



■
■

SOPAS

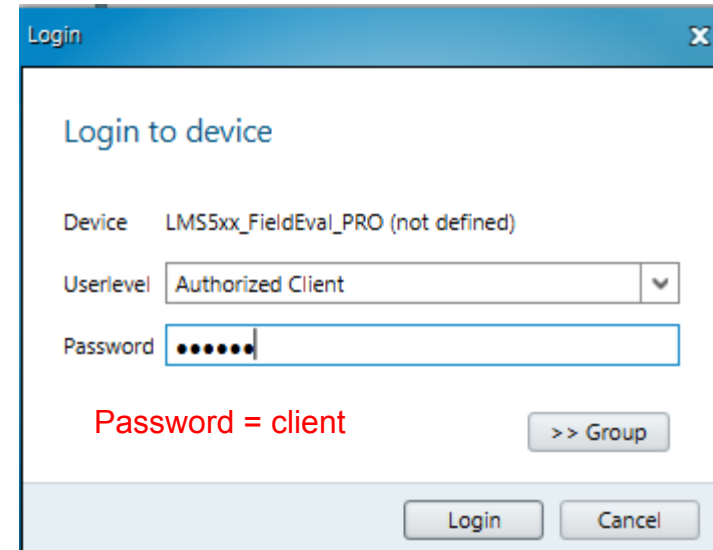
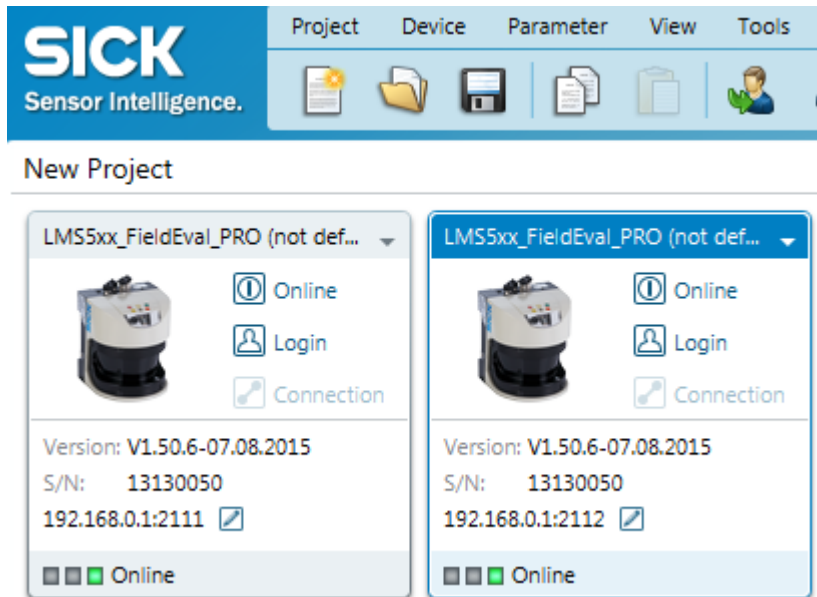


Communications Language - CoLa

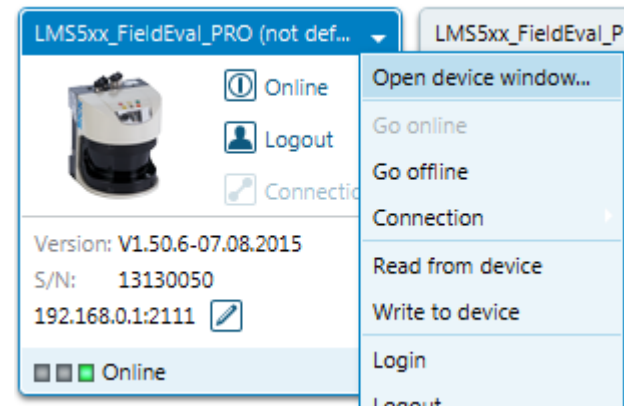
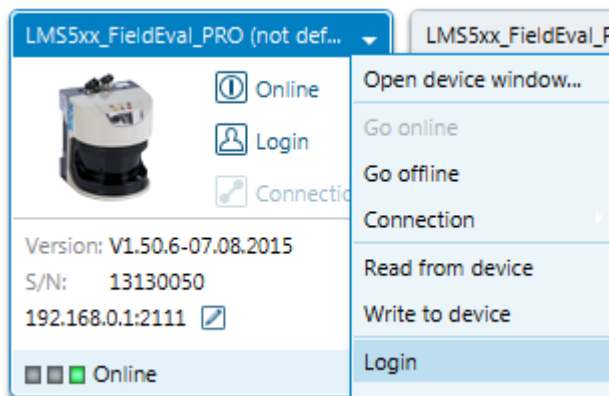
August 2017

