

Cable Connection

for Torque Sensors

In order to integrate sensor technology into a given application, it is advisable to clarify these points in advance; this will provide the basis for selecting the relevant components to generate the measuring chain:

- Type of signal: voltage, frequency, digital (fieldbus/Ethernet)
- Number of pins of the selected output
- Pin allocation for sensor and evaluation unit (see data sheet)

Description

When installing the cables, make sure that the maximum permitted cable length is not exceeded. It is advisable to use original Kistler cables only.

Most torque sensors based on strain gage technology already have an internal amplifier. The sensors can be connected with the appropriate evaluation unit, or directly with the PLC in some cases.

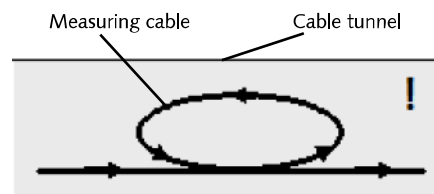
For the analysis of dedicated XY processes (such as torque-rotation angle monitoring), the maXYmos family is highly suitable thanks to its user-friendly operation and wide variety of interfaces (Y-channel: piezo, strain gage, ± 10 V; X-channel: potentiometer, ± 10 V, incremental).

The cable length are available in 2.5 meter / 5 meter or customized length.

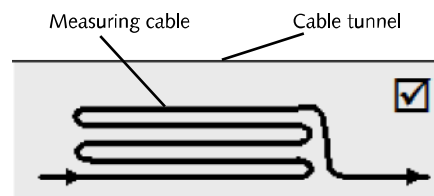


Laying of the Measuring Cable:

- Do not lay parallel to power lines or control lines
- Not in the vicinity of heavy electro-magnetic fields, e.g. transformers, welding devices, contactors, motors etc
- If this cannot be avoided, lay the measuring cable in a grounded armored conduit
- Excess lengths should be prevented. If it isn't possible to avoid, then do not lay excess lengths in closed loops



Risk to couple in EMC noises into the measuring sensor cable



To reduce the inductive areas it's recommended to laying the measuring sensor cable in bifilar form

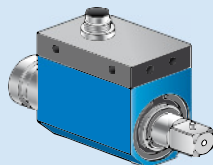
Cable and Connection Torque Sensor Type 4501A...

Measure

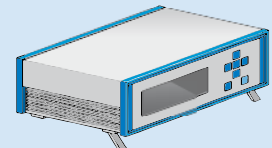
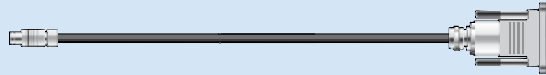
Connect

Amplify

Monitor & Control



Type 4501A...



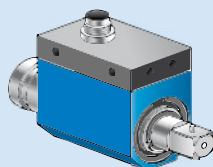
Type 4700B...

6 pin to CoMo Torque**Length (m)****Material No.**

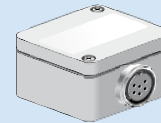
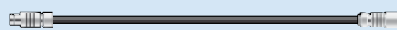
4501A...	2,5	18008959
4501A...	variable	18008960

12 pin to CoMo Torque**Length (m)****Material No.**

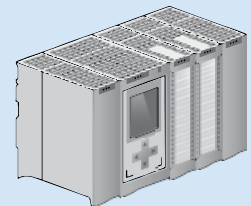
4501A...	2,5	18008961
4501A...	variable	18008962



Type 4501A...



Type 4701A...



PLC

6 pin to free end**Length (m)****Material No.**

4501A...	5	18008939
4501A...	variable	18008940

6 pin Connector/Female bs.**Length (m)****Material No.**

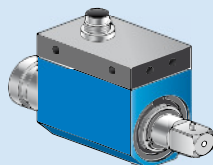
4501A...	5	18008930
4501A...	variable	18008931

12 pin to free end**Length (m)****Material No.**

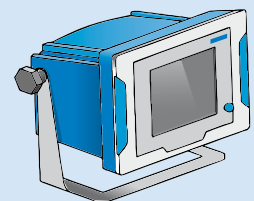
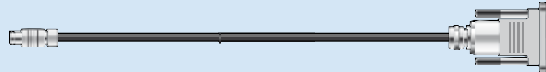
4501A...	5	18008958
4501A...	variable	not available

12 pin Connector/Female bs.**Length (m)****Material No.**

4501A...	5	18008955
4501A...	variable	not available



Type 4501A...

