

Leica TPS1200 GeoCOM Getting Started Manual



TPS1200 GSI to GeoCOM Conversion Table

This document is meant as an introduction for users who used the GSI-online protocol in the past, which is not supported by TPS1200 instruments anymore. For details about GeoCOM and detailed descriptions of GeoCOM commands please refer to the latest version of the TPS1200 GeoCOM manual.

GeoCOM offers a high level of flexibility in designing software to communicate with the instrument, thus allowing any number of customized applications (off-board) and hardware configurations.

GeoCOM supports three kinds of usage: an ASCII protocol and two high level functions: C++ and VBA. The following explanations only concern the ASCII protocol.

Basics

A GeoCOM command always starts with "%R1Q," followed by the identification number of the command (example: 17017 for "measure distance & angle"). After a colon the parameters follow (for the command 17017 - the "distance mode" – e.g.: 2 for default measurement program). Note that most parameters are defined in the beginning of the according chapter in the GeoCOM manual. At the end CR/LF has to be sent as a terminator string. For every command an ASCII reply is sent by the instrument starting with "R1P," followed by Return Codes and Parameters that depend on the ASCII request sent.

Communication Parameters

In order to make the communication work correctly the communication parameters of the computer (or data logger) and the instrument must be aligned and the GeoCOM mode on the instrument must be enabled.

On the TPS1200 activate GeoCOM mode by enabling the "GeoCOM mode" port in the CONFIGURE-Interfaces panel. In order to view or change the communication settings you must edit the device.

Default Settings (device: "RS232 GeoCOM") are:

- BaudRate: 19200
- Parity: None
- Data Bits: 8
- Stop Bit: 1

Units

In general units for distances are in Meter and angular values are always in Radians. Unit settings configured at the instrument do not have any influence on the GeoCOM protocol. The units of all parameters used by a certain command are specified in the description of the commands in the GeoCOM manual

Protected Commands

Certain GeoCOM commands are protected by a license key. If no license key for the "GeoCOM Robotics Option" is loaded onto the instruments all GeoCOM commands starting with "AUT_" cannot be used.

GSI-online → GeoCOM conversion tables

The following tables list GSI online commands supported by the TPS1000/1100 and the according GeoCOM commands that can be used as a replacement for TPS1200.

SET

<SPEC>	<Parameter>	FUNCTION	GeoCOM command	ASCII Request		
95	0	AutoOFF off	SUP_SetConfig	%R1Q,14002:1,0,600000		
	1	AutoOFF on		%R1Q,14002:1,2,600000		
161	0	EDM Mode IR Std	TMC_SetEdmMode	%R1Q,17019:0		
	1	EDM Mode IR Fast		%R1Q,17019:1		
	2	EDM Mode IR Average		%R1Q,17019:7		
	4	EDM Mode IR Trk		%R1Q,17019:4		
	5	EDM Mode IR Trk		%R1Q,17019:5		
	6	EDM Mode LO Std		%R1Q,17019:2		
	7	EDM Mode RL Std		%R1Q,17019:3		
	9	EDM Mode RL Trk		%R1Q,17019:6		
	11	EDM Mode LO Avg		%R1Q,17019:8		
	12	EDM Mode RL Avg		%R1Q,17019:9		
	173	0		Compensator off	TMC_SetInclineSwitch	%R1Q,2006:0
		1		Compensator on		%R1Q,2006:1

CONF

<SPEC>	FUNCTION	RESPONSE	CONFIGURATION	GeoCOM command	ASCII Request	ASCII Response				
161	EDM Mode	0	IR Std	TMC_GetEdmMode	%R1Q,17018:	%R1P,0,0:0,0				
		1	IR Fast			%R1P,0,0:0,1				
		2	IR Avg			%R1P,0,0:0,7				
		4	IR Trk			%R1P,0,0:0,4				
		5	IR Trk			%R1P,0,0:0,4				
		6	LO Std			%R1P,0,0:0,2				
		7	RL Std			%R1P,0,0:0,3				
		9	RL Trk			%R1P,0,0:0,6				
		11	LO Avg			%R1P,0,0:0,8				
		12	RL Avg			%R1P,0,0:0,9				
		170	Current face			0	Face I	TMC_GetFace	%R1Q,2026:	%R1P,0,0:0,0
						1	Facell			%R1P,0,0:0,1
173	Compensator	0	Off	TMC_GetInclineSwitch	%R1Q,2007:	%R1P,0,0:0,0				
		1	On			%R1P,0,0:0,1				
182	Software Version		Version	CSV_GetSWVersion2	%R1Q,5034:	%R1P,0,0:0,v,v,				

