

DUPLEX CABLE SYSTEM (DCS)

V.O.D measurements in the blasthole

Installation & operating instructions

Steps	Instructions
WARNING	⚠ Keep the optical connectors clean to allow a perfect light transmission for your measurements.
MATERIAL	<ol style="list-style-type: none">I. PINK DUPLEX CABLE (CONSUMABLE) 32[m] made of 2x plastic optic fibers.<ul style="list-style-type: none">- In the blast hole: the plastic optic fibers (yellow part of the cable)- On the ground: the 2x optical connectorsII. ORANGE MITSUBISHI DUPLEX CABLE (REUSABLE) 50[m] reinforced cable made of 2x high quality plastic optic fibers & optical connectors.<ul style="list-style-type: none">- Connect one side to the PINK DUPLEX CABLE- Connect the other side to the EXPLOMET 2 or Explomet-fo-2000III. EXPLOMET 2, 2T & 2T+™ OR EXPLOMET-FO-2000™ (serial number 296 and further)
USE & EXPLOSIVE TYPES	To illustrate the use of the Duplex Cable System (DCS), We have chosen as example a blast hole filled with a common bulk explosive like the ANFO. The DCS can also be used with all types of bulk explosive (emulsion, nitrate-fuel oils, slurries, watergels, etc.) but also cartridge explosives and dynamites.
PINK DUPLEX CABLE	<p><u>Please follow the instructions below to ensure the proper functioning of the Pink Duplex Cable</u></p> <p><u>Preparation:</u></p>
BLASTHOLE OPERATIONS	<ul style="list-style-type: none">• For an optimal result, if possible, choose the blast hole number 0 (Nominal firing time = 0) for your measurements to prevent any interferences between the blast holes.

- If you make multiple VODs in different blast holes (Maximum 3 VODs), choose the blastholes on the sides of the blasting area to avoid degradation or loss of the Pink / Orange Duplex Cables during the Explosion. Note that degradation or destruction of the cables may disrupt VOD data recording.
- Please consider that intermediate decking, airdeck and/or stemming may affect your measurement results.
- Leave 1.00[m] distance or more between the Primer and the Pink Duplex Cable to have a correct VOD measurement of the column charge.

Procedure:

- Treat the Shotfirer with respect
- **Shotfirer:** Please put the detonator(s) & booster(s), to the hole.
- Wrap a stone with the **green wire** of the pink cable.
- Put the Pink Duplex Cable down the hole until you hear or feel that the stone reached the bottom (It doesn't matter if there is water inside the blast hole, the system operates in wet holes and is immune to electromagnetic fields due to the explosion). Now pull the pink cable away of at least one meter from the booster(s). Enough to record the VOD of the explosive column and not the VOD of the booster.
- Consider the height of the booster(s) in the blasthole(s) as well as the presence of a subdrill, if any.
- Wrap the Pink Duplex Cable around a stone (as for Nonel tubes).
- **Shotfirer:** Please continue to fill in the blast hole as usual with the explosive, stemming, etc.

**ORANGE
MITSUBISHI
DUPLEX CABLE**

- Just before the blast, remove the Pink Cable from its stone and connect it with the Orange Cable.
- Find the best way to unroll the Orange Cable away from the blasting area.
- If possible, unroll the Orange Cable **not perpendicular** to the bench, it may cause too much tension on the cables.
- Never tense completely the cables. Always leave some slack.

EXPLOMET 2™

OR

EXPLOMET FO-2000™

- Move the carrying case with the Explomet away from the blasting site and put it in a safe place.
- Connect the Orange Cable to the Explomet
- Select the “1: Velocity & Time” mode and press “Enter”.
- Enter the number of probes: **2, 4 or 6 depending on whether you make respectively: 1, 2 or 3 VOD measurements.**
- For each length type: **1500 and “Enter”** (1500 = precise length in [mm] between the probes).
- Now the Explomet is ready to receive the data.
- Fire!

RESULTS

- After the blast, make sure that the blast area is safe before checking your data.
- Now your VOD measurements are completed.