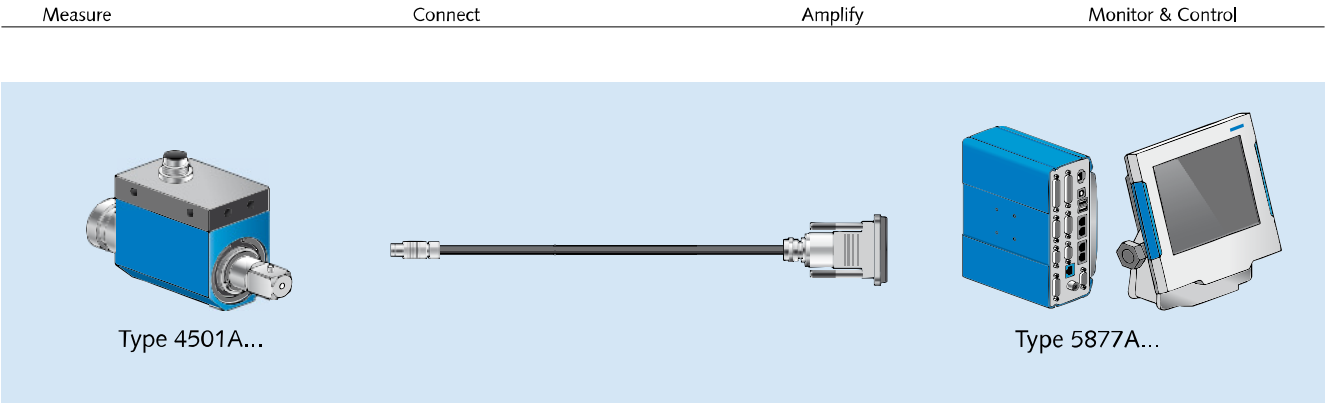


Type 5867A...

6 pin to maXmos BL**Length (m)****Material No.**

4501A...	5	18009163
4501A...	variable	18009164

Cable and Connection Torque Sensor Type 4501A...



6 pin to maXYmos TL	Length (m)	Material No.	12 pin to maXYmos TL	Length (m)	Material No.
4501A...	5	18009163	4501A...	0,5	18029711
4501A...	variable	18009164	4501A...	variable	not available

General Technical Data	
Protection Class IEC/EN 60529	IP40
Connector	6 pin or 12 pin Binder connector
Type of cable	LiYCY transparent shielded
Temperature range	-10 °C ... +70 °C
Bending radius	approx. 10x outside diameter
Data sheet see www.kistler.com	4501A (000-596)

Accessories		
Coupling socket 6 pin	Type	18008377
Coupling socket 12 pin	Type	18008371
Amplifier for strain gage sensors	Type	4701A...

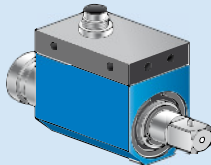
Cable and Connection Torque Sensor Type 4502A...

Measure

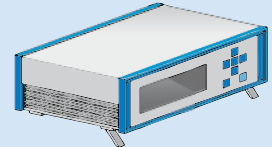
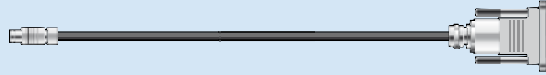
Connect

Amplify

Monitor & Control

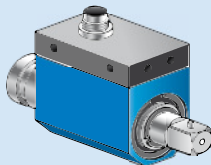


Type 4502A...

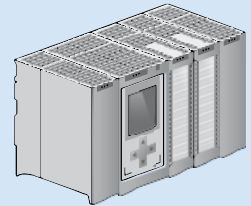


Type 4700B...

12 pin to CoMo Torque	Length (m)	Material No.
4502A...	2,5	18008963
4502A...	variable	18008964



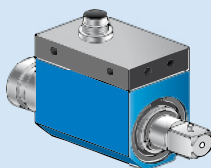
Type 4502A...



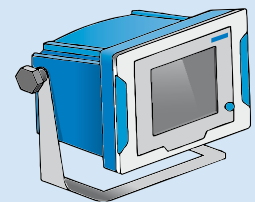
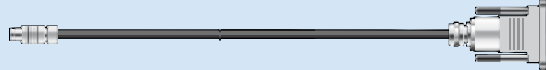
SPS

12 pin to free End	Length (m)	Material No.
4502A...	5	18008943
4502A...	variable	18008944

12 pin Connector/Female bs.	Length (m)	Material No.
4502A...	5	18008935
4502A...	variable	18008936



Type 4502A...



Type 5867A...

12 pin to maXYmos BL	Length (m)	Material No.
4502A...	5	18019422
4502A...	variable	18029045

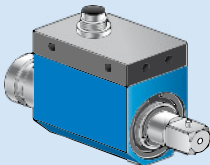
Cable and Connection Torque Sensor Type 4502A...

Measure

Connect

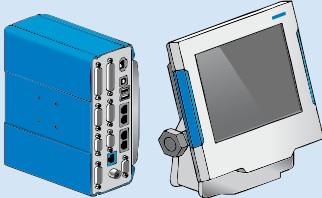
Amplify

Monitor & Control



Type 4502A...





Type 5877A...

12 pin to maXYmos TL	Length (m)	Material No.
4502A...	5	18027071
4502A...	variable	18027073

General Technical Data

Protection Class IEC/EN 60529	IP40
Connector	12 pin Binder connector
Type of cable	LiYCY transparent shielded
Temperature range	-10 °C ... +70 °C
Bending radius	approx. 10x outside diameter
Data sheet see www.kistler.com	4502A (000-597)

Accessories

	Coupling socket 12 pin	Type	18008371
	Couplings	Type	2301A... to 2303A...

