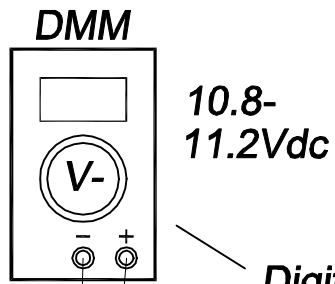


Test sequence number **4**

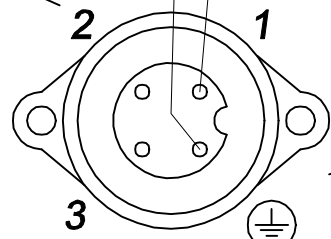
Power to sensor



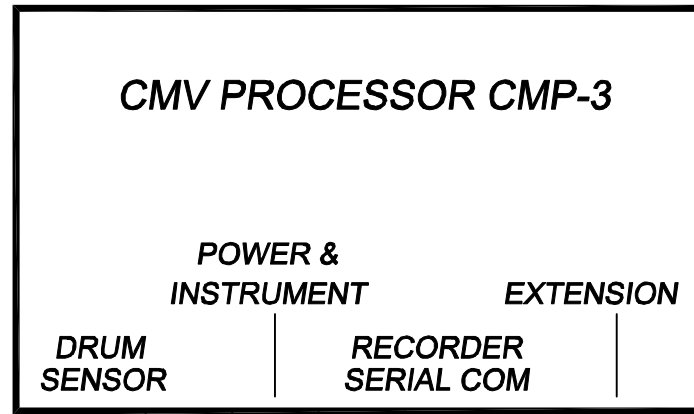
10.8-11.2Vdc

Digital Multimeter Instrument (DMM)

pin identification

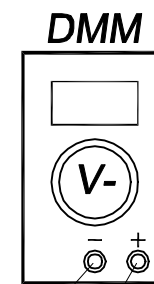


SENSOR



5

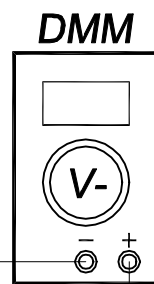
Power to instrument



10.8-11.2Vdc

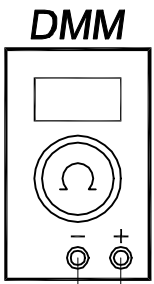
Roller battery voltage (no charging)

1



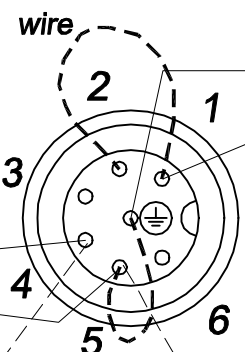
11.5-12.5Vdc

2 Resistance of CMV-instrument



38-0017
950-1050ohm

38-0005
490-510ohm



3

1.5V

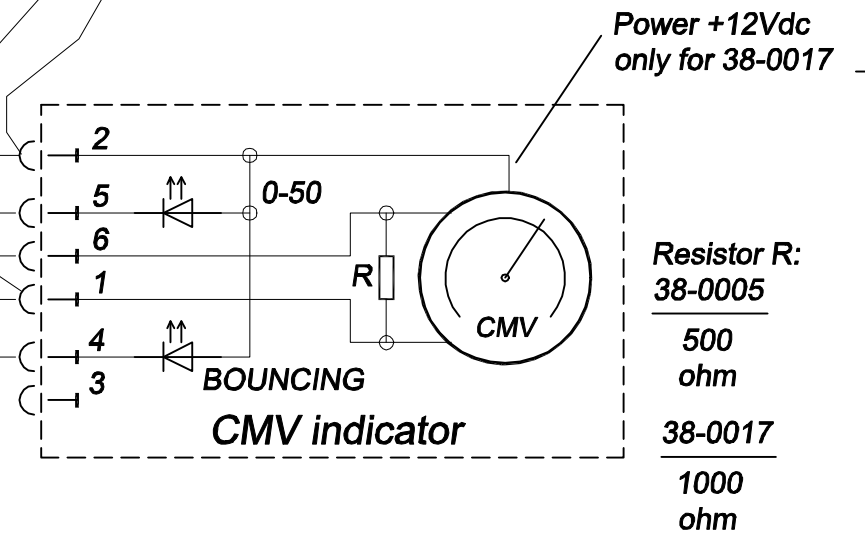
Battery

CMV-reading
40-50 on 0-150 scale
with +1.5Vdc input

Roller cable connector supply & instrument

- pin 2: IND+
- pin 3: RANGE:IND
- pin 4: CMV:INSTR+
- pin 5: GND:INSTR
- pin 6: BOUNC:IND

