

# TPS400/700auto and TPS800 dxf- Data Output



➞ **direct.dxf**

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## 1.0 General Information

AutoCAD® is one of the most used CAD software for the Engineering and the Surveying market. To satisfy our customers and increase their efficiency, a data output format is needed which enables a direct transfer from the Total Station to AutoCAD.

In order to fulfill this requirement a special format file has been created. This converts the fixpoint & measurement data in the Surveying application into a dxf-file. After downloading the file it can be easily opened by double-clicking or importing it in AutoCAD.

## 2.0 Standard Format

The following format is uploaded by default from the factory to the Total Station.

The format appears on the Total Station and at LGO/LGO-Tools as "AutoCAD (dxf)"

This format creates a 3D DXF file of the converts the fixpoint & measurement data, which are placed in a layer called Point, using a cross symbol. The Point Numbers are placed in the layer Pt\_id, the Codes in the layer Code, the Height in the layer Height and the Eastings, and Northings and are placed in the layer Co\_ords. A space is placed in front of the Eastings and between the Eastings and Northings.

## 3.0 Additional Formats

Additional to the above mentioned Standard format, several more dxf formats, with different contents are provided on the web and the Instruments CD.

### o Overview of dxf Formats

| Layer              |            |    | Poin<br>t | Height | Pt_no       | Code                | Co-<br>ords                 | Pt_id       |
|--------------------|------------|----|-----------|--------|-------------|---------------------|-----------------------------|-------------|
| Format-<br>Name    | 3D /<br>2D |    |           |        |             |                     |                             |             |
| Standard<br>Format | 3D         |    | +         | Height |             | Code                | Eastin<br>g<br>Northi<br>ng | Point<br>Id |
| dx3f3DP            | 3D         |    | +         |        |             |                     |                             |             |
| dx3f3DPC           | 3D         |    | +         |        | Point<br>Id | Code                |                             |             |
| dx3f3DP+C          | 3D         |    | +         |        |             | Point<br>Id<br>Code |                             |             |
| dx2f2DPC           |            | 2D | +         |        | Point<br>Id | Code                |                             |             |
| dx2f2DP+C          |            | 2D | +         |        |             | Point               |                             |             |

|           |    |    |   |                       |  |  |  |  |
|-----------|----|----|---|-----------------------|--|--|--|--|
|           |    |    |   |                       |  | Id<br>Code   |  |  |
| dx3f3DC+H | 3D |    | + | Height                |  |  |  |  |
| dx3f2DC+H |    | 2D | + | Height                |  |  |  |  |
| dx3f3DH   | 3D |    | . | Height                |  |  |  |  |
| dx3f3DPH  | 3D |    | . | Point<br>Id<br>Height |  |  |  |  |
| dx3f2DH   |    | 2D | . | Height                |  |  |  |  |
| dx3f2DPH  |    | 2D | . | Point<br>Id<br>Height |  |  |  |  |
| dx3fPCENH | 3D |    | + |                       |  | Point<br>Id<br>Code<br>Eastin<br>g<br>Northi<br>ng<br>Height |  |  |

o **dx3f3DP**

This option creates a 3D DXF file of the measured & fixpoints, which are placed in a layer called Point, using a cross symbol named CROSS.

o **dx3f3DPC**

This option creates a 3D DXF file of the measured & fixpoints points, which are placed in a layer called Point, using a cross symbol. The Point Numbers are placed in the layer Pt\_no and the Codes, recorded in Code field in the Codelist, are placed in the layer Code. There is not sufficient scope to move the text fields so both the Point Number and Code are placed adjacent to the cross but on different layers.

o **dx3f3DP+C**

This option creates a 3D DXF file of the measured & fixpoints, which are placed in a layer called Point, using a cross symbol. The Point Numbers and the Codes, recorded in Code field in the Codelist, are placed in the layer Code. A space is placed in front of the Point Number and another between the Point Number and the Code.

o **dx3f2DPC**

This option creates a 2D DXF file of the measured & fixpoints, which are placed in a layer called Point, using a cross symbol. The Point Numbers are placed in the layer Pt\_no and the Codes, recorded in Code field in the Codelist, are placed in the layer Code. There is not sufficient scope to move the text fields so both the Point Number and Code are placed adjacent to the cross but on different layers.