Accessories Cable_000-615e-02.16

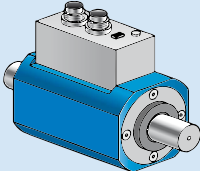
Cable and Connection Torque Sensor Type 4503...

Measure

Connect

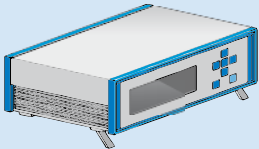
Amplify

Monitor & Control



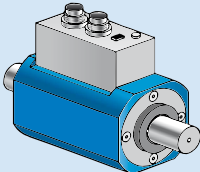
Type 4503...





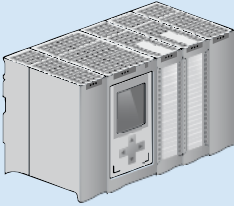
Type 4700B...

12 pin to CoMo Torque (Voltage)	Length (m)	Material No.	12 pin to CoMo Torque (Frequency)	Length (m)	Material No.
4503...	2,5	18008967	4503...	2,5	18008969
4503...	variable	18008968	4503...	variable	18008970



Type 4503...

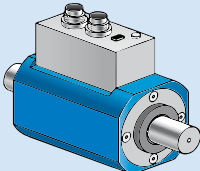




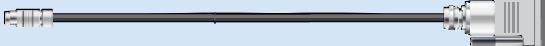
PLC

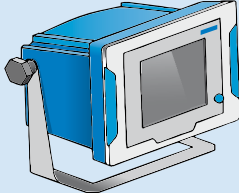
7 pin to free end	Length (m)	Material No.	7 pin to SUB-D (RS-232C)	Length (m)	Material No.
4503...	5	18008996	4503...	5	18008994
4503...	variable	18008997	4503...	variable	18008995

12 pin to free end	Length (m)	Material No.	12 pin Female to 12 pin Male	Length (m)	Material No.
4503...	5	18008943	4503...	5	18008935
4503...	variable	18008944	4503...	variable	18008936



Type 4503...



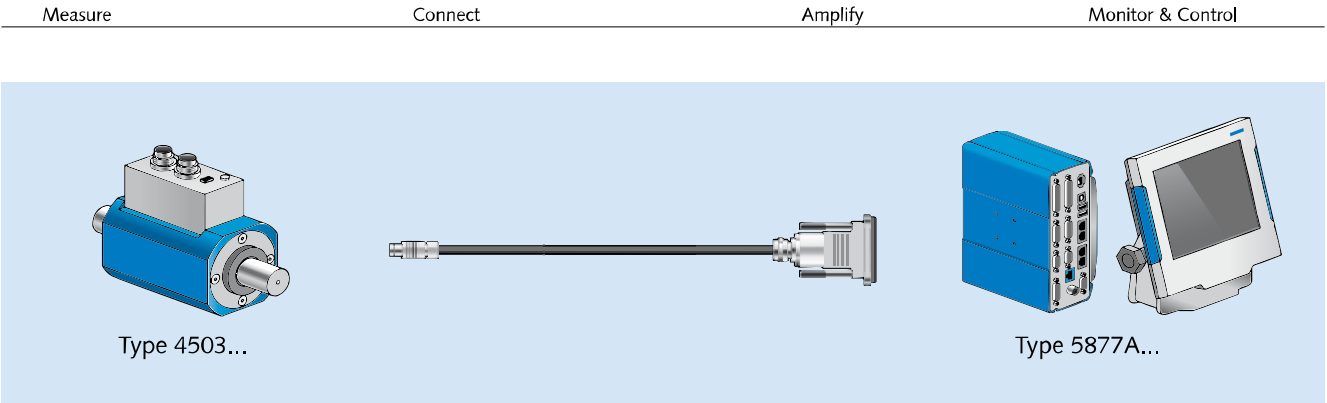


Type 5867A...

12 pin to maXYmos BL	Length (m)	Material No.
4503...	5	18029193
4503...	variable	18029194

Accessories Cable_000-615e-02.16

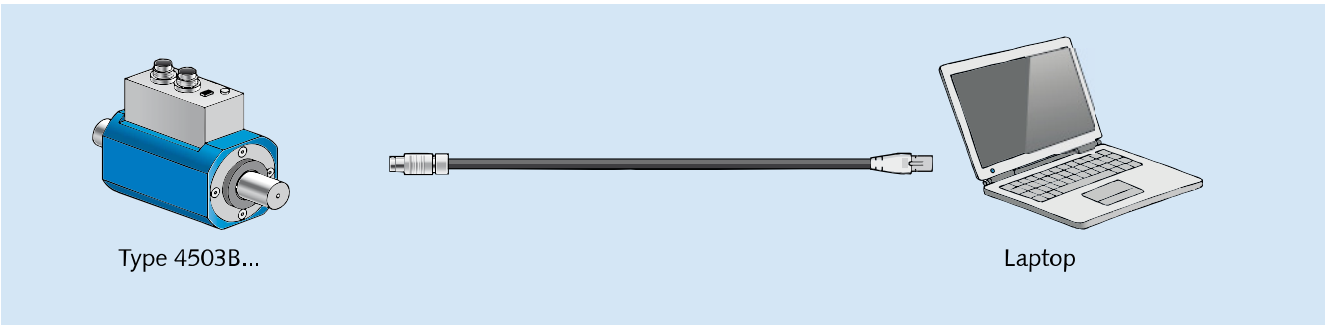
Cable and Connection Torque Sensor Type 4503...