- pin 1: POW+
- pin ⚡: POW:GND



Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference		
Designed by U.A.	Checked by	Approved by - date	File name 1100477301R0.DWG	Date 2004-03-02	Scale
ULFIA Elektronik AB			CM-3 Troubleshooting		
			11-0047-7301-63	Rev. 0.2	Sheet 1/5

DC voltage from sensor
(no vibrations)

Power to sensor
(battery voltage=12Vdc)

22
+2.9 -
+4.0Vdc

21
10.3-
10.7Vdc

23
AC voltage
from sensor
(with vibrations)
0.4-1.2Vac(rms)

Power to recorder
26
11-
11.5Vdc

Frequency pulse output
(with vibrations)

27
6 - 9Vac
(approx. 0.5Vdc)

Turn to loosen
(counter clockwise)

28
CMV output to
recorder
(with vibrations)

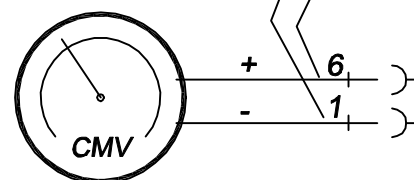
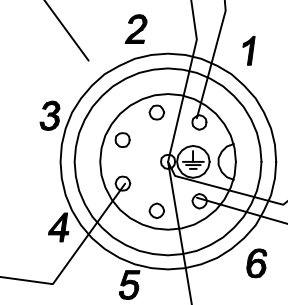
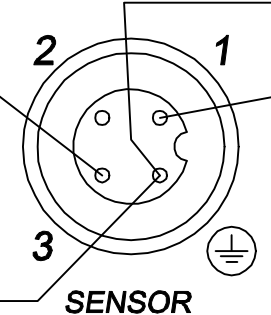
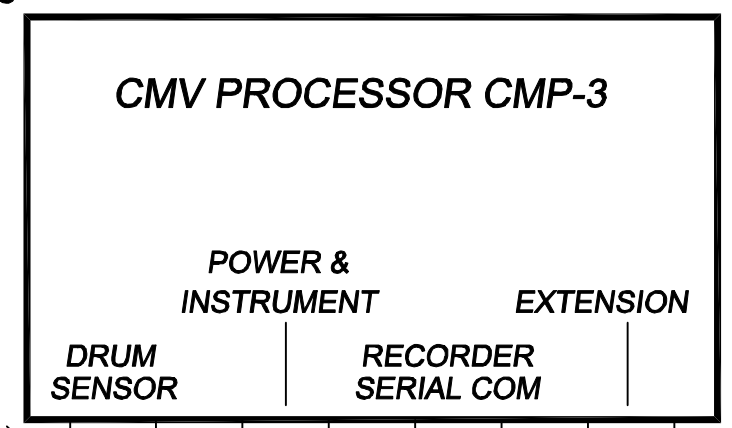
CMV-output
(with vibrations)

0 CMV = 0Vdc
75 CMV = 2.5Vdc
150 CMV = 5Vdc

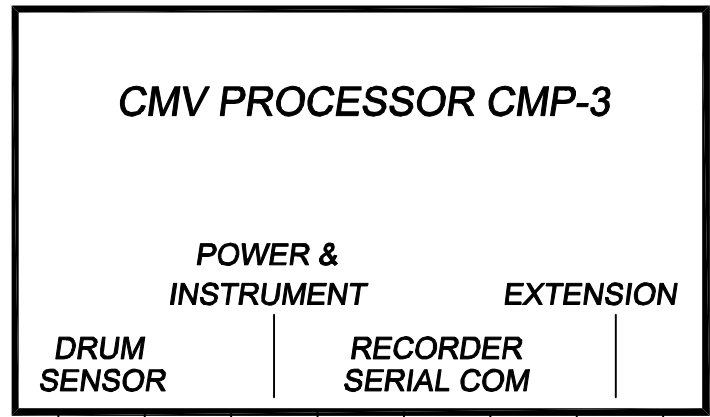
0 CMV = 0Vdc
75 CMV = 2.5Vdc
150 CMV = 5Vdc
bouncing > 6.5V

pin 1 : supply + ← +12V / 0V from roller battery
pin ⏚ : supply - ←

CMV-instrument

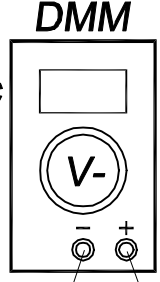


Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference		
Designed by U.A.	Checked by	Approved by - date	File name 1100477302R01.DWG	Date 2004-03-02	Scale
ULFIA Elektronik AB			CM-3 Troubleshooting.		
			11-0047-7302-63	Rev. 0.3	Sheet 2/5

