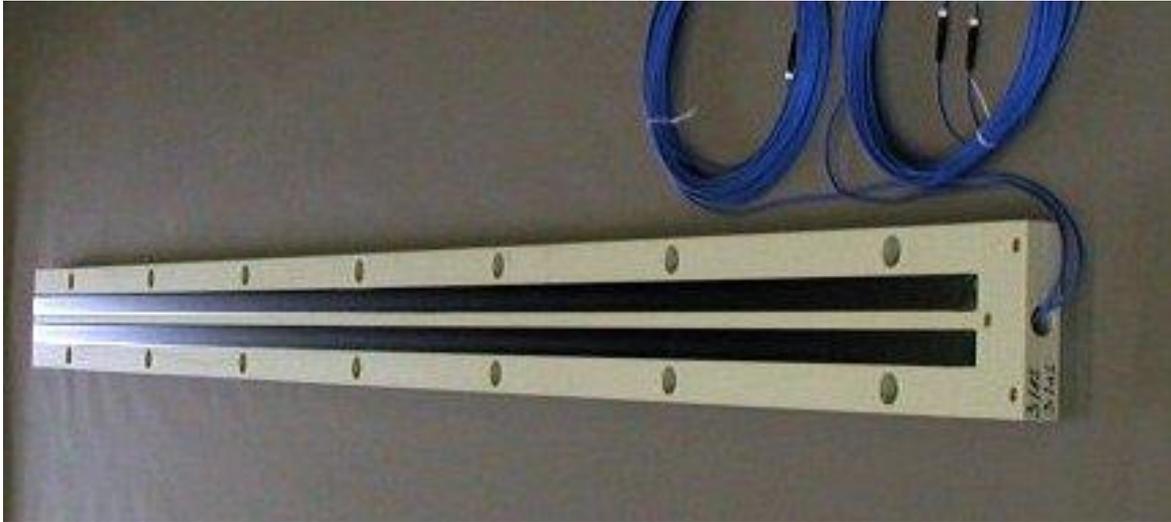


EZ-Treadle™ Installation Manual with PAGEL V2/40 Cement-based Filler Material



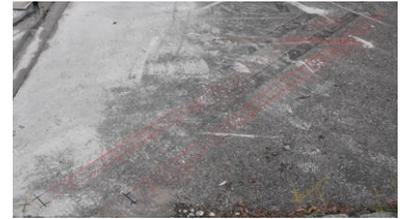
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In General: EZ Treadles™ is the trade name for Sensor Line's
polymer frame-based treadle solution.

1. Assemble all tools and materials necessary for the installation. Make sure that all safety equipment is available and that all operators are properly trained in the use of any power tools.
2. Mark the location for the EZ Treadle™. Mark a cut a minimum of 30 mm wider than the width and the length of the specifically ordered frame. At the same time mark the location for the conduit.
3. Cut the opening at least 65 mm deep over the entire area. Exact procedures for this will be determined locally, but as a general guideline, cut the outline and then cut multiple parallel cuts so that the concrete remaining at any point is not wider than 25 mm. Make the necessary cuts for the conduit. Use a jackhammer to remove the concrete to get at least 65 mm deep slots.
4. Clean out all rubble and vacuum all dust.
5. Make sure that the concrete surface (slot walls and bottom) is wet and completely water-saturated during all times until the end of the installation process! Make also sure that there are no water puddles in the slot (see User Manual Page V2/40).
6. Position the frame beside the slot. Pay attention to the feeder cables, do not bend them or make them dirty.
7. Mount your hanger bar construction on the frame so that it can be positioned in the slot opening. See page 5 "Preparing Frame with Hanger Bars".
8. Run the conduit to the final location. CAREFULLY pull the passive cables through the conduit. Once pulled in, check again if light is going through the feeder cables and sensor. Remove both end caps of the connectors and point one connector at the sun. You should see a light at the other connector's end.
9. Tighten all spaces leading outwardly to keep the filler material inside.
10. Mix the necessary amount of special mortar "Pagel



V2/40". Use accurately 3.25 liter of water for one bag cement (25 kg). Fill about 90% of the necessary amount of water in a bowl that is wide enough and add the complete bag of mortar. Mix for about 3 minutes with a heavy duty, slow speed electric drill and mixing paddle (see also instructions written on the bag). After this, add the rest of the water and mix for a further 2 minutes.

