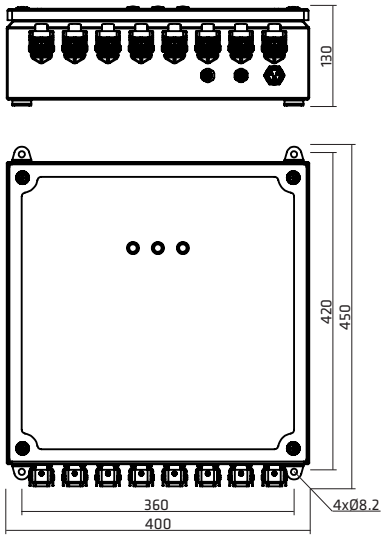
To be able to connect to each harness, there must be a specific cable adapter manufactured. LP335 includes output to control LEDs in the adaptor, Green, Yellow and Red. Those LEDs will show status to the operator during the test sequence. A sensor input is used to verify that the adaptor has been connected to the test harness.

Do you want to learn more?

Contact your nearest distributor or Binar Elektroniks head office.

TECHNICAL DATA

Communication	Profinet or CAN
Connectors	8x Harting, 12 pin + PE
Power Supply	20 - 30VDC
Current Consumption	max 4A
CE	EN 61000-6-4 & EN 61000-6-2
IP	IP41
Temperature Range	0 - 50 °C
Humidity	0 - 95 % non-condensing
Dimensions	b 400 x h 450 x d130mm
Weight	-
Mounting	Wall mount



CAN (PART NO. 51335)

BUS IN

M12, 5 pin, Male, A code

PIN	SIGNAL
1	SHEILD
2	+24V
3	0V
4	CAN HIGH
5	CAN LOW

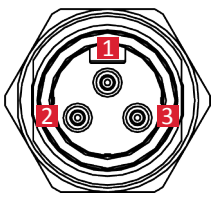
BUS OUT

M12, 5 pin, Female, A code

PIN	SIGNAL
1	SHEILD
2	+24V
3	0V
4	CAN HIGH
5	CAN LOW

PWR IN

7/8' 16UNF, 3 pin, Male

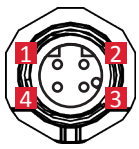


PIN	SIGNAL
1	GND
2	24V
3	0V

PROFINET (PART NO. 52335)

BUS IN/OUT

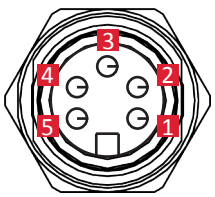
M12, 4 pin, Female, D code



PIN	SIGNAL
1	TX +
2	RX +
3	TX -
4	RX -

PWR IN

7/8' 16UNF, 5 pin, Male



PIN	SIGNAL
1	NC
2	0V
3	PE
4	24V
5	NC

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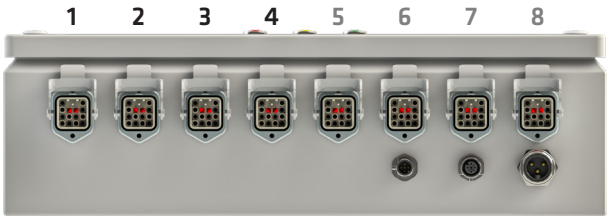
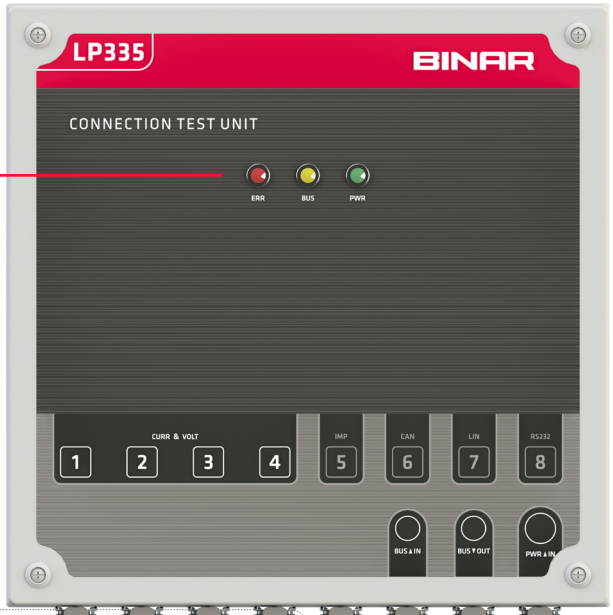
SYSTEM OVERVIEW