LMS / TiM : Configuration of SOPAS

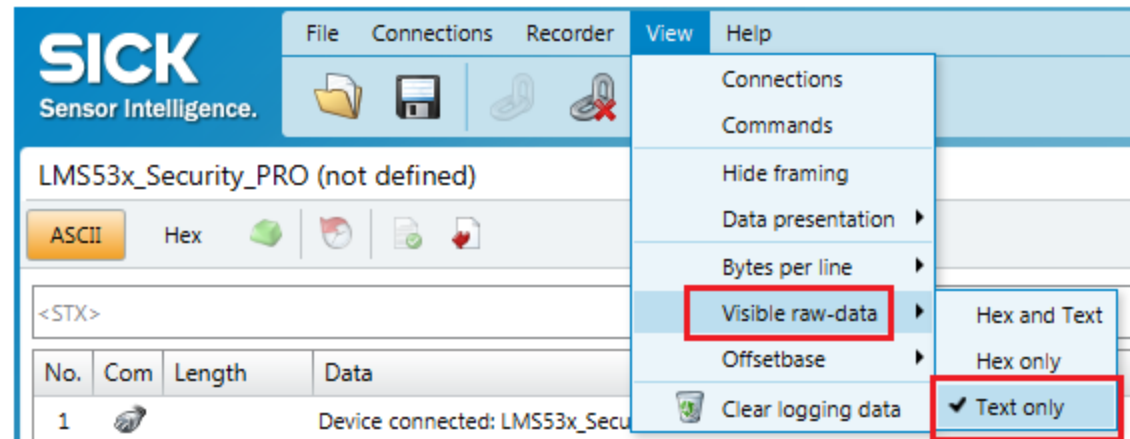
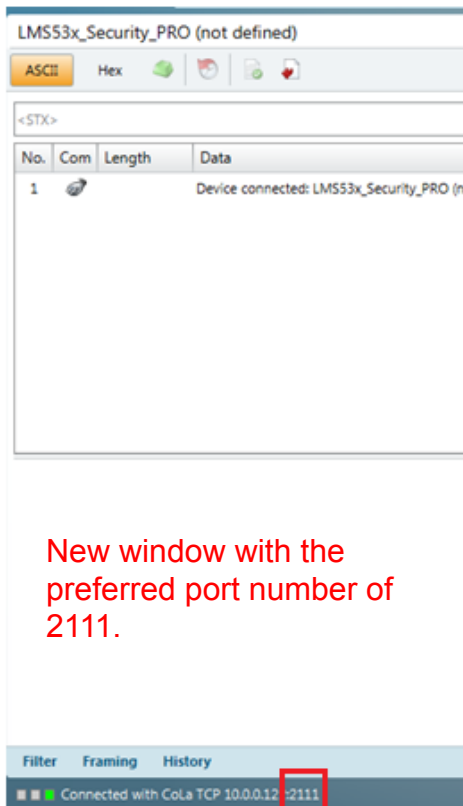
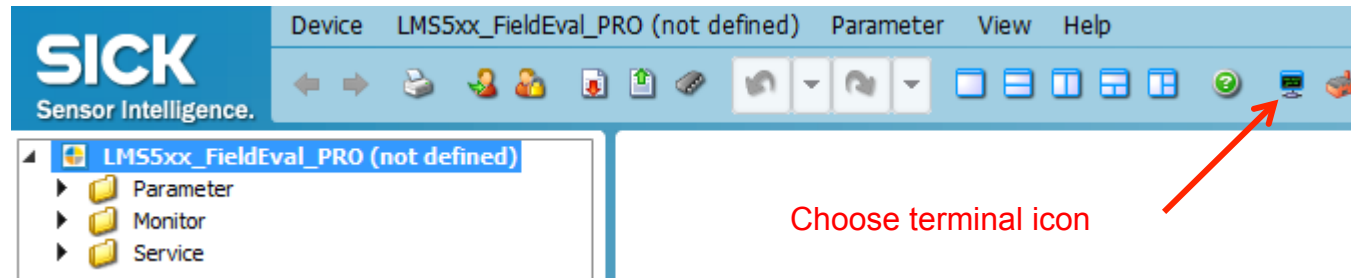
There are two Ethernet ports :2111 & 2212



Open device window of port :2111



LMS / TiM : Configuration of SOPAS Terminal



LMS / TiM : Polling one Telegram Command





Refer to the Telegram Listing for “Polling one Telegram.”

Polling one Telegram Example: sRN LMDscandata
Output of measured values of one scan.


ASCII <STX>sRN{SPC}LMDscandata<ETX>

Enter the “Polling one Telegram” into the Send telegram box below and choose “Send.”

LMS53x_Security_PRO (not defined)

ASCII Hex    

<STX> sRN LMDscandata X <ETX> ▼

No.	Com	Length	Data
1			Device connected: LMS53x_Security_PRO (not defined)

LMS / TiM : Polling one Telegram Command

Results of Polling one Telegram .

LMS53x_Security_PRO (not defined)

ASCII Hex

<STX> <ETX>

No.	Com	Length	Data
1			Device connected: LMS53x_Security_PRO (not defined)
2		17	<STX>sRN LMDscandata<ETX>
3		4188	<STX>sRA LMDscandata 0 1 E9ECF9 0 0 69A 6A3 A1F2DDF6 A1F4138C 0 0 1E 0 0 9C4 21C 0 1 DIS...

Click the result above .