o **dxs2DP+C**

This option creates a 2D DXF file of the measured & fixpoints, which are placed in a layer called Point, using a cross symbol. The Point Numbers and the Codes, recorded in Code field in the Codelist, are placed in the layer Code. A space is placed in front of the Point Number and another between the Point Number and the Code.

o **dxs3DC+H**

This option creates a 3D DXF file of the measured & fixpoints, which are placed in a layer called Point, using a cross symbol. The Height is placed in the layer Height.

o **dxs2DC+H**

This option creates a 2D DXF file of the measured & fixpoints, which are placed in a layer called Point, using a cross symbol. The Height is placed in the layer Height.

o **dxs3DH**

This option creates a 3D DXF file of the measured & fixpoints, which are placed in a layer called Point, with 3D co-ordinates as a dot. The Height is placed in the layer Height.

o **dxs3DPH**

This option creates a 3D DXF file of the measured & fixpoints, which are placed in a layer called Point, with 3D co-ordinates as a dot. The Point Number and Height are placed in the layer Height. A space is placed in front of the Point Number and another between the Point Number and the Height.

o **dxs2DH**

This option creates a 2D DXF file of the measured & fixpoints, which are placed in a layer called Point, with 2D co-ordinates as a dot. The Height is placed in the layer Height.

o **dxs2DPH**

This option creates a 2D DXF file of the measured & fixpoints, which are placed in a layer called Point, with 2D co-ordinates as a dot. The Point Number and Height are placed in the layer Height. A space is placed in front of the Point Number and another between the Point Number and the Height.

o **dxsPCENH**

This option creates a 3D DXF file of the measured & fixpoints, which are placed in a layer called Point, using a cross symbol. The Point Numbers, Codes, Eastings, Northings and Height are placed in the layer Code. A space is placed in front of the Point Number and commas separate the remaining fields.

## **4.0 Further Information**

### **4.1 Visibility of data in CAD Package**

Due to the scaling it is likely that you will not immediately see all your data when it is imported into AutoCAD®, or your CAD package. Use VIEW, ZOOM, EXTENTS, or the equivalent in your CAD package, to see the data. If the data appears very small,

or against the edge of your screen, you may also need to use the PAN and WINDOW options to obtain the optimum view of your data.

## 4.2 Application to use for Dxf-data Output

Use the SURVEYING Programme of the *TPS400/700auto* or *TPS800* to record the data so that it can be output as Co-ordinates. The Surveying programme can be found under the Programme section of the Total Stations.

👉 **The application SURVEYING must be used to obtain the dxf-output.**

## 4.3 Usage of Codes

The Codes placed in the layer "CODE" are the contents of Code field in the Codelist.

In order to transfer the Codes, you have to make sure, that the Code recording sequence of the Total Station is set to "Before Measurements". This is the default setting of the Total Stations.

To make/check the setting you have to do the following steps:

- TPS400:
  1. Start Leica Survey Office or LGO Tools
  2. Select "Configuration Manager"
  3. Select "Download Settings from Sensor"
  4. After downloading, set in the SYSTEM SETTINGS at CODE RECORD  
The entry to "Before Measurement"
  5. Upload the file in case you changed the setting by pressing the "Send settings to Sensor" button.
- TPS700auto/800:
  1. Open the Settings dialog and select "Code Record: Before Measurement"

👉 **The Code must always be recorded before the Measurement.**

## 4.4 Availability

The format will be uploaded by default to all *TPS400/700auto/TPS800* in the Customizing Center before delivery.

Instruments in the market can be updated by uploading the format file manually via Leica GeoOffice. Therefore the file can be downloaded for free from the "Tools Section" of each Product Line on the Leica Download Site and uploaded by the "Data Exchange Manager" of Survey Office/LGO onto the Total Station.

## 4.5 Validity

### 4.5.1 Instruments

The following Instruments Series have been tested with the format:

- ☐ TPS300
- ☐ TPS400
- ☐ TPS700; TPS700 auto
- ☐ TPS800

#### **4.5.2 AutoCAD Versions**

The format has been tested with AutoCAD Version 14 and Version 2000. Since the output is basic, it may work with older versions.