11. Fill up the bottom of the slot with fluid mortar. Fill until 40 mm below the road surface.
12. Position your hanger bar construction with the frame over the slot. The bottom of the frame must be completely embedded in the mortar. Be sure to achieve an even and nearly exact height of the frame surface for the whole slot length. The hanger bar construction has to ensure the right leveling of the frame to the road surface. The hanger bar construction has to be screwed or loaded to avoid a floating up of the frames, because the frames are much lighter than the mortar. After positioning, the surface area of the frame should be at the same level as the pavement surface.
13. Then fill up all spaces with mortar up to street surface.
14. Wait until the mortar is hard enough to finish it with a trowel. Do not scrape off all of the mortar but just as much so that there is a good bonding between road, cement and frame.
15. Disassemble the hanger bar construction only if the curing process of the filler material itself ensures to keep the frame in place. Make the final surface even by trowelling the mortar smoothly. Do not over-trowel.
16. Protect the mortar from direct solar radiation, keep it wet and wait at least 2 hours until the mortar has hardened.
17. Drill 10 mm diameter holes through the 16 mm wide frame holes. Use a hammer drill and a suited concrete drill bit. The holes should be at least 170 mm deep below the top of the frame. Properly remove all debris out of the holes with compressed



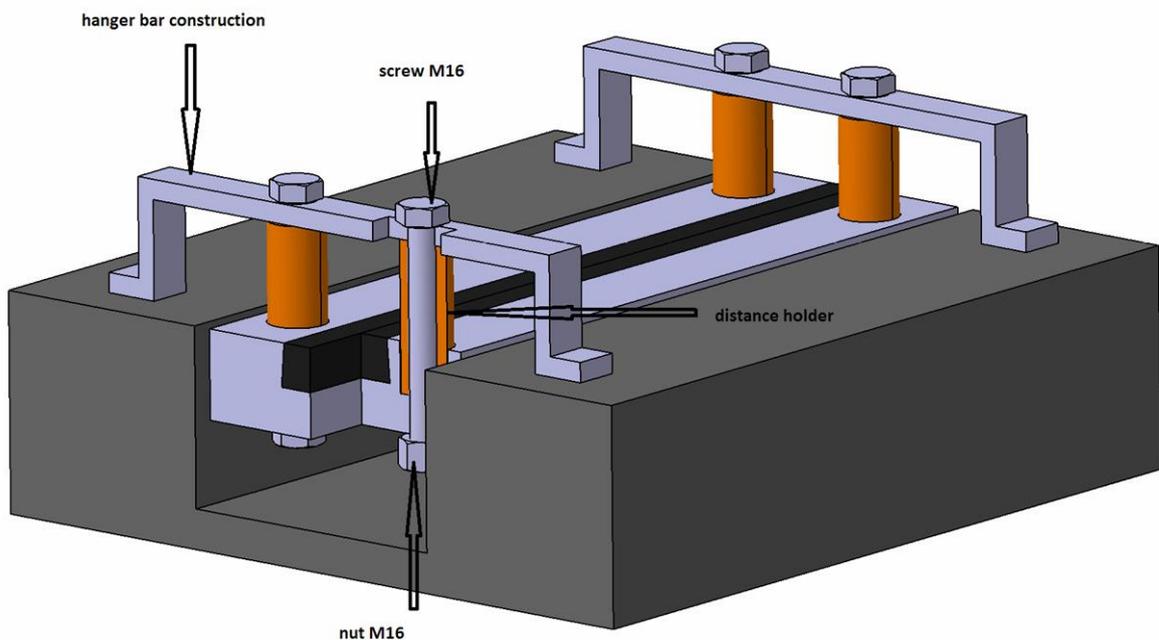
air or vacuum cleaner.

18. Put in a TSM-BS 10-100 (Road anchors for frame fixing) with a V2A Washer and a snap ring into each hole. The snap ring has to be placed between washer and bolt head, as shown in the road anchor installation overview.
19. Use an impact wrench and fix all bolts properly. Finally seal the holes with plastic caps.
20. After installation and frame fixing, we strongly recommend testing the quality of the installation with our static MD-220-RED interface. Please apply our ShowViewer or MD-View Software (download at www.sensorline.de) for diagnostic and have a detailed look at the analogous output signals in the percentage mode. If there are any strange effects on the signals, please send some log files to: info@sensorline.de
21. If there is direct solar radiation, wind or high temperature, make sure the mortar is continuously wet for at least 3 to 5 days. Otherwise, the cement will form cracks.