7 pin to maXYmos TL ¹	Length (m)	Material No.
4503...	5	18031756
4503...	variable	not available

¹Measuring range changeover

12 pin to maXYmos TL	Length (m)	Material No.
4503...	5	18026961
4503...	variable	18027032



USB cable	Length (m)	Material No.
4503B...	1,8	55115378

General Technical Data	
Protection Class IEC/EN 60529	IP40
Connector	7- and 12 pin install plug
Type of cable	LiYCY transparent shielded
Temperature range	-10 °C ... +70 °C
Bending radius	approx. 10x outside diameter
Data sheet see www.kistler.com	4503A (000-595), 4503B (000-767)

Accessories		
Coupling socket 7 pin	Type	18008363
		
Coupling socket 12 pin	Type	18008371
		
SensorTool	Type	4706A
		
Couplings	Type	2301A... to 2303A...
		

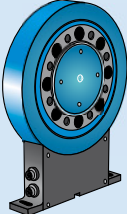
Cable and Connection Torque Sensor Type 4504B...

Measure

Connect

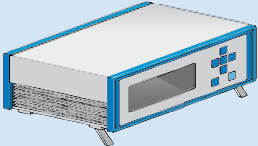
Amplify

Monitor & Control



Type 4504B...





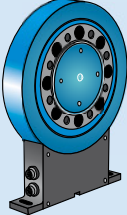
Type 4700B...

Connector A
12 pin to CoMo Torque (Voltage)

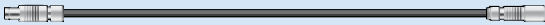
	Length (m)	Material No.
4504B...	2,5	18008967
4504B...	variable	18008968

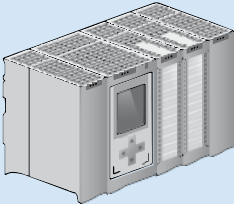
Connector A
12 pin to CoMo Torque (Frequency)

	Length (m)	Material No.
4504B...	2,5	18008969
4504B...	variable	18008970



Type 4504B...





SPS

Connector B and C
7 pin to free end

	Length (m)	Material No.
4504B...	5	18008996
4504B...	variable	18008997

Connector D
8 pin to free end

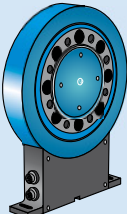
	Length (m)	Material No.
4504B...	5	55109745
4504B...	variable	not available

Connector A
12 pin to free end

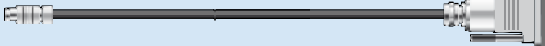
	Length (m)	Material No.
4504B...	5	18008943
4504B...	variable	18008944

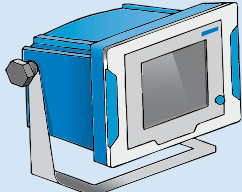
Connector A
12 pin Female to 12 pin Male

	Length (m)	Material No.
4504B...	5	18008935
4504B...	variable	18008936



Type 4504B...



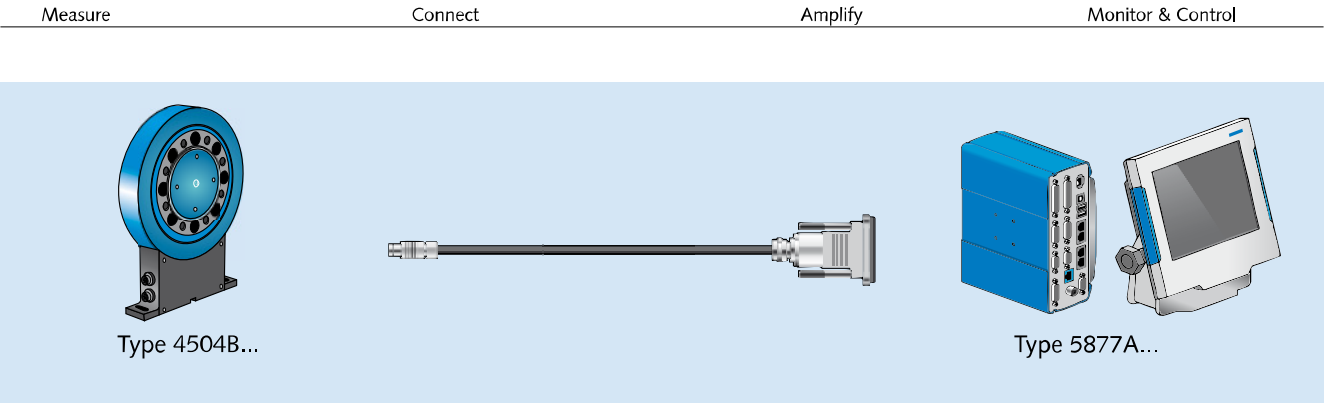


Type 5867A...

