

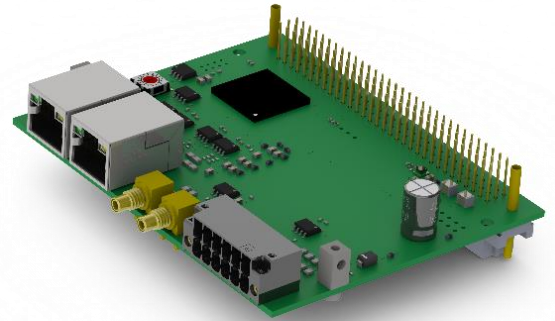
## 15. COP-SHC (Laser scanner control interface)

COP-SHC 611855700

The COP-SHC module has specially been developed for the integration and control of laser scan heads from various producers. As example systems from Arges or SCANLAB. The Arges communication takes place via the HSSI protocol and the SCANLAB communication via the SL2-100 protocol.

Up to three scanner channels per module can be controlled and read back. The scanners are controlled synchronously with other actuators, such as multi servo drives and I/O systems.

Scan heads can easily be connected over a simple Ethernet cable (min. CAT5). The communications exchange takes place via an Ethernet cable (min. Cat 5). The COP-SHC module has fast digital outputs to control the laser enable or shutter coordinated to the axis movement. It is also possible to use the fast outputs as fast inputs, for example for trigger impulses. In addition, an RS485 or TTL level can be selected for the fast digital in- and outputs.

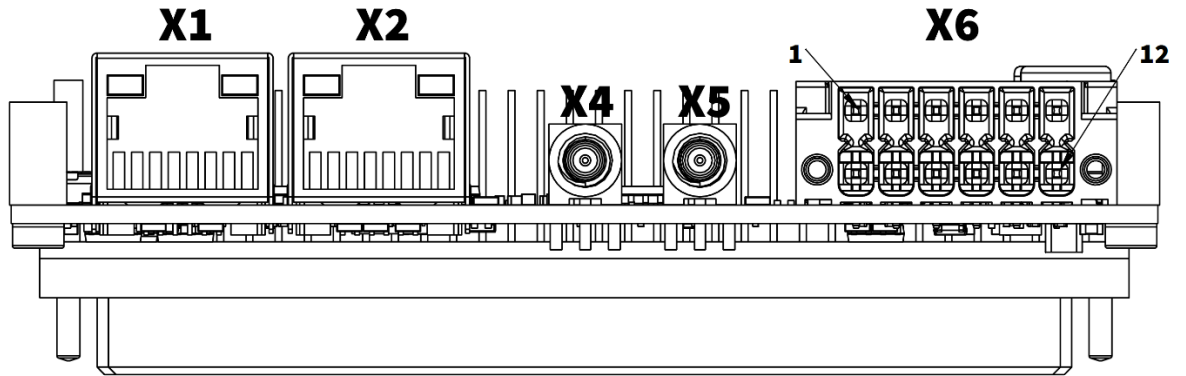


### 15.1. Technical Specifications

SL2-100 / HSSI-interface		
Number of Interfaces	1	
Level	RS 485	
Positioning resolution	20 (SL2-100) / 16 (HSSI)	Bit
Channels	3 (X, Y, Z)	
Sampling rate 2 channels (X, Y)	100	kHz
Sampling rate 3 channels (X, Y, Z)	50	
Maximum cable length	25	m
Digital inputs 5V		
Number of inputs	2	
Rated voltage	$5 \pm 30\%$	$V_{DC}$
Switching threshold	$V_H \geq 1.9 / V_L \leq 1.2$	$V_{DC}$
Input low-pass filter cut-off frequency	2	kHz
Input impedance	11.5	k $\Omega$