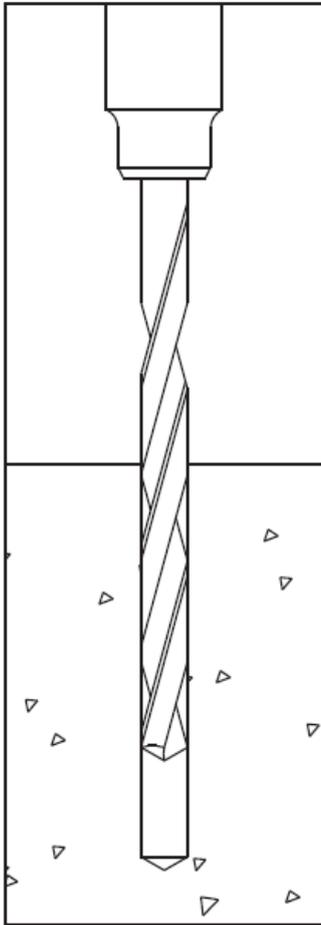
Preparing Treadle Frame with Hanger Bars

- ⇒ Sensor Line GmbH recommends preparing hanger bar constructions for frame positioning. You have to assemble the hanger bars at every “borehole line” of the frame. Please use M16 screws and nuts for fixing the frame below the hanger bars. After removing the hanger bar screws, you can directly drill and screw the road anchors through the M 16 nuts. If you apply thinner screws for the hanger bar fixing, you will need plastic nuts.

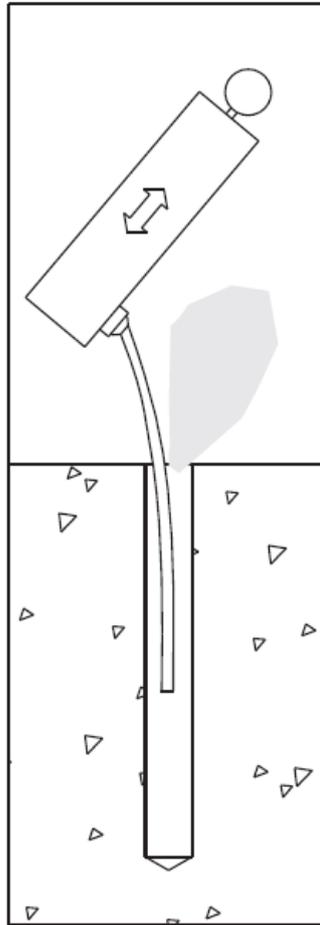


Overview:

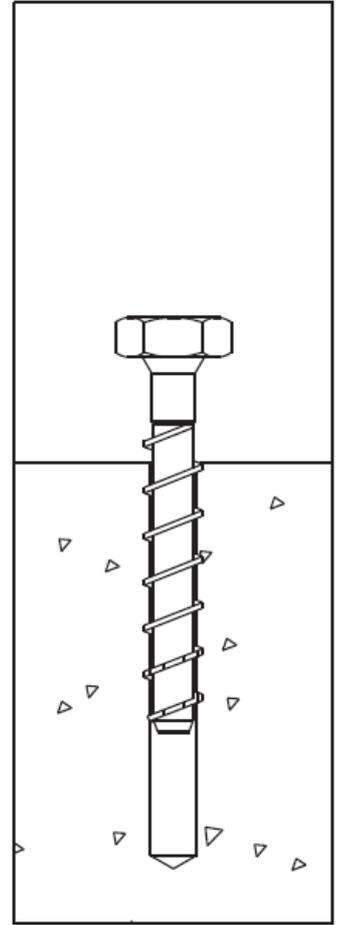
Road Anchor Installation



drill



remove debris



screw

nominal drill bit diameter: 10mm
depth of drill hole: $\geq 95\text{mm}$
embedment depth of anchor: $\geq 85\text{mm}$

Please note:

The drilling hole has to be properly cleaned before fixing the screw!

Materials & Equipment List

- Road saw with narrow blade
- Electric Jackhammer or small pneumatic jackhammer
- Hanger bar construction with distance holders and M16 screws und nuts
- Hammer drill
- Screws and dowels for fixing hanger bars at the road surface, alternative weights
- Vacuum cleaner
- Compressor
- Heavy Duty Slow speed electric drill. It must be heavy duty!
- Mixing paddle
- Impact drill with 10mm concrete drill bit
- Impact wrench with 17mm metric socket
- Necessary amount of mortar Pagel V2/40 (required quantity is 2kg/dm³)
- At least one bowl and 2 buckets (for mixing mortar, water for mortar, additional water for smoothing mortar)
- Scales or measuring container (for exact weighing V2/40 and water volume)
- Smoothing trowels
- TSM-BS 10-100(Road anchors for frame fixing)
- V2A Washer 32 (-0.15) x 16 (+0.3) x 2 mm
- Snap rings and plastic caps
- Conduit
- MD-220 with ShowViewer or MD-View Software and Laptop with Zero-Modem cable for diagnostic

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