1-4 - CURRENT & VOLTAGE MEASUREMENT
5 - IMPEDANS MEASUREMENT
6 - CAN INTERFACE
7 - LIN INTERFACE
8 - RS232 INTERFACE

LP335



STATUS INDICATION

PWR = Power 24VDC OK
BUS = CAN bus communication OK
ERR = CAN bus error

POWER SUPPLY

part no. 50328

STANDARD CABLE

part no. 51600

BUS IN

BUS OUT

ADAPTER

More than one connector from LP335 can be combined into one adapter.

Note!

The adapter must be customized for every unique test situation, contact Binar for more info.

EUT

(Equipment Under Test)

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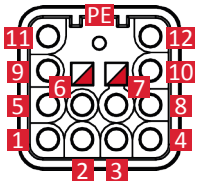
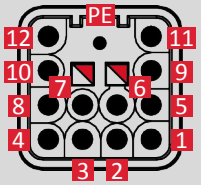
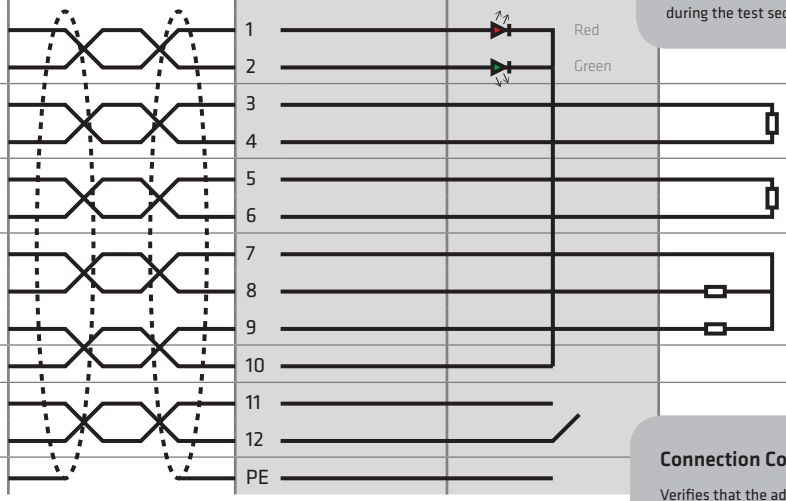
1-4 – CURRENT & VOLTAGE MEASUREMENT

PIN CONFIGURATION

LP335				STANDARD CABLE	ADAPTER		EUT
OUT					IN	OUT	IN
1 Harting, 12 pin + PE, Female, Code 1						CUSTOMIZED FOR EVERY UNIQUE TEST SITUATION	
	PIN	SIGNAL	VD		PIN		
Status Indication	1	DOUT_24V_01	1		1		Red
	2	DOUT_24V_09	9		2		Green
Current Consumption Measurement	3	DOUT_0V_01	-		3		
	4	DOUT_12V_01	17		4		
Current Consumption Measurement	5	DOUT_0V_02	-		5		
	6	DOUT_12V_02	18		6		
Voltage Measurement	7	AIN_01	9		7		
	8	AIN_0V_01	-		8		
	9	DOUT_12V_09	25		9		
-	10	DOUT_0V_09	-		10		
Connection Control	11	24V_01	-		11		
	12	DIN_24V_01	1		12		
Sheild	PE	PE			PE		



Status Indication?

Green, Yellow and Red LEDs shows status to the operator during the test sequence.

Connection Control?

Verifies that the adapter has been conntected to the EUT.

VD?

ID used to communicate with the LP335 CTU in the superior system. For more info check the Specification Virtual Device (VD) Protocol.