<b>Digital inputs 24V</b>		
Number of inputs	2	
Rated voltage	$24 \pm 30\%$	$V_{DC}$
Switching threshold	$V_H \geq 8.9 / V_L \leq 5.5$	$V_{DC}$
Input low-pass filter cut-off frequency	2	kHz
Input impedance	12	k $\Omega$
<b>Digital inputs TTL level (Fast_input)</b>		
Number of inputs	2	
Rated voltage	$5 \pm 30\%$	$V_{DC}$
Switching threshold	$V_H \geq 2.3 / V_L \leq 0.9$	$V_{DC}$
Input impedance	10	k $\Omega$
<b>Digital outputs TTL level (Laser_On)</b>		
Number of outputs	2	
Maximum output current per output	1	A
Maximum output current per output when every second output is loaded	2	A
Output impedance	50	$\Omega$
<b>Digital inputs RS485 level (Fast_input)</b>		
Number of inputs	2	
Common-mode input voltage range	-7 to +12	$V_{DC}$
Switching threshold	$V_H \geq 0.2 / V_L \leq -0.2$	$V_{DC}$
Input impedance	50	k $\Omega$
<b>Digital outputs RS485 level (Laser_On)</b>		
Number of outputs	2	
Maximum output current per output	$\pm 250$	mA
Output impedance	50	$\Omega$
<b>Module</b>		
Maximum power consumption at 24V node power supply	200	mA

15.2. Pin Assignment



Identification	Pin No.	Description
X1 / X2	1	Tx0+
	2	Tx0-
	3	Rx0+
	4	Tx1+
	5	Tx1-
	6	Rx0-
	7	Rx1+
	8	Rx1-

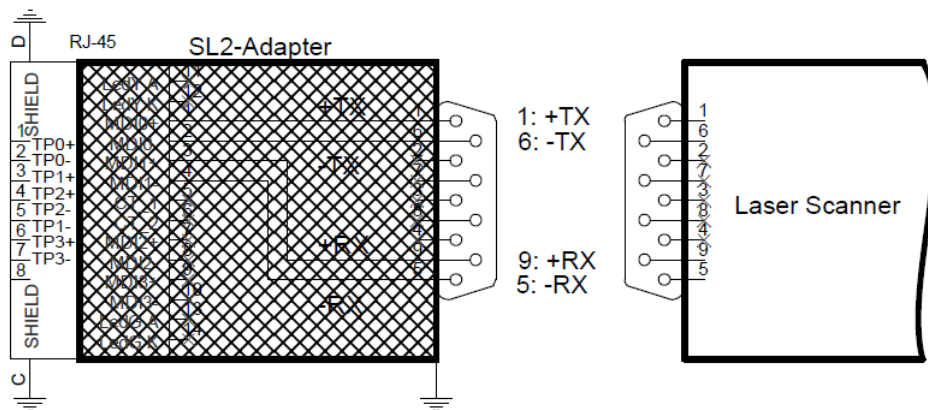
Identification	Description
X4	Laser_On_X / Fast input <sup>1)</sup>
X5	Laser_On_Y / Fast input