LMS53x_Security_PRO (not defined)

ASCII Hex

<STX> <ETX>

No.	Com	Length	Data
1			Device connected: LMS53x_Security_PRO (not defined)
2		17	<STX>sRN LMDscandata<ETX>
3		4188	<STX>sRA LMDscandata 0 1 E9ECF9 0 0 69A 6A3 A1F2DDF6 A1F4138C 0 0 1E 0 0 9C4 21C 0 1 DIS...

```
0000 .sRA LMDscandata 0 1 E9ECF9 0 0
0032 69A 6A3 A1F2DDF6 A1F4138C 0 0 1E
0064 0 0 9C4 21C 0 1 DIST1 3F800000
0096 00000000 FFFF3CB0 683 475 AB A1
0128 A6 A2 A5 A7 A4 A6 A2 A4 A9 A3 A0
0160 A3 A7 A5 A8 9E A9 9E A0 9F A5 A
0192 2 A1 A6 A9 A2 A9 A7 A5 A5 A7 A7
0224 A7 A8 A7 A4 AA A4 A2 9E A6 A7 A3
0256 A5 A6 A5 AE 9C A3 A7 A3 A5 A3 A
0288 5 A6 A0 AC AC A1 A5 AC A5 A2 AC
0320 A8 A8 A0 A3 AF AE 9CA 9B9 9AB 9A
0352 B 9A5 9AF 9AD 9AE 9A9 9A8 9A4 99
0384 F 9A2 9A0 9A5 9A2 9A6 9AD 9A9 9A
0416 B 9A7 9B4 9B4 9B7 9B5 9B4 9BA 9B
0448 D 9C6 9BE 9D0 9CB 9C7 9CD 9CF 14
0480 7B 1475 1471 A11 A04 A08 A0E A08
0512 A10 A06 14AD 14C0 14BD 149C 14C
```

Shows the data below .

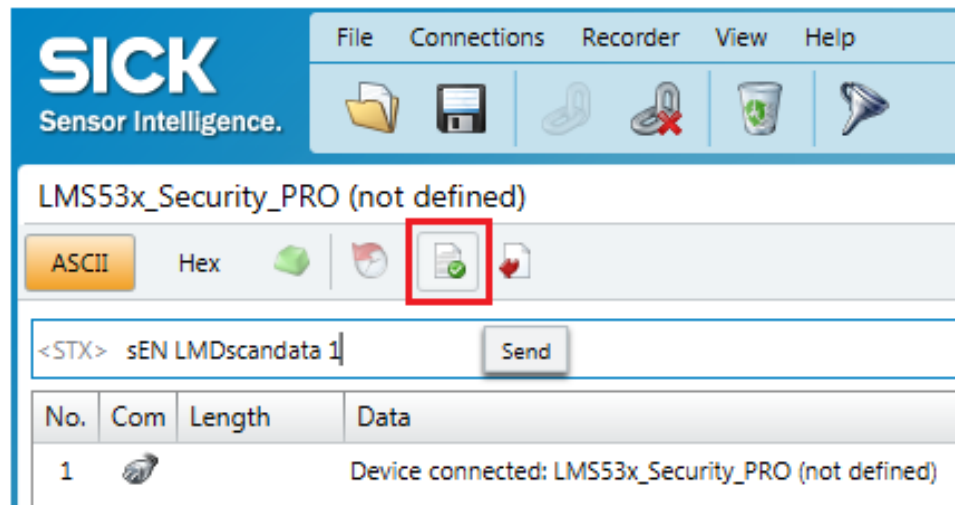
LMS / TiM : Send data permanent command

Refer to the Telegram Listing for “Send data permanent.”

Send data permanent Example: sEN LMDscandata

ASCII	<STX>sEN{SPC}LMDscandata{SPC}1<ETX>
-------	-------------------------------------

Enter the “Send data permanent” into the Send telegram box below and choose “Send.”.



LMS / TiM : Send data permanent command

Results of the Send data permanent command. Data is being sent repeatedly at the rate of the scan frequency!