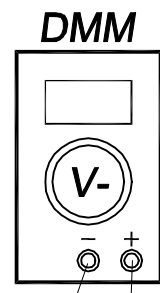


pin 1 : POW+ ← +12V
 pin ⚡ POW:GND ← 0V from roller battery

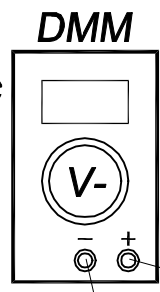
31 Power to distance sensor
 11-11.5Vdc



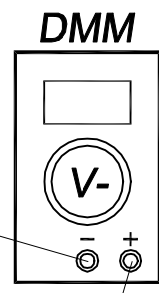
32 CMV indicator range switch input
 10.8-11.2Vdc
 For 0 - 50 range on the CMV indicator close this wires (input is grounded).



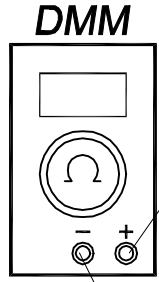
35 Control box input
 4.9-5.1Vdc



34 Driving direction input
 9.5-10.5Vdc
 The distance counter in CMP-3 should count down if this wires are closed (input is grounded). *

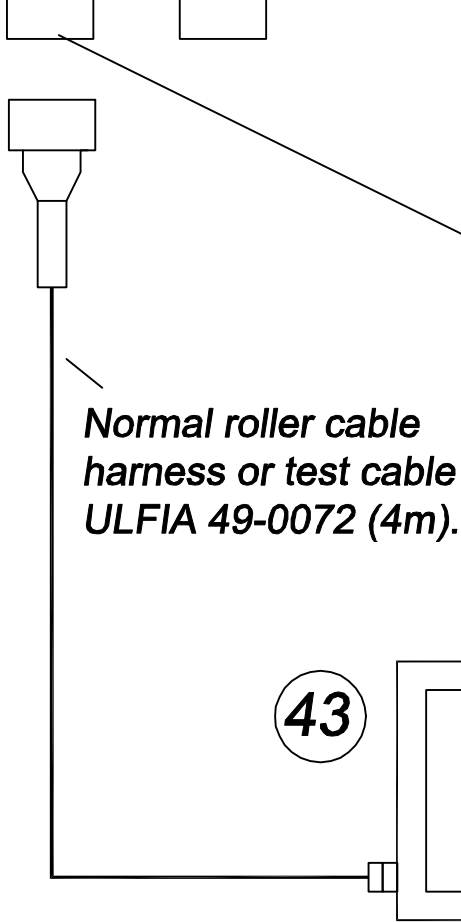
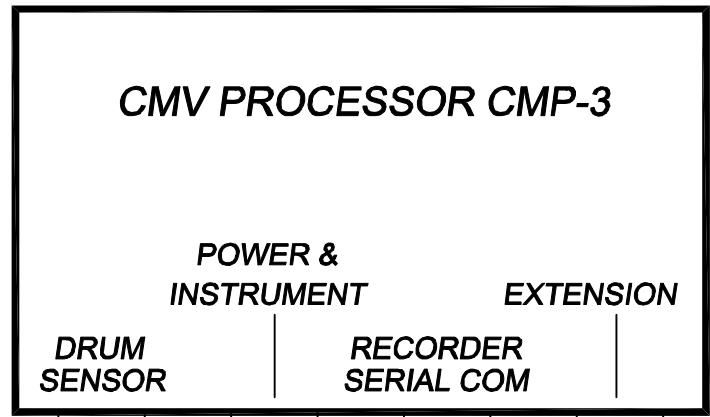


33 Distance pulse input approx. 10kohm
 * The distance counter in CMP-3 should count if pin 5 is connected/ disconnected to pin 4.



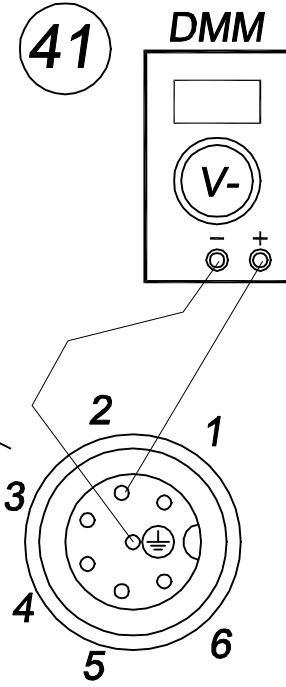
* To check the distance pulse counter you must connect a PC and use a diagnostic software.