Connector A
12 pin to maXYmos BL

	Length (m)	Material No.
4504B...	5	18029193
4504B...	variable	18029194

Cable and Connection Torque Sensor Type 4504B...



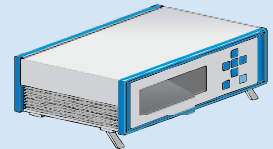
Connector A 12 pin to maXYmos TL	Length (m)	Material No.
4504B...	5	18026961
4504B...	variable	18027032

General Technical Data	
Protection Class IEC/EN 60529	IP40
Connector	7-, 8- and 12 pin install plug
Type of cable	LiYCY transparent shielded
Temperature range	-10 °C ... +70 °C
Bending radius	approx. 10x outside diameter
Data sheet see www.kistler.com	4504B (000-805)

Accessories		
Coupling socket 7 pin	Type	18008363 Connector C
		
Coupling socket 8 pin	Type	KSM013136 Connector D
		
SensorTool	Type	4706A
		
Couplings	Type	2300A...
		

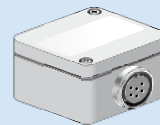
Accessories Cable_000-615e-02.16

Measure	Connect	Amplify	Monitor & Control
---------	---------	---------	-------------------



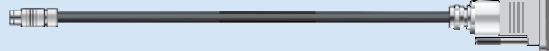
Type 4700B...

6 pin on free end	Length (m)	Material No.
4507A... and 4509A...	5	18008939
4507A... and 4509A...	variable	18008940



Type 4701A...

6 pin to maXYmos BL	Length (m)	Material No.
4507A... and 4509A...	5	18009163
4507A... and 4509A...	variable	18009164



Type 5867A...

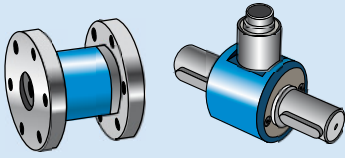
Cable and Connection Torque Sensor Type 4507A... and Type 4509A...

Measure

Connect

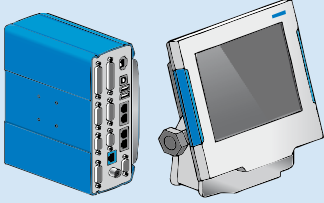
Amplify

Monitor & Control



Type 4507A... and Type 4509A...





Type 5877A...

6 pin to maXmos TL	Length (m)	Material No.
4507A... and 4509A...	5	18009163
4507A... and 4509A...	variable	18009164

General Technical Data	
Protection Class IEC/EN 60529	IP40
Connector	6 pin install plug
Type of cable	LiYCY transparent shielded
Temperature range	-10 °C ... +70 °C
Bending radius	approx. 10x outside diameter
Data sheet	4507A (0150RD), 4509 (0154RW)

Accessories		
	Coupling socket 6 pin	Type
		18008377
	Amplifier for strain gage sensors	Type
		4701A...

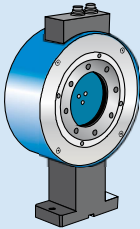
Cable and Connection Torque Sensor Type 4510B...

Measure

Connect

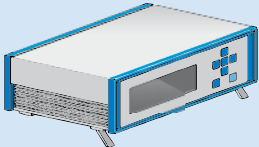
Amplify

Monitor & Control



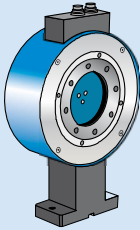
Type 4510B...





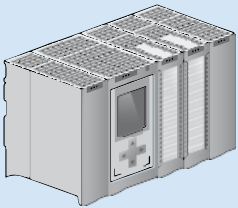
Type 4700B...

12 pin to CoMo Torque (Voltage)	Length (m)	Material No.	12 pin to CoMo Torque (Frequency)	Length (m)	Material No.
4510B...	2,5	18008967	4510B...	2,5	18008969
4510B...	variable	18008968	4510B...	variable	18008970



Type 4510B...

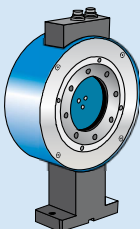




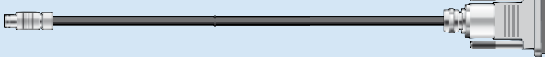
PLC

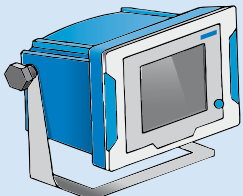
7 pin to free end	Length (m)	Material No.	7 pin to SUB-D	Length (m)	Material No.
4510B...	5	18008996	4510B...	5	18008994
4510B...	variable	18008997	4510B...	variable	18008995

12 pin to free end	Length (m)	Material No.	12 pin Female to 12 pin Male	Length (m)	Material No.
4510B...	5	18008943	4510B...	5	18008935
4510B...	variable	18008944	4510B...	variable	18008936



Type 4510B...





Type 5867A...