ASCIIHex

<STX><ETX>

No.	Com	Length	Data
2774	↑	4082	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD5D FD64 D4D1D6A D4D3CEB 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A4 A7 9E A9 A4 9B A1 9F A9 9A A5 A0 A3 A4 A3 9E A2 A4 A2 9F A0 A8 A5 A1 9F A9 ...
2775	↑	4081	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD5D FD66 D4D30E8 D4D445FA 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A0 A2 A2 9F A3 A3 9F A6 A0 A3 A8 9F 9E A5 9D A4 A0 A7 A1 A3 A8 A7 A6 A1 A6 A1...
2776	↑	4072	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD5E FD67 D4D3AABD D4D4E279 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A0 A0 9F A3 A6 9F A3 9B 9C AC A3 A3 A4 A4 A3 A1 9D A8 A0 9B A8 A3 A3 A5 A...
2777	↑	4089	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD5E FD67 D4D3AABD D4D4E279 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A0 A0 9F A3 A6 9F A3 9B 9C AC A3 A3 A4 A4 A3 A1 9D A8 A0 9B A8 A3 A3 A5 A...
2778	↑	4072	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD5F FD68 D4D447CA D4D57E80 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A1 A5 9C A3 A7 A3 A8 A9 A1 A9 A6 A9 A1 A5 A6 A7 A1 A2 A4 A2 A5 9E 9E A5 A1 A...
2779	↑	4079	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD60 FD69 D4D4E3EB D4D61B4E 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 9F A7 AA A6 A0 A5 A3 A7 A5 A8 A0 A8 AA 9D 9D A1 A0 A1 A3 A1 A6 A7 A4 A7 A2 A...
2780	↑	4081	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD61 FD6A D4D581E1 D4D6B5CB 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A1 A1 A5 9F A5 A5 9B A5 A7 A7 A5 A9 A0 A6 A1 A8 A7 9E A5 A1 9F A1 A5 A9 A5 A...
2781	↑	4085	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD62 FD68 D4D61D9F D4D7537C 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A8 A6 A0 A2 A4 9F 9F A2 A7 A1 9A A4 A5 A0 A0 9F A3 A0 A2 A5 9E A4 A7 A4 A3 A4...
2782	↑	4074	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD63 FD6C D4D6B9F5 D4D7EFE8 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A2 9D A4 A7 9F A6 A7 A6 9F 9D 9C A8 A0 A2 A4 A4 AB 9F A3 A4 A2 A4 A5 AA A3 A...
2783	↑	4073	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD64 FD6D D4D75718 D4D88AE9 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A5 9F A6 9D 9C A7 A6 A3 A2 A3 AF A6 A6 A7 A4 A2 A5 A2 A1 9E A3 A5 A4 AE A3 9...
2784	↑	4081	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD65 FD6E D4D7F32A D4D92722 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A8 A3 A1 A3 A0 A0 AA 9F 9C A3 9D A1 A3 9F A5 9E A7 A0 A2 9E A5 9F 9E 9D A5 A2 ...
2785	↑	4084	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD66 FD6F D4D88E61 D4D9C340 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A4 A2 A6 9C A4 A9 A7 A0 9C A3 A1 A5 9D A5 AB A8 9E 9E A5 9D A2 A6 A5 A3 A4 A...
2786	↑	4083	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD67 FD70 D4D92A8B D4DA60B8 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A4 9B 9F A3 9C A7 AC A8 AA A6 A8 A6 A4 A7 A6 9F 9E A4 A3 A5 A2 A3 A2 A5 A4 A...
2787	↑	4081	<STX>sSN LMDscandata 0 1 E9ECF9 0 0 FD68 FD71 D4D9C789 D4DAFC92 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 9F AA 9C AC 9D A7 A8 9E A2 A4 A8 A1 A7 9C 9F A2 A5 9C A7 A1 9A A8 9D A8 A8 9...

0000.sSN LMDscandata 0 1 E9ECF9 0 0

0032FCF4 FCFD D492F9E2 D4942ED9 0 0

00641F 0 0 9C4 21C 0 1 DIST1 3F800000

00960 00000000 FFFF3CB0 683 475 A5 9

0128E A4 A1 9B A1 A5 9D A4 9D A4 9F

0160A4 9F A1 A2 A5 9C A5 A0 A4 A5 9F

0192A4 A5 A4 A0 9E A0 AA A3 A6 A4 A

02244 A4 A4 A2 A5 AA A4 A6 A1 A5 A3



0256AA A2 A8 A5 AB A1 A1 A1 A8 A9 A6

0288AD A7 A4 A5 AF AB B0 A4 A7 A1 A

Click any one of the lines scrolling above to see data to the left shown.

LMS / TiM : Send data permanent command

Enter the “Send data permanent” stop command into the Send telegram box below and choose “Send.”.

ASCII Hex  

<STX> sEN LMDscandata 0

“Send”

Note: Start to send data is sEN LMDscandata 1. To Stop to send data is sEN LMDscandata 0.

No.	Com	Length	Data
9071	↑	4094	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 1600 1600 E3DEB8B4 E3D0F273 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A0 A2 9F A2 A5 A2 9D A0 A9 A4 A6 A1 A7 9D A3 9B A6 A6 9C 9A A5 A3 A5 A1 A4 A...
9072	↑	4095	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 1601 160A E3DD58B4 E3DE8D75 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A4 A2 9F A2 A5 A2 9D A0 A9 A4 A6 A1 A7 9D A3 9B A6 A6 9C 9A A5 A3 A5 A1 A4 A...
9073	↑	4083	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 1602 160B E3DDF498 E3DF2A67 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A5 9D A2 A7 A5 A4 A2 A9 A1 9F A0 A7 A7 A0 A3 A5 9F A6 A7 A8 9E A1 9F A7 A2 A1 ...
9074	↑	4088	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 1603 160C E3DE90D6 E3DFC687 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 9C A1 A9 A3 9D A2 A0 A1 A8 A0 A2 A5 A2 A3 A2 A1 A0 A5 A3 A2 A8 A4 A6 A0 9E A1...
9075	↑	4082	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 1604 160D E3DF2DAD E3E0629D 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A6 A3 A5 A6 A2 A0 9F AB A5 A1 A5 A7 9D A2 A9 A5 A4 A3 A6 A2 A5 A7 98 A1 A7 A...
9076	↑	4090	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 1605 160E E3DFC991 E3E0FF1D 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A2 A5 A3 A0 A0 A9 A7 A3 A6 A2 A3 9E A0 A1 A7 A4 A6 A7 A5 A4 A6 AA A8 AA A5 ...
9077	↑	4083	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 1606 160F E3E06613 E3E19BA1 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A3 A4 A7 A2 A1 A5 A5 A7 A2 A6 A9 A5 A3 A0 A3 9F 9C A8 A7 A7 A6 A5 A6 A4 A6 AA ...
9078	↑	4083	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 1607 1610 E3E102E0 E3E2376F 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A3 A0 A1 A8 A6 A6 AA A1 A5 A0 A2 A3 A0 9F 9F A0 A4 A3 9D A6 A7 9F A3 A9 A4 A5 A...
9079	↑	4089	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 1608 1611 E3E19E76 E3E2D409 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A0 A9 A9 A2 A2 A8 A1 9F AB 9B A6 99 A8 9D 96 A3 A3 A2 A2 A3 9E A1 9C A7 A5 A4 A...
9080	↑	4094	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 1609 1612 E3E23A9D E3E3708E 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 9F 9D A3 A9 9F 9D A6 A6 AB 9E A0 A5 A2 A0 A3 A5 9F A3 A3 A3 A2 A0 9F A6 A...
9081	↑	4088	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 160A 1613 E3E2D792 E3E40B6C 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 A0 A6 A2 A5 A8 A3 A4 A1 A1 A4 A7 A1 A1 A2 9D A2 A3 9F 9F A9 A9 A7 A1 A2 A1 A4 ...
9082	↓	19	<STX>sEN LMDscandata 0<ETX>
9083	↑	4097	<STX>sEN LMDscandata 0 1 E9ECF9 0 0 160B 1614 E3E37378 E3E4A81C 0 0 1F 0 0 9C4 21C 0 1 DIST1 3F800000 00000000 FFFF3CB0 683 475 9F A2 9E A4 9D A3 A2 A1 9F A6 9E AA A3 A5 A5 A5 A1 A4 9C A7 A2 9E A3 A3 A0 A2 A...
9084	↑	19	<STX>sEA LMDscandata 0<ETX>