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference		
Designed by U.A.	Checked by	Approved by - date	File name 1100477303R01.DWG	Date 2004-03-02	Scale
ULFIA Elektronik AB			CM-3 Troubleshooting.		
			11-0047-7303-63	Rev. 0.3	Sheet 3/5

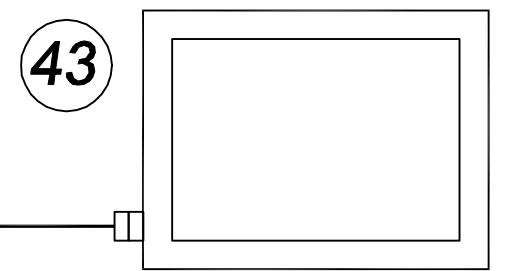


pin 1 : POW+ ← +12V
 pin ⚡ POW:GND ← 0V from roller battery

COM-port output

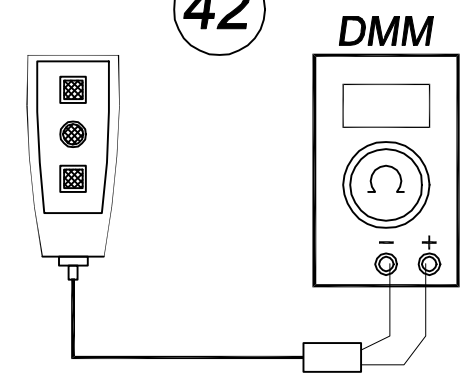


Not transmitting < -9V,
 e.g. at power up.
 Transmitting data,
 -6V to -8V.



Use the diagnostics in the DCA software to check the CMP-3 operation. You must have the DCA roller version software to do this. With a notebook computer you can use the standalone test software ULFIA 90-0171.

42



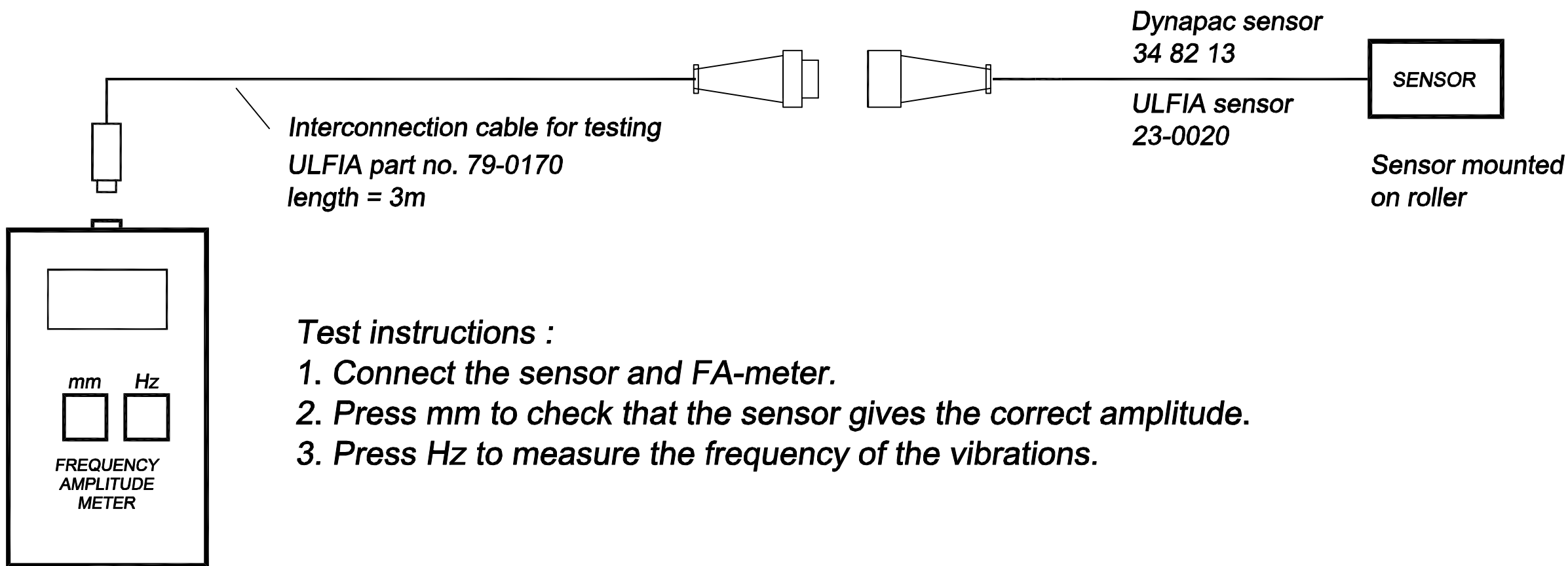
Checking the 3-button control box.
 Measure the resistance while pressing :

none	5550 - 5650 ohms
UP/START	1155 - 1175
SELECT	602 - 610
DOWN/STOP	1825 - 1855

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference		
Designed by U.A.	Checked by	Approved by - date	File name 1100477304R01.DWG	Date 2004-03-02	Scale
ULFIA Elektronik AB			CM-3 Troubleshooting.		
			11-0047-7304-63	Rev. 0.2	Sheet 4/5

Test setup for checking sensor with FA-meter.