12 pin to maXYmos BL	Length (m)	Material No.
4510B...	5	18029193
4510B...	variable	18029194

Accessories Cable_000-615e-02.16

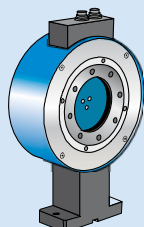
Cable and Connection Torque Sensor Type 4510B...

Measure

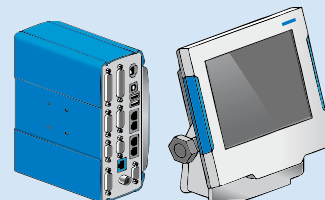
Connect

Amplify

Monitor & Control



Type 4510B...



Type 5877A...

7 pin to maXYmos TL¹

	Length (m)	Material No.
4510B...	5	18031756
4510B...	variable	not available

12 pin to maXYmos TL

	Length (m)	Material No.
4510B...	5	18026961
4510B...	variable	18027032

¹Measuring range changeover**General Technical Data**

Protection Class IEC/EN 60529	IP40
Connector	7- and 12 pin install plug
Type of cable	LiYCY transparent shielded
Temperature range	-10 °C ... +70 °C
Bending radius	approx. 10x outside diameter
Data sheet see www.kistler.com	4510B (000-737)

Accessories**Coupling socket 7 pin**

Type

18008363**Coupling socket 12 pin**

Type

18008371**SensorTool**

Type

4706A

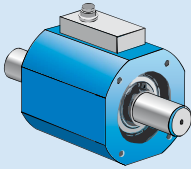
Cable and Connection Torque Sensor Type 4520A...

Measure

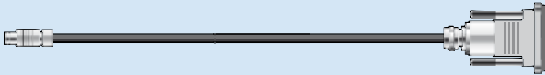
Connect

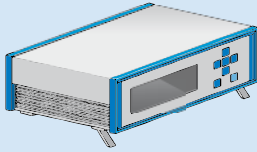
Amplify

Monitor & Control



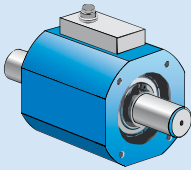
Type 4520A...



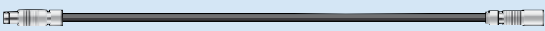


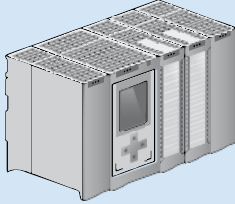
Type 4700B...

12 pin to CoMo Torque	Length (m)	Material No.
4520A...	2,5	18008963
4520A...	variable	18008964



Type 4520A...

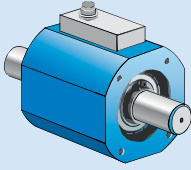




PLC

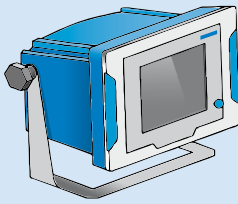
12 pin to free end	Length (m)	Material No.
4520A...	5	18008943
4520A...	variable	18008944

12 pin Connector both side	Length (m)	Material No.
4520A...	5	18008935
4520A...	variable	18008936



Type 4520A...





Type 5867A...

12 pin to maXYmos BL	Length (m)	Material No.
4520A...	5	18019422
4520A...	variable	18029045

Accessories Cable_000-615e-02.16

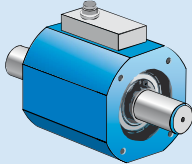
Cable and Connection Torque Sensor Type 4520A...

Measure

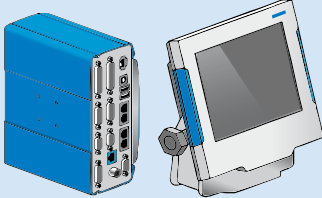
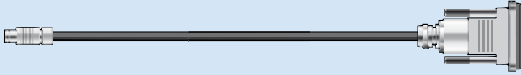
Connect

Amplify

Monitor & Control



Type 4520A...



Type 5877A...

12 pin to maXYmos TL	Length (m)	Material No.
4520A...	5	18027071
4520A...	variable	18027073

General Technical Data

Protection Class IEC/EN 60529	IP40
Connector	12 pin Binder connector
Type of cable	LiYCY transparent shielded
Temperature range	-10 °C ... +70 °C
Bending radius	approx. 10x outside diameter
Data sheet see www.kistler.com	4520A (000-765)

Accessories

 Coupling socket 12 pin	Type	18008371
 Couplings	Type	2301A... to 2303A...

Accessories Cable_000-615e-02.16

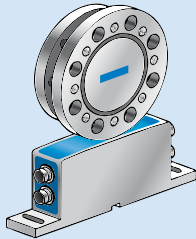
Cable and Connection Torque Sensor Type 4541A...

Measure

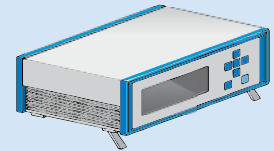
Connect

Amplify

Monitor & Control



Type 4541A...