0000 .sEA LMDscandata 0.

→ This is the scanner response to the stop command. The screen stops scrolling.

Workflows

Parameterize the scan

1. Log in: sMN SetAccessMode sMN SetAccessMode 03 F4724744

2. Enter the command

Optional

Store Parameters: sMN mEEwriteall

3. Log out: sMN Run

LMS / TiM : Limit the scan angle

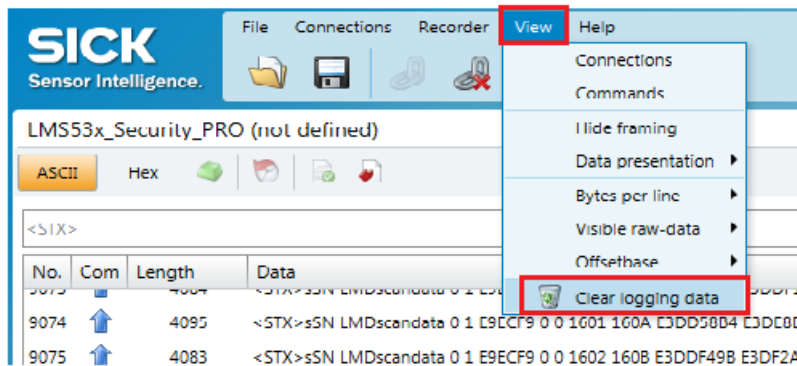
Note: Excerpt from the Telegram Listing.

Telegram structure: sWN LMPoutputRange

Telegram	Description	Variable	Length	Values ASCII	Values Binary
Command Type	Sopas by name	String	3	sWN	73 57 4E
Command	Change output angle range	String	14	LMPoutputRange	4C 4D 50 6F 75 74 70 75 74 52 61 6E 67 65
Status Code	Length	Int_16	2	1	00 01
Angle Resolution *	[1/10000°]	Uint_32	4	LMS1xx: 0,25°: 9C4h (2500d) 0,5°: 1388h (5000d) LMS5xx: 0,1667°: 683h (1667d) 0,25°: 9C4h (2500d) 0,333°: D05h (3333d) 0,5°: 1388h (5000d) 0,667°: 1A0Bh (6670d) 1°: 2710h (10000d)	0,25°: 00 00 09 C4 0,5°: 00 00 13 88
StartAngle	[1/10000°]	Int_32	4	LMS1xx: FFF92230h..225510h (-450000d..+2250000d) LMS5xx: FFFF3CB0h..1C3A90h (-50000d..+1850000d)	FF F9 22 30 ... 00 22 55 10
Stop Angle	[1/10000°]	Int_32	4	LMS1xx: FFF92230h..225510h (-450000d..+2250000d) LMS5xx: FFFF3CB0h..1C3A90h (-50000d..+1850000d)	FF F9 22 30 ... 00 22 55 10

Note: Red block cannot be Changed by this command.
For example the scanner is operating at 0.5 degree angular resolution.

LMS / TiM : Limit the scan angle







Example: Set the scan data reporting angle from 80 to 100 degrees.

sMN SetAccessMode 03 F4724744

sWN LMPoutputRange 1 1388 +800000 +1000000

sMN Run

ASCII Hex    			
<STX>			
No.	Com	Length	Data
9087	↓	31	<STX>sMN SetAccessMode 03 F4724744<ETX>
9088	↑	30	<STX>sSI 2 1<ETX> <STX>sAN SetAccessMode 1<ETX>
9089	↓	44	<STX>sWN LMPoutputRange 1 1388 +800000 +1000000<ETX>
9090	↑	20	<STX>sWA LMPoutputRange<ETX>
9091	↓	9	<STX>sMN Run<ETX>
9092	↑	11	<STX>sAN Run 1<ETX>

LMS / TiM : Limit the scan angle

Example: Request a “Polling one Telegram” to determine if the scanner message has been reduced to only reporting from 80 to 100 degrees.