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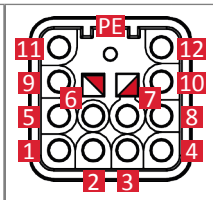
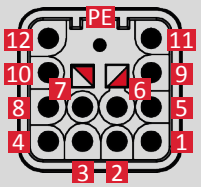
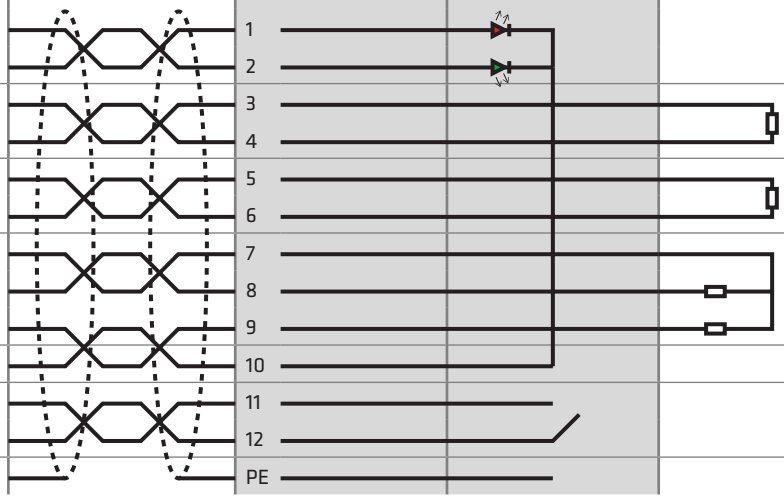
PIN CONFIGURATION

LP335				STANDARD CABLE	ADAPTER		EUT
OUT					IN	OUT	IN
2 Harting, 12 pin + PE, Female, Code 2						CUSTOMIZED FOR EVERY UNIQUE TEST SITUATION	
	PIN	SIGNAL	VD		PIN		
Status Indication	1	DOUT_24V_02	2		1		
	2	DOUT_24V_10	10		2		
Current Consumption Measurement	3	DOUT_0V_03	-		3		
	4	DOUT_12V_03	19		4		
Current Consumption Measurement	5	DOUT_0V_04	-		5		
	6	DOUT_12V_04	20		6		
Voltage Measurement	7	AIN_02	10		7		
	8	AIN_0V_02	-		8		
	9	DOUT_12V_10	26		9		
-	10	DOUT_0V_10	-		10		
Connection Control	11	24V_02	-		11		
	12	DIN_24V_02	2		12		
Sheild	PE	PE			PE		



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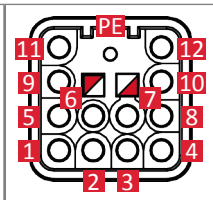
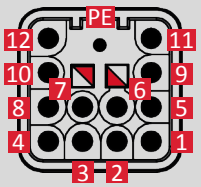
PIN CONFIGURATION

LP335				STANDARD CABLE	ADAPTER		EUT
OUT					IN	OUT	IN
3 Harting, 12 pin + PE, Female, Code 3						CUSTOMIZED FOR EVERY UNIQUE TEST SITUATION	
	PIN	SIGNAL	VD		PIN		
Status Indication	1	DOUT_24V_03	3		1		
	2	DOUT_24V_11	11		2		
Current Consumption Measurement	3	DOUT_0V_05	-		3		
	4	DOUT_12V_05	21		4		
Current Consumption Measurement	5	DOUT_0V_06	-		5		
	6	DOUT_12V_06	22		6		
Voltage Measurement	7	AIN_03	11		7		
	8	AIN_0V_03	-		8		
	9	DOUT_12V_11	27		9		
-	10	DOUT_0V_11	-		10		
Connection Control	11	24V_03	-		11		
	12	DIN_24V_03	3		12		
Sheild	PE	PE			PE		