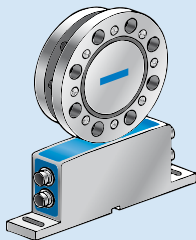
Type 4700B...

Connector X4**12 pin to CoMo Torque (Voltage)****Length (m)****Material No.**

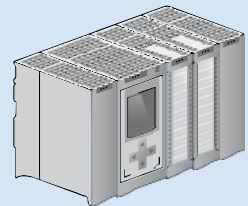
4541A...	2,5	18008967
4541A...	variable	18008968

Connector X4**12 pin to CoMo Torque (Frequency)****Length (m)****Material No.**

4541A...	2,5	18008969
4541A...	variable	18008970



Type 4541A...



SPS

Connector X1 and X3
7 pin on free end**Length (m)****Material No.**

4541A...	5	18008996
4541A...	variable	18008997

Connector X1**7 pol Special frequency cable for EMV compatibility****Length (m)****Material No.**

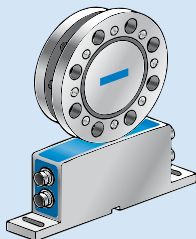
4541A...	variable	18031630
----------	----------	----------

Connector X4**12 pin to free end****Length (m)****Material No.**

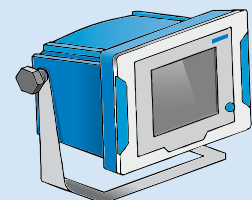
4541A...	5	18008943
4541A...	variable	18008944

Connector X2**14 pin Connector to free end****Length (m)****Material No.**

4541A...	5	18017610
4541A...	variable	18030136



Type 4541A...



Type 5867A...

Connector X4**12 pin to maXYmos BL****Length (m)****Material No.**

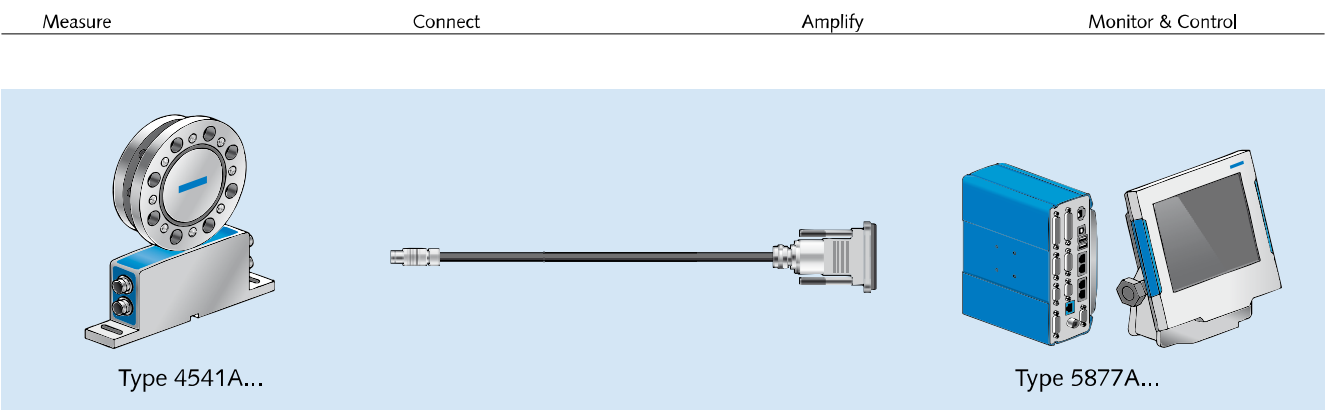
4541A...	5	18029193
4541A...	variable	18029194

Page 17/23

This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

©2007 ... 2016, Kistler Group, Eulachstrasse 22, 8408 Winterthur, Switzerland
phone +41 52 224 1111, Fax +41 52 224 1414, info@kistler.com, www.kistler.com
Kistler is a registered trademark of Kistler Holding AG.

Cable and Connection Torque Sensor Type 4541A...



Connector X4 12 pin to maXYmos TL	Length (m)	Material No.
4541A...	5	18026961
4541A...	variable	18027032

Connector X5 USB cable	Length (m)	Material No.
4541A...	1,8	55115378

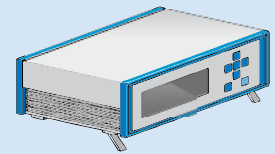
Connector X2 14 pin to maXYmos TL ¹	Length (m)	Material No.
4541A...	5	18032047
4541A...	variable	not available

¹ Measuring range changeover

General Technical Data	
Protection Class IEC/EN 60529	IP40
Connector	7-, 12- and 14 pin install plug
Type of cable	LiYCY transparent shielded
Temperature range	-10 °C ... +70 °C
Bending radius	approx. 10x outside diameter
Data sheet see www.kistler.com	4541A (000-879), 4542A (003-057), 4551A (003-169)

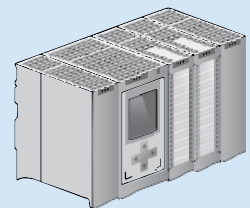
Accessories		
Coupling socket 7 pin	Type	18008363
		
Coupling socket 12 pin	Type	18008371
		
Coupling socket 14 pin	Type	18019319
		
SensorTool	Type	4706A
		
Couplings	Type	2300A... / 2305A...
		