⚠ IMPORTANT: If you have done 2 or 3 VOD measurements, measures t2 and t4 should not be considered. These represent a false speed between the delays of the detonators.

TECHNICAL SUPPORT

- Mobile: **+41 76 592 46 15**
- Email: guillaume@kontinitro.com

Kontinitro SA | 15a route de Loëx, 1213 Onex, Geneva, **Switzerland**

General diagram for one VOD measurement in the blasthole

This diagram refers to the Duplex Cable System V.O.D measurements in the blasthole installation & operating instructions.

This diagram applies for one V.O.D measurement in a blasthole.

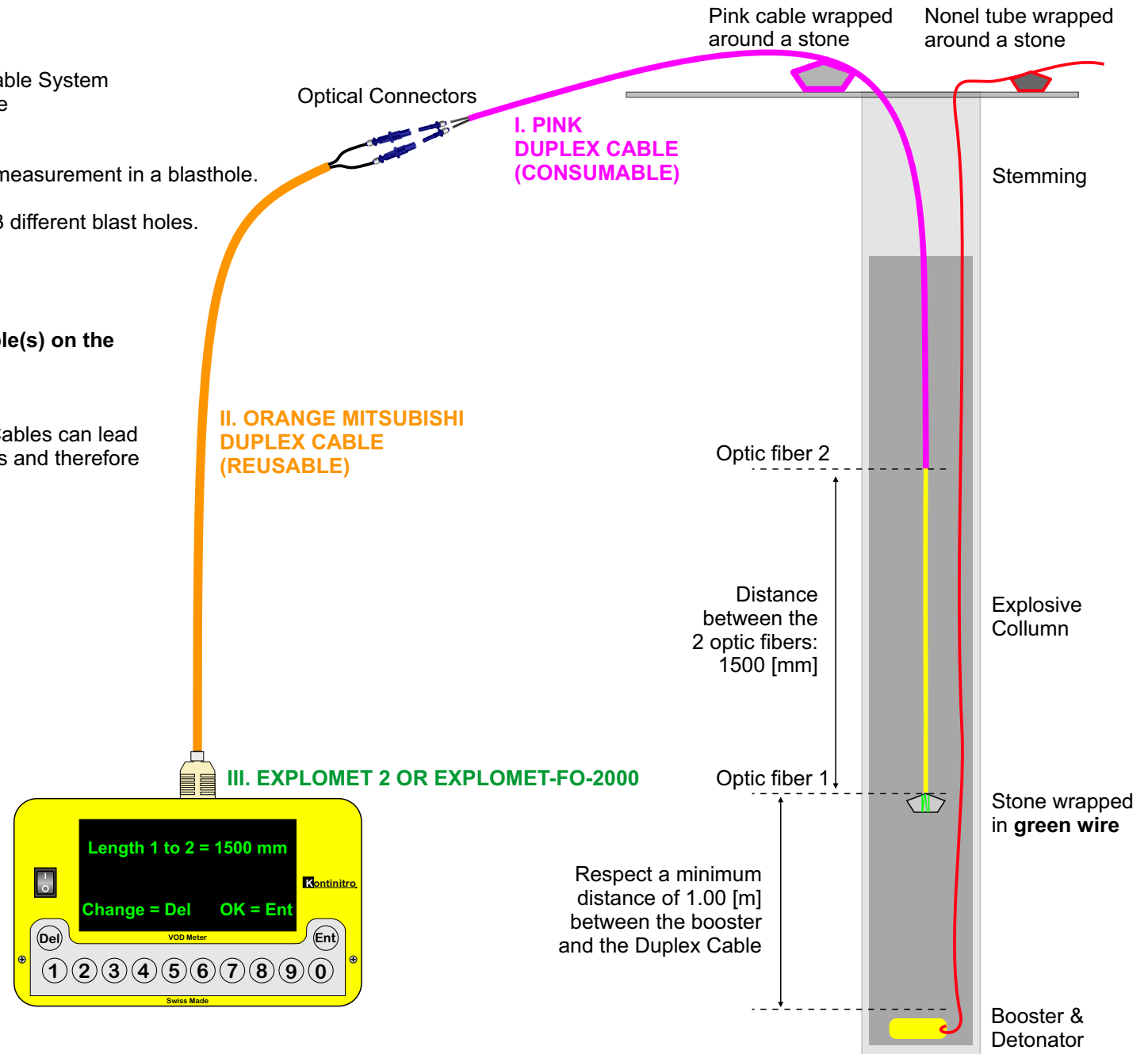
It can also extend to 3 measures in 3 different blast holes. See page No5.