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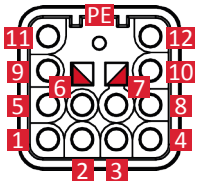
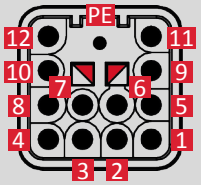
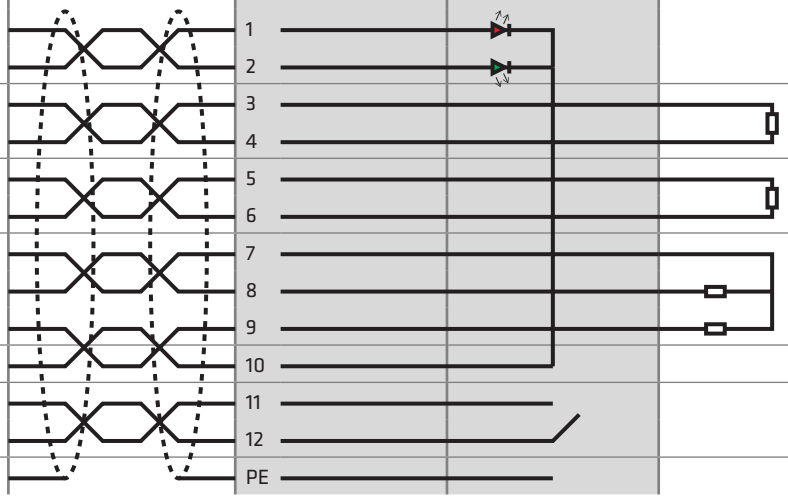
PIN CONFIGURATION

LP335				STANDARD CABLE	ADAPTER		EUT
OUT					IN	OUT	IN
4 Harting, 12 pin + PE, Female, Code 4						CUSTOMIZED FOR EVERY UNIQUE TEST SITUATION	
	PIN	SIGNAL	VD		PIN		
Status Indication	1	DOUT_24V_04	4		1		
	2	DOUT_24V_12	12		2		
Current Consumption Measurement	3	DOUT_0V_07	-		3		
	4	DOUT_12V_07	23		4		
Current Consumption Measurement	5	DOUT_0V_08	-		5		
	6	DOUT_12V_08	24		6		
Voltage Measurement	7	AIN_04	12		7		
	8	AIN_0V_04	-		8		
	9	DOUT_12V_12	28		9		
-	10	DOUT_0V_12	-		10		
Connection Control	11	24V_04	-		11		
	12	DIN_24V_04	4		12		
Sheild	PE	PE			PE		



TECHNICAL DATA

Current Consumption	Range of Measurement	0-600 mA
	Resolution	0.2 mA
	Max Current/DOUT 12V	max 0.7A
	Max Current DOUT 12V	2A (total)
Voltage	Range of Measurement	0-20 V
	Resolution	5 mV

LP335 has 8 channels for current consumption measurement and four channels for voltage measurement. Those channels are divided into 4 connectors, no. 1-4.

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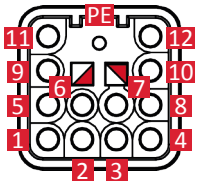
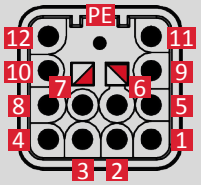
5 – IMPEDANCE MEASUREMENT

PIN CONFIGURATION

LP335				STANDARD CABLE	ADAPTER		EUT
OUT					IN	OUT	IN
5 Harting, 12 pin + PE, Female, Code 5						CUSTOMIZED FOR EVERY UNIQUE TEST SITUATION	
	PIN	SIGNAL	VD		PIN		
Status Indication	1	DOUT_24V_05	5		1		
	2	DOUT_24V_13	13		2		
Impedance Measurement	3	IMP_0V	-		3		
	4	IMP	39		4		
-	5	-	-		5		
-	6	-	-		6		
-	7	-	-		7		
-	8	-	-		8		
-	9	-	-		9		
-	10	-	-		10		
Connection Control	11	24V_05	-		11		
	12	DIN_24V_05	5		12		
Sheild	PE	PE			PE		

TECHNICAL DATA

Impedance	Range of Frequency	100Hz – 20kHz
	Range of Measurement	1-400Ω
	Resolution	1Ω

LP335 has one connector, no. 5, with impedance measurement to be able to verify that for example a speaker is connected.