Measure	Connect	Amplify	Monitor & Control
---------	---------	---------	-------------------



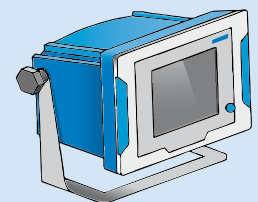
Type 4700B...

Connector X4		
12 pin to CoMo Torque (Frequency)	Length (m)	Material No.
4542A...	2,5	18008969
4542A...	variable	18008970



PLC

Connector X4 12 pin to free end	Length (m)	Material No.
4542A...	5	18008943
4542A...	variable	18008944



Type 5867A...

Connector X4 12 pin to maXYmos BL	Length (m)	Material No.
4542A...	5	18029193
4542A...	variable	18029194

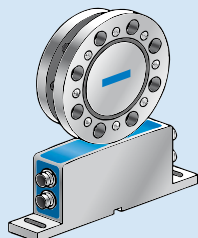
Cable and Connection Torque Sensor Type 4542A...

Measure

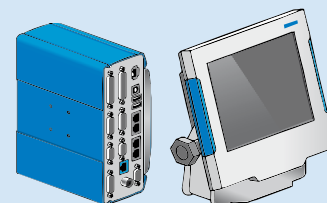
Connect

Amplify

Monitor & Control



Type 4542A...



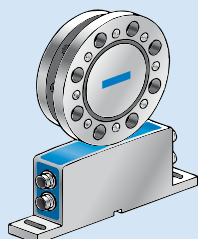
Type 5877A...

Connector X4 12 pin to maXmos TL

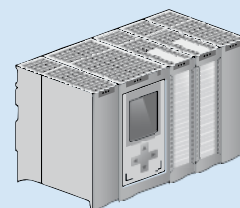
	Length (m)	Material No.
4542A...	5	18026961
4542A...	variable	18027032

Connector X5 USB cable

	Length (m)	Material No.
4542A...	1,8	55115378

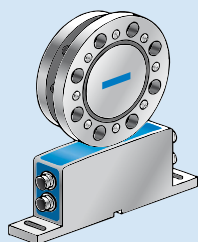


Type 4542A...

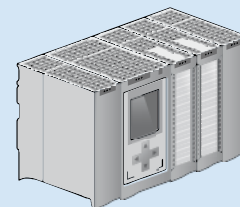

PROFINET
EtherCAT
EtherNet/IP

Connector X1 PROFINET, EtherCAT, EtherNet/IP M12 D coded RJ45 cat5e

	Length (m)	Material No.
4542A...	2	55117503
4542A...	5	55117504
4542A...	10	18026867



Type 4542A...

**PROFIBUS**

Connector X2, PROFIBUS M12 B coded to free end

	Length (m)	Material No.
4542A...	2	18029811
4542A...	5	55117502

Connector X2, PROFIBUS 1 to 1 extension à M12 B coded

	Length (m)	Material No.
4542A...	2	55117321
4542A...	5	55117500

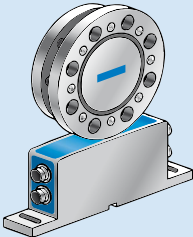
Cable and Connection Torque Sensor Type 4542A...

Measure

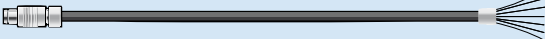
Connect

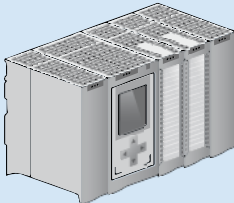
Amplify

Monitor & Control



Type 4542A...





CAN Bus

Connector X2, CAN Bus
M12 A coded to free end

	Length (m)	Material No.
4542A...	2	55117499
4542A...	5	55117388

Connector X2, CAN Bus
1 to 1 extension - M12 A coded

	Length (m)	Material No.
4542A...	2	18029812
4542A...	5	55117501

Accessories Cable_000-615e-02.16

General Technical Data		X1 + X2
Protection Class IEC/EN 60529	IP54	IP67
Connector	7-, and 12 pin install plug	bus connector M12
Type of cable	LiYCY transparent shielded	PUR
Temperature range	-10 °C ... +70 °C	-20 °C ... +80 °C
Bending radius	approx. 10x outside diameter	4x outside diameter fixed published 8x outside diameter flexible published
Datenblatt siehe www.kistler.com	4542A (003-057), 4550A (000-880)	

Accessories

Coupling socket 7 pin		Type	18008363
Coupling socket 12 pin		Type	18008371
Coupling socket 14 pin		Type	18019319
SensorTool		Type	4706A
Couplings		Type	2300A... / 2305A...

S.I. Instruments
256 South Rd. Hilton
South Australia 5033
Ph (08) 8352 5511

info@si-instruments.com.au
si-instruments.com.au