1) Output and Input have TTL-Level

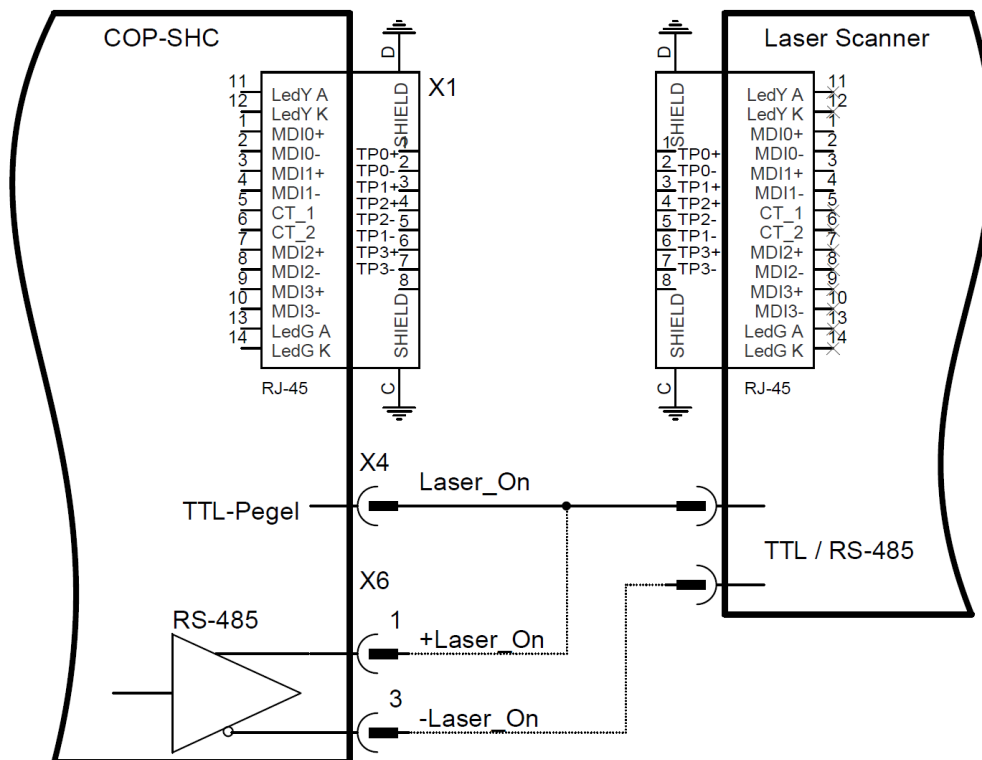
X6					
No.	Dir	Id.	Id.	Dir	No.
2		Laser_On_Y+	Laser_On_X+		1
4		Laser_On_Y-	Laser_On_X-		3
6		GND	GND		5
8	In	Din_24V	Din0_5V	In	7
10	In	Din_24V	Din1_5V	In	9
12	Out	+24V <sup>2)</sup>	+5V	Out	11

15.3. Connection Examples

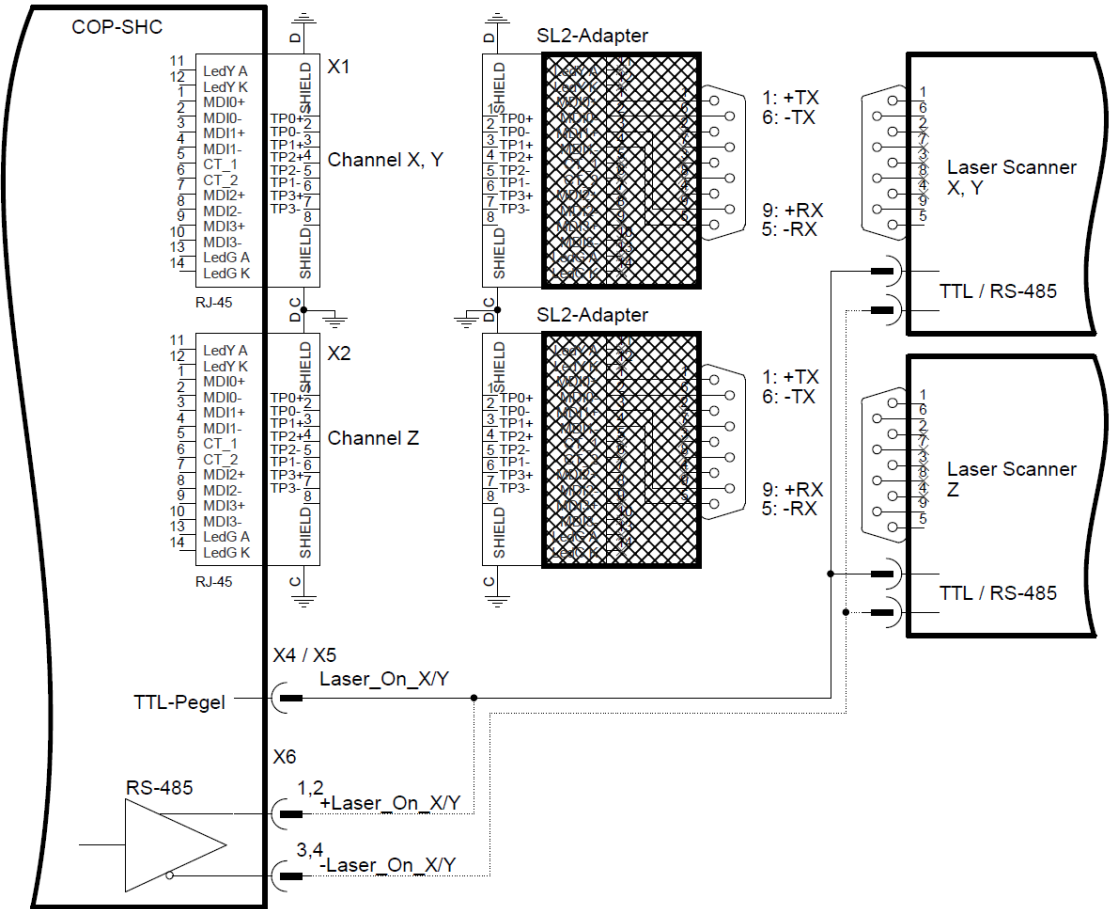
RJ-45 to D-Sub9 adapter for SCANLAB scan heads