9093	↓	17	<STX>sRN LMDscandata<ETX>
9094	↑	550	<STX>sRA LMDscandata 0 1 E9ECF9


```
0000 .sRA LMDscandata 0 1 E9ECF9 0 0
0032 836F 8AA6 2B0A6CBD 2B0BA0EB 0 0
0064 1F 0 0 9C4 21C 0 1 DIST1 3F80000
0096 0 00000000 C3500 683 79 D77 D80
0128 D7B D91 0 0 0 0 0 0 A51 A47 0 0
0160 0 0 0 0 0 0 0 0 3C4 3C1 0 0 0 0
0192 0 0 0 0 0 0 0 A7D A8D A66 A78 0
0224 A86 A7D A76 A74 A7C A82 A8B A96
0256 A94 A82 A94 0 0 A88 A8B AA7 AA2
0288 A9A AA5 AA5 AA6 A9A AA6 AB1 AA6
0320 AA6 AAD ABE AAD AA6 ABC ABD AB4
0352 AB6 AA9 AB3 AC7 ABC AB7 AB3 AAB
0384 AB3 AC3 AC4 AC3 AB8 AB5 AD1 ABF
0416 AB7 AD7 AC0 AC1 AC7 AC4 AD1 AC8
0448 ACA AB5 AC1 AD3 AB9 AB1 AAB AAB
0480 AA6 AB2 AB3 AB4 AB2 AB0 A93 AB3
0512 AA6 A90 A9F A98 A8F 0 0 0 0 0 0
0544 0 0 0.
```

LMS / TiM : Limit the scan angle

Per reference below, the “Start angle” is the third block after the ASCII “**DIST1**.” It is per above - the HEX value of C3500. The D Word HEX entry when using the Windows calculator, converts to decimal is 800000. This is **80 degrees**!

DIST1 3F800000 00000000 DBBA0 683 1F 0 0 0 0 890B 8927 8945 8922 892F 8936 8975
0 0 0 0 0 8A4A 8A54 8A7D 0 0 8456 848E 84AF 8506 8560 85E9 8697 86DE 7E16 7DF5

DIST1	=	now coming the radial distance values of the first pulse
3F800000	=	Scale Factor (3F800000 = factor 1; 40000000 = factor 2)
00000000	=	Scale Factor Offset
DBBA0	=	Start angle (DBBA0h = 900.000d = 90°)
683	=	Angular resolution (683h = 1.667d = 0.1667°)
1F	=	Amount of Data (1Fh = 31d = 31 measurement values are following)
<u>0 0 0 0 890B 892..... = measurement values in HEX (example: 890Bh = 35.083 = 35083mm = 35,083m)</u>		

LMS / TiM : Limit the scan angle

Example: Set the scan data reporting angle back to -5 to 185 degrees.

Enter and choose "Send." one at a time, the three listed telegram commands into the Send telegram box below..

sMN SetAccessMode 03 F4724744

sWN LMPoutputRange 1 1388 -50000 +1850000

sMN Run

<div> <div>ASCII</div> <div>Hex</div> <div></div> <div></div> <div></div> <div></div> </div>			
<STX>			
No.	Com	Length	Data
9095		31	<STX>sMN SetAccessMode 03 F4724744<ETX>
9096		9	<STX>sSI 2 1<ETX>
9097		21	<STX>sAN SetAccessMode 1<ETX>
9098		43	<STX>sWN LMPoutputRange 1 1388 -50000 +1850000<ETX>
9099		20	<STX>sWA LMPoutputRange<ETX>
9100		9	<STX>sMN Run<ETX>
9101		11	<STX>sAN Run 1<ETX>

LMS / TiM : Limit the scan angle

Example: Request a "Polling one Telegram" to determine if the scanner message has been expanded to reporting the full scan angles from -5 to 185 degrees.

<STX>

No.	Com	Length	Data
9102	↓	17	<STX>sRN LMDscandata<ETX>
9103	↑	4087	<STX>sRA LMDscandata 0 1 E9ECF9 0 0 C

```
0000 .sRA LMDscandata 0 1 E9ECF9 0 0
0032 C70A D402 57D15DFA 57D293B5 0 0
0064 1F 0 0 9C4 21C 0 1 DIST1 3F80000
0096 0 00000000 FFFF3CB0 683 475 A0 9
0128 F A2 9F 9E A8 A0 A1 A3 AA 9E A7
0160 A8 AA A3 9F AA A4 9E AA A3 AA AB
0192 AC AA A8 A5 A4 A1 A5 A5 AD A3 A
0224 6 A6 A2 A7 9F A3 A5 A6 B0 A3 A3
0256 A8 AB AA A4 AC A8 A3 AA A1 AB A0
0288 A8 A4 A7 AD A9 AB A8 AD AD AD A
0320 A A6 AB A8 A8 B0 AF 9C2 9BD 9A8
0352 9A7 9A8 9AB 9AA 9B3 9A2 9AB 99F
0384 9A8 9A4 9A2 9A6 9A4 9AB 9AB 9B2
0416 9B3 9B3 9AB 9B4 9B5 9B9 9BF 9BC
0448 9C0 9C2 9C4 9C7 9D4 9CB 9D3 9CD
0480 1462 1477 147A A0B A05 A0E A12 A
0512 0A A08 A0E 14A1 14B9 14BA 14C5 1
0544 4C6 14C0 0 14D6 14F7 14D8 0 0 14
```

Note: Line number 4064, due to 190 degrees worth of data.