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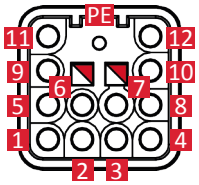
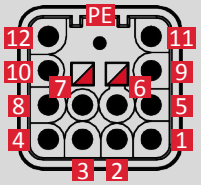
6 – CAN INTERFACE

PIN CONFIGURATION

LP335				STANDARD CABLE	ADAPTER		EUT
OUT					IN	OUT	IN
6 Harting, 12 pin + PE, Female, Code 6						CUSTOMIZED FOR EVERY UNIQUE TEST SITUATION	
	PIN	SIGNAL	VD		PIN		
Status Indication	1	DOUT_24V_06	6		1		
	2	DOUT_24V_14	14		2		
CAN Interface	3	DOUT_0V_13	-		3		
	4	DOUT_12V_13	29		4		
	5	EUT_CANH	-		5		
	6	EUT_CANL	-		6		
	7	-	-		7		
	8	-	-		8		
	9	-	-		9		
-	10	-	-		10		
Connection Control	11	24V_06	-		11		
	12	DIN_24V_06	6		12		
Sheild	PE	PE			PE		

TECHNICAL DATA

CAN	Data Transfer	125, 250, 500kbit/s
	Power Supply DOUT 12V	12V
	Current Consumption	max 0.7A

NOTE!

A driver for the CAN interface must be customized for every unique test situation, contact Binar for more info.

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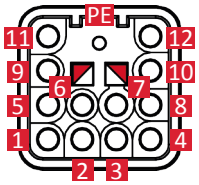
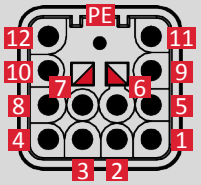
7 – LIN INTERFACE

PIN CONFIGURATION

LP335				EXTENTION CORD	ADAPTER		EUT
OUT					IN	OUT	IN
7 Harting, 12 pin + PE, Female, Code 7						CUSTOMIZED FOR EVERY UNIQUE TEST SITUATION	
	PIN	SIGNAL	VD		PIN		
Status Indication	1	DOUT_24V_07	7		1		
	2	DOUT_24V_15	15		2		
LIN Interface	3	DOUT_0V_14	-		3		
	4	DOUT_12V_14	30		4		
	5	EUT_LIN_0V	-		5		
	6	EUT_LIN	-		6		
-	7	-	-		7		
-	8	-	-		8		
-	9	-	-		9		
-	10	-	-		10		
Connection Control	11	24V_07	-		11		
	12	DIN_24V_07	7		12		
Sheild	PE	PE			PE		

TECHNICAL DATA

LIN	Communication	0 - 20kBd
	Compliant with	LIN 2.0, LIN 2.1, LIN 2.2, LIN 2.2A and SAE J2602
	Power Supply DOUT 12V	12V
	Current Consumption	max 0.7A

NOTE!

A driver for the LIN interface must be customized for every unique test situation, contact Binar for more info.

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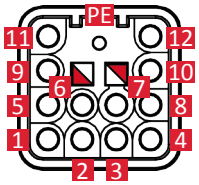
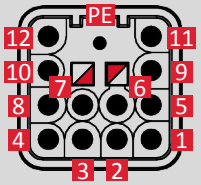
8 – RS232 INTERFACE

PIN CONFIGURATION

LP335				EXTENTION CORD	ADAPTER		EUT
OUT					IN	OUT	IN
8 Harting, 12 pin + PE, Female, Code 8						CUSTOMIZED FOR EVERY UNIQUE TEST SITUATION	
	PIN	SIGNAL	VD		PIN		
Status Indication	1	DOUT_24V_08	8		1		
	2	DOUT_24V_16	16		2		
RS232 Interface	3	RS232_GND	-		3		
	4	-	-		4		
	5	RS232_CTS	-		5		
	6	RS232_RTS	-		6		
	7	RS232_TX	-		7		
	8	RS232_RX	-		8		
-	9	-	-		9		
-	10	-	-		10		
Connection Control	11	24V_08	-		11		
	12	DIN_24V_08	8		12		
Sheild	PE	PE			PE		

TECHNICAL DATA

RS232	Data Transfer	9600 (default) - 115200bit/s
	Hardware Flow Control	Yes

NOTE!

A driver for the RS232 interface must be customized for every unique test situation, contact Binar for more info.

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ISO 14001

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