51



Test instructions :

1. Connect the sensor and FA-meter.
2. Press mm to check that the sensor gives the correct amplitude.
3. Press Hz to measure the frequency of the vibrations.

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference		
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ULFIA Elektronik AB			CM-3 Troubleshooting.		
			11-0047-7305-63	Rev. 0.2	Sheet 5/5

DCA system error codes :

7X : Errors depending on the signal to the compaction meter processor from the vibration sensor:

- 70 DC-voltage-level of the signal is out of range.
- 71 No AC-voltage signal detected..

8X : Frequency of the signal from the vibration sensor :

- 80 Too low for selected frequency range.
- 81 Too high frequency for selected frequency range.

Possible reasons for the error :

- 70 :
1. The cable from the sensor is not connected to the processor unit.
 2. The sensor cable is defect, short-circuited or interrupted.
 3. The sensor is defect.

- 71 :
1. The drum is not vibrating.
 2. The amplitude of the vibration is too low.
 3. The sensor is defect.

- 80 :
1. The drum is not vibrating.
 2. The frequency of the vibration is below the selected frequency range on the processor. Read the label on the processor or the installation instruction and set the rotary switch in the correct position..

- 81 :
1. The frequency of the vibration is higher than the selected frequency range on the processor. Read the label on the processor or the installation instruction and set the rotary switch in the correct position..

Use the documentation included in the DCA-software for installation and troubleshooting.
You could read it in : SERVICE / MAINTENANCE / TROUBLESHOOTING-
DOCUMENTATION -----

You could also download the pdf-documents from www.ulfia.se.

POWER & INSTRUMENT :

=====
 Cable connector : female 7 pins, Amphenol C16-1 part no. T3105-001

PIN		SIGNAL NAME
-----	-----	-----
pin GND :	power supply ground to CMP-3 (GND)	POW:GND
pin 1 :	power supply voltage input to CM-3 (+12V)	POW+
pin 2 :	power supply output to CMV-instrument	IND+
pin 3 :	output to CMV range 0-50 lamp	CMVRANGE:IND
pin 4 :	analog CMV signal output to instrument (+)	CMV:INSTR+
pin 5 :	ground terminal to instrument	GND:INSTR
pin 6 :	output to Bouncing lamp	BOUNC:IND

DRUM SENSOR :

=====
 Cable connector : male 4 pins, Amphenol C16-1 part no. T3108-001

pin GND :	power- and signal ground to sensor (-)	SENS:GND
pin 1 :	sensor supply voltage output, (+)	SENS:POW+
pin 2 :	sensor cable shield	SHIELD
pin 3 :	sensor signal input	SENS:SIG

SERIAL PORT / RECORDER : ### marked RED ###

=====
 Cable connector : male 7 pins, Amphenol C16-1 part no. T3104-001

pin GND :	supply- and signal ground output (-)	GND:REC
pin 1 :	supply voltage output to recorder, (+)	POW:REC
pin 2 :	serial data output (RS232-C)	TXD
pin 3 :	serial data input (RS232-C)	RXD
pin 4 :	CMV analog output (0 to +5V = 0-150CMV)	CMV:REC
pin 5 :	to cable shield	SHIELD
pin 6 :	frequency pulse output to recorder	FREQ:REC

EXTENSION / DISTANCE SENSOR : ### marked YELLOW ###

=====
 Cable connector : male 7 pins, Amphenol C16-1 part no. T3104-001

pin GND :	signal ground output (-)	RANGE:GND
pin 1 :	power supply output to distance sensor	DPS:POW+
pin 2 :	CMV-instrument range switch input	RANGE:SWITCH
pin 3 :	ground to distance pulse sensor	DPS:GND
pin 4 :	signal input for 3 button op control	OPCONTROL
pin 5 :	signal input for distance pulse sensor phase 1	DPS:PH1
pin 6 :	driving direction switch input (open=forward, GND=reverse)	DPS:PH2