ASCII Hex			
<STX>			
No.	Com	Length	Data
9102	↓	17	<STX>sRN LMDscandata<ETX>
9103	↑	4087	<STX>sRA LMDscandata 0 1 E9ECF9
4064			BC 2C5 2CB 2C4 2C6 2C8 2D9 2CD 2
2656			D2 2D3 2CB 2C2 2C6 2C8 2D9 2CD 2
2688			D8 2D7 2E3 2EB 300 32E 33A 339 3
2720			3C 33E 336 33D 336 337 336 32F 3
2752			31 338 32C 32F 32A 32D 328 324 3
2784			20 31F 31C 31D 313 314 313 30F 3
2816			0E 316 30C 307 30B 30F 302 305 3
2848			04 302 301 2FA 2FD 2FC 2F8 2F8 2
2880			FB 2F1 2FB 2F2 2F2 2F4 2EE 2EE 2
2912			EF 2EE 2EB 2EE 2EA 2F6 2F4 2FA 2
2944			FF 304 302 306 30C 30A 315 317 3
2976			1C 321 327 326 32A 32F 331 338 3
3008			36 339 33D 344 34C 348 359 355 3
3040			5D 360 35F 367 373 371 37A 37C 3
3072			80 382 381 389 393 394 39D 39D 3
3104			A3 3A1 39B 37A 34E 325 306 2DE 2
3136			C5 2C4 2BF 2BA 2B4 2B4 2B5 2B3 2
3168			B8 2AE 2AD 2AE 2AE 2AA 2A1 2AA 2
3200			A5 2A4 29B 29E 29C 2A0 29A 29B 2
3232			99 296 28F 283 28A 291 285 284 2
3264			83 281 281 284 280 280 288 27B 2
3296			81 27B 27B 27B 27B 277 279 26F 2
3328			73 271 278 274 277 27A 274 276 2
3360			74 270 26E 26A 269 26F 26C 269 2
3392			6A 263 269 261 260 25F 25D 262 2
3424			5B 262 25B 261 25E 25E 25B 256 2
3456			58 257 258 259 257 25F 257 25C 2
3488			52 259 253 252 256 251 257 259 2
3520			5C 254 255 256 253 257 256 258 2
3552			51 253 24D 252 252 24B 25A 250 2
3584			4D 24D 24C 251 246 24F 24C 24B 2
3616			4E 24D 24A 24B 24E 24D 250 253 2
3648			57 248 24F 245 249 247 253 251 2
3680			4C 25B 258 252 258 25E 265 262 2
3712			60 26D 26E 27F 288 28F 291 28E 2
3744			8B 286 28A 288 28C 2A8 2CE 307 3
3776			51 384 3A1 3B6 3C9 3CA 3CF 3D8 3
3808			CD 3CD 3D0 3CF 3CD 3CA 3D0 3CF 3
3840			CA 3D1 3CD 3CB 3CB 3CA 3CC 3CE 3
3872			CD 3CB 3CD 3CE 3D0 3CE 3CF 3C9 3
3904			CB 3CC 3CD 3C9 3CE 3C6 3CF 3CD 3
3936			CA 3CF 3CB 3C9 3CC 3D0 3CE 3CC 3
3968			D2 3CB 3D3 3C9 3CB 3D0 3CC 3C9 3
4000			CA 3D2 3D0 3D0 3D1 3D1 3D3 3D0 3
4032			D3 3D2 3D6 3D2 3CB 3D0 3D2 3D4 3
4064			CD 3D0 3D4 0 0 0 0 0 0

LMS / TiM : Limit the scan angle

Per reference above, the “Start angle” is the third block after the ASCII “**DIST1**.” It is per above - the HEX value of FFFF3CB0. The D Word HEX entry when using the Windows calculator, converts to decimal is -50000. This is **minus 5 degrees!**

DIST1 3F800000 00000000 DBBA0 683 1F 0 0 0 0 890B 8927 8945 8922 892F 8936 8975
0 0 0 0 0 8A4A 8A54 8A7D 0 0 8456 848E 84AF 8506 8560 85E9 8697 86DE 7E16 7DF5

DIST1 = now coming the radial distance values of the first pulse
3F800000 = Scale Factor (3F800000 = factor 1; 40000000 = factor 2)
00000000 = Scale Factor Offset
DBBA0 = Start angle (DBBA0h = 900.000d = 90°)
683 = Angular resolution (683h = 1.667d = 0,1667°)
1F = Amount of Data (1Fh = 31d = 31 measurement values are following)
0 0 0 0 890B 8927..... = measurement values in HEX (example: 890Bh = 35.083 = 35083mm = 35,083m)