Connect a scan head over RJ-45 (for example Arges)



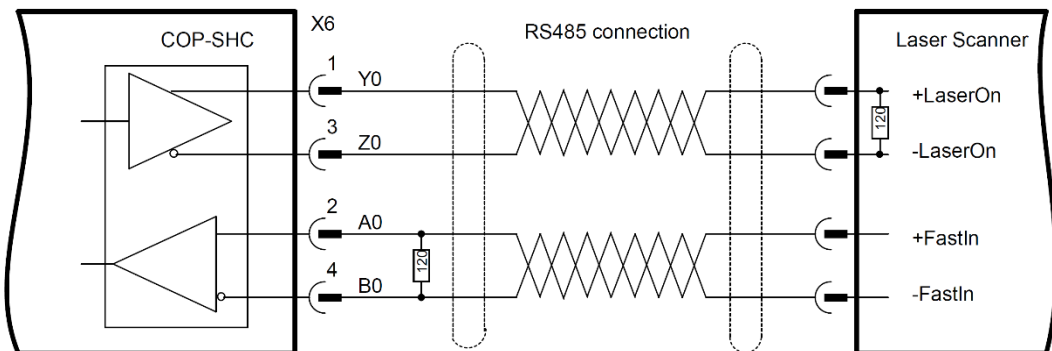
**Connect a scan head over D-Sub9 (for example SCANLAB)**



**Ordering informations:**

- When using the X and Y channels of COP-SHC (SL2), only 1 piece of the SL2 adapter is required.
- When using the X, Y, and Z channels, 2 pieces of the SL2 adapter are required.

**Connection of digital scan head signals with RS485 level**



#### 15.4. Available Options

Item Number	Label	Option	Description
611855720	COP-SHC	HSSI	<ul style="list-style-type: none"> <li>• 1x HSSI protocol</li> <li>• 3x channels for X, Y and Z</li> <li>• 1x RJ-45 Interface</li> <li>• 1x RS485 Interface</li> <li>• 2x Fast digital inputs or outputs</li> <li>• 2x digital input for 5V and 24V</li> <li>• 1x Power supply 5V and 24V for pilot laser</li> </ul>
611855740	COP-SHC	SL2	<ul style="list-style-type: none"> <li>• 1x SL2-100 protocol</li> <li>• 3x channels for X, Y and Z</li> <li>• 2x RJ-45 Interface</li> <li>• 1x RS485 Interface</li> <li>• 2x Fast digital inputs or outputs</li> <li>• 2x digital input for 5V and 24V</li> <li>• 1x Power supply 5V and 24V for pilot laser</li> </ul>

#### 15.5. Accessories

Item Number	Label	Option	Description
611855745	SL2-Adapter		Adapter (RJ45 to D-SUB9 SL2-100 Scanlab) for COP-SHC Option SL2