To do this, you must consider:

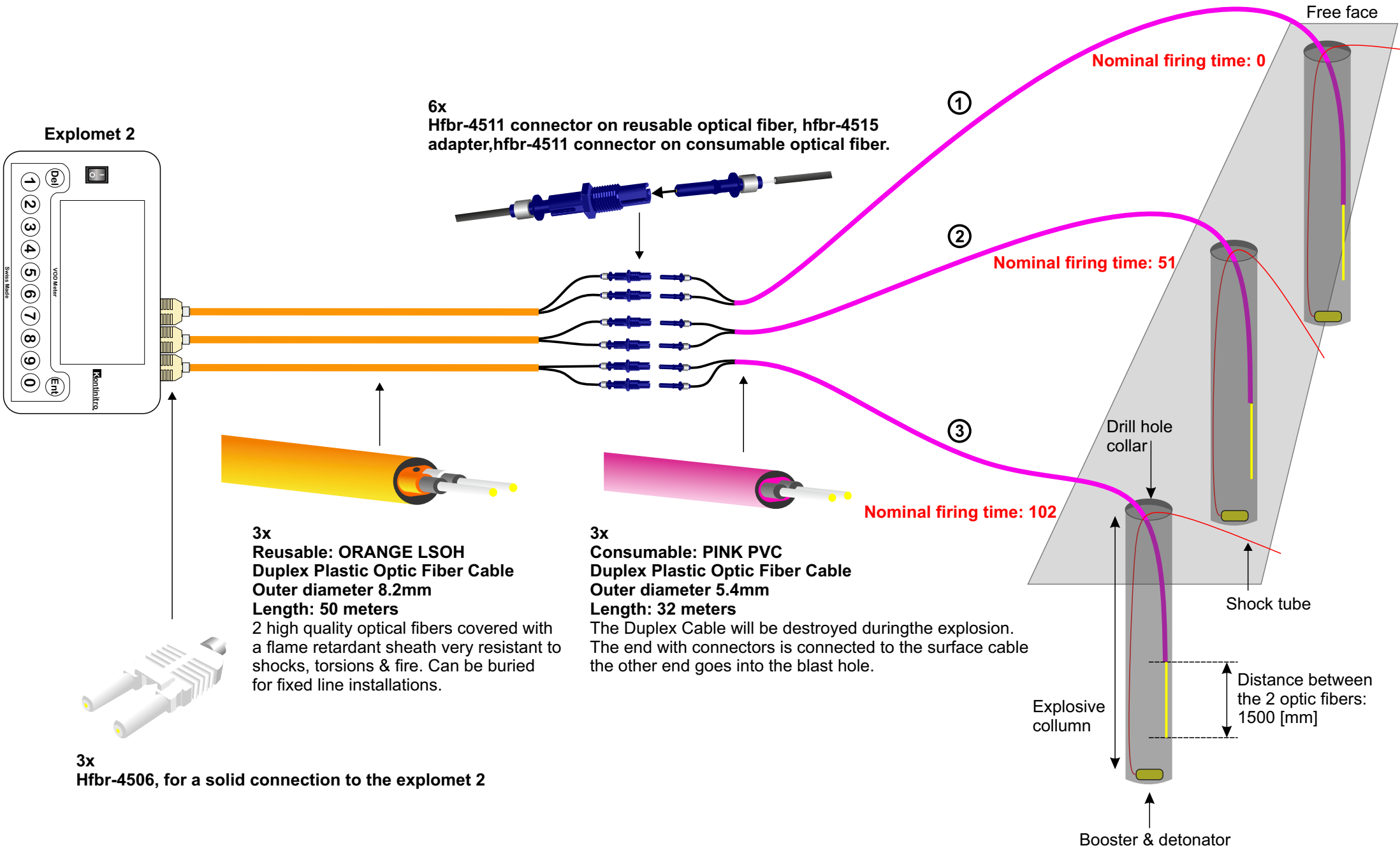
The positioning of the Duplex Cable(s) on the blasting zone.