LMS / TiM : Creating Command Files

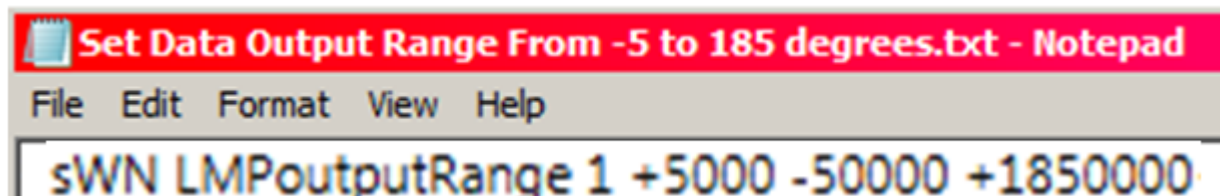
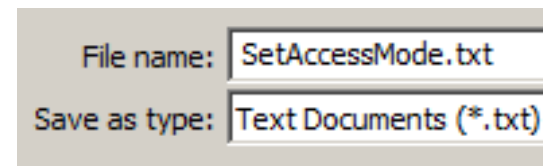
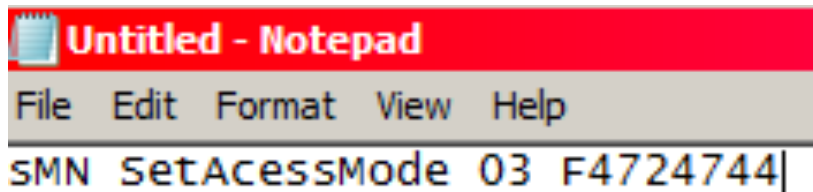
Example: Set the scan data reporting angle back to -5 to 185 degrees.

```
sMN SetAccessMode 03 F4724744
```

```
sWN LMPoutputRange 1 1388 -50000 +1850000
```

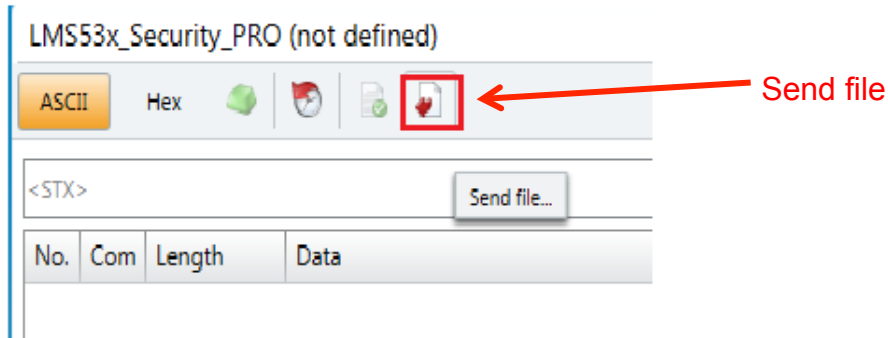
```
sMN Run
```

Open Notepad and enter the following three commands. Save it to Desktop \ Workflow

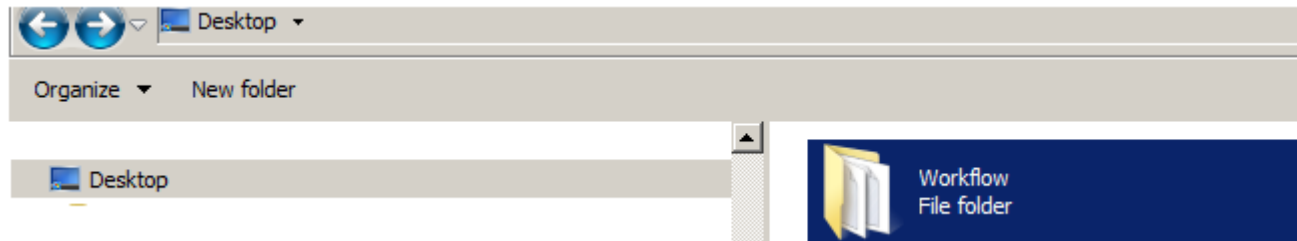


LMS / TiM : SOPAS Terminal using Notepad

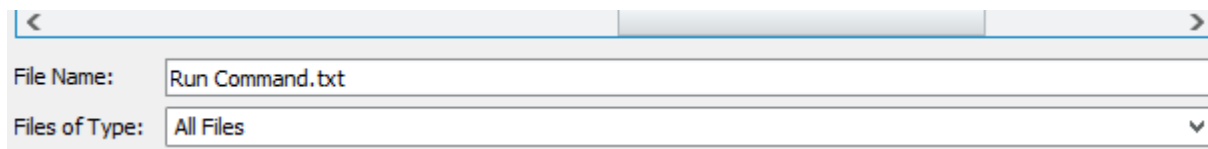
Example: Using stored Notepad commands to issue SOPAS Terminal Commands.



Choose Desktop \ Workflow as the notepad commands folder.



Then choose the "Run Command," to lock-in the Desktop \ Workflow as the go-to files for SOPAS commands..







LMS / TiM : SOPAS Terminal using Notepad

Example: Using stored Notepad commands to issue SOPAS Terminal Commands.
After choosing "Send file" for each stored command, results appear per below.

sMN SetAccessMode 03 F4724744

sWN LMPoutputRange 1 +5000 -50000 +1850000

sMN Run

ASCII Hex    			
<STX>			
No.	Com	Length	Data
9104	↓	31	<STX>sMN SetAccessMode 03 F4724744<ETX>
9105	↑	9	<STX>sSI 2 1<ETX>
9106	↑	21	<STX>sAN SetAccessMode 1<ETX>
9107	↓	44	<STX>sWN LMPoutputRange 1 +5000 -50000 +1850000<ETX>
9108	↑	20	<STX>sWA LMPoutputRange<ETX>
9109	↓	9	<STX>sMN Run<ETX>
9110	↑	11	<STX>sAN Run 1<ETX>



: Thank you for your attention.