PUT

<SPEC>	FUNCTION	GeoCOM command	ASCII Request
21	Hz Angle	TMC_SetOrientation	%R1Q,2113 :HzOrientation
58	Prism Constant	TMC_SetPrismCorr	%R1Q,2024:PrismCorr
84	Station Easting	TMC_SetStation	%R1Q,2010:E0,N0,H0,Hi
85	Station Northing	TMC_SetStation	%R1Q,2010:E0,N0,H0,Hi
86	Station Elevation	TMC_SetStation	%R1Q,2010:E0,N0,H0,Hi
87	Reflector Height	TMC_SetHeight	%R1Q,2012:Height
88	Instrument Height	TMC_SetStation	%R1Q,2010:E0,N0,H0,Hi

GET

<SPEC>	FUNCTION	GeoCOM command	ASCII Request	ASCII Response
12	Serial Number	CSV_GetInstrumentNo	%R1Q,5003:	%R1P,0,0:0, SerialNo
13	Instrument Type	CSV_GetInstrumentName	%R1Q,5004:	%R1P,0,0:0,Name
19	Time	CSV_GetDateTIme	%R1Q,5008:	%R1P,0,0:0, Year],Month,Day,Hour,Minute,Second
I/21 M/22	Horizontal Angle	TMC_GetSimpleMea BAP_MeasDistAngle	%R1Q,2107: %R1Q,17017:2	%R1P,0,0:0,Hz,V,SlopeDistance %R1P,0,0:0, dHz, dV, dDist,DistMode
I/22 M/22	Vertical Angle	TMC_GetSimpleMea BAP_MeasDistAngle	%R1Q,2107: %R1Q,17017:2	%R1P,0,0:0,Hz,V,SlopeDistance %R1P,0,0:0, dHz, dV, dDist,DistMode
I/31 M/31	Slope Distance	TMC_GetSimple Mea BAP_MeasDistAngle	%R1Q,2107: %R1Q,17017:2	%R1P,0,0:0,Hz,V,SlopeDistance %R1P,0,0:0, dHz, dV, dDist,DistMode
51	PPM / mm	TMC_GetSlopeDistCorr	%R1Q,2126:	%R1P,0,0:0,total_Ppm,PrismCorr
58	Prism constant	TMC_GetPrismCorr	%R1Q,2023:	%R1P,0,0:0,PrismCorr
59	PPM	TMC_GetSlopeDistCorr	%R1Q,2126:	%R1P,0,0:0,total_Ppm,PrismCorr
I/81	Target Easting	TMC_DoMeasure TMC_GetSimpleCoordinate	%R1Q,2008:1 %R1Q,2116:	%R1P,0,0:0 %R1P,0,0:0,E,N,H
I/82	Target Northing	TMC_DoMeasure TMC_GetSimpleCoordinate	%R1Q,2008:1 %R1Q,2116:	%R1P,0,0:0 %R1P,0,0:0,E,N,H
I/83	Target Elevation	TMC_DoMeasure TMC_GetSimpleCoordinate	%R1Q,2008:1 %R1Q,2116:	%R1P,0,0:0 %R1P,0,0:0,E,N,H
84	Station Easting	TMC_GetStation	%R1Q,2009:	%R1P,0,0:0,E0,N0,H0,Hi
85	Station Northing	TMC_GetStation	%R1Q,2009:	%R1P,0,0:0,E0,N0,H0,Hi
86	Station Height	TMC_GetStation	%R1Q,2009:	%R1P,0,0:0,E0,N0,H0,Hi
87	Reflector Height	TMC_GetHeight	%R1Q,2011:	%R1P,0,0:0,Height
88	Instrument Height	TMC_GetStation	%R1Q,2009:	%R1P,0,0:0,E0,N0,H0,Hi

Telescope Positioning

Command	FUNCTION	GeoCOM command	ASCII Request
CFACE	Change Face	AUT_ChangeFace	%R1Q,9028:
Posit/A/Hz/V	Absolute Telescope Positioning	AUT_MakePositioning	%R1Q,9027:Hz,V
Posit/R/dHz/dV	Relative Telescope Positioning	MOT_Posit	%R1Q,6007:dHz,dV
Posit/S/Hz_Area/V_Area	Prism Search	AUT_Search	%R1Q,9029:Hz_Area,V_Area,0

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