See page No6.

Improper positioning of the Duplex Cables can lead to their degradation or even their loss and therefore no VOD measurements.

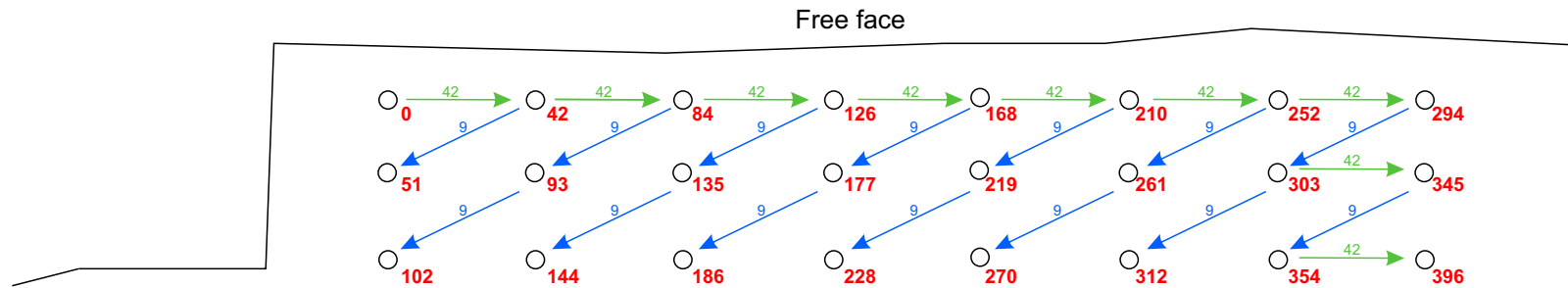


Assembly diagram for 3 VOD measurements in 3 different blastholes

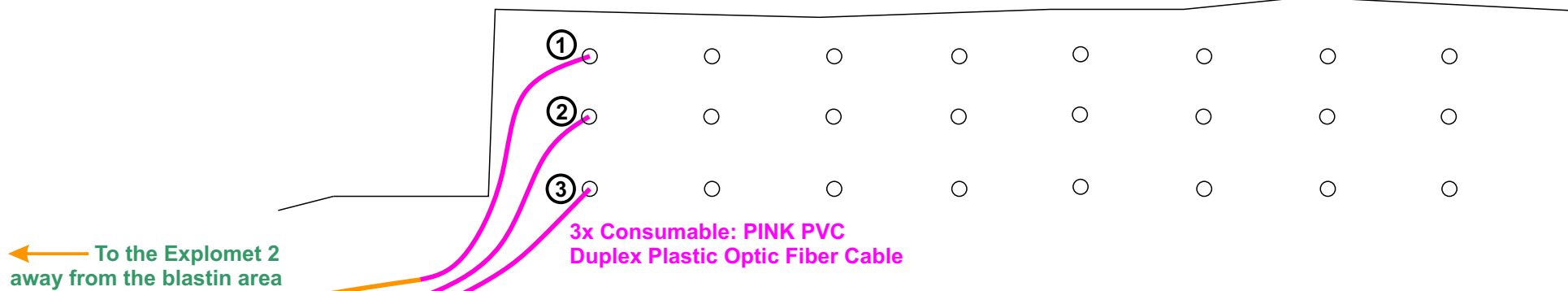


Positioning diagram for 3 VOD measurements in 3 different blastholes

Basic delay configuration & nominal firing times



Duplex Cable System **correct** positioning



Duplex Cable System **wrong** positioning

