Technical Data Sheet

The Power of Partnership

i-kon™ VS Electronic Blasting System

Description

The *i-kon™ VS* System consists of programmable digital Detonators and control equipment.

The *i-kon™ Logger VS* is used during hook-up to assign the delay sequence and perform testing functions. The *i-kon™ Logger VS* reads and stores the unique Detonator Identification Number (Det ID) and the required delay time. The *i-kon™ Blaster 400* is used to conduct final system tests, blast programming and firing.

i-kon™ Detonators VS are programmable in 4 or 5 ms increments and have on board digital timing circuits and energy storage enabling them to function independently once the fire signal has been sent. A connecting copper harness wire is used to hook-up the detonators. The harness wire is connected to an *i-kon™ Logger VS* to enable delay assignment and testing during hook up.

Cut-away view of an *i-kon™ Detonator VS*

As each Detonator is connected, the *i-kon™ Logger VS* checks Detonator functionality, reads the Det ID and then writes the ID along with the delay time to its memory. The user is able to edit the assigned delay times stored in the *i-kon™ Logger VS* upon review of the delay list. The *i-kon™ Logger VS* has different modes (manual and delay number) to suit different applications. Up to 200 detonators can be logged to a single *i-kon™ Logger VS*. The delay time range is from 0 ms to 8.000 ms, with increments set at any multiple of 4 or 5 ms.

Any delay can be assigned to any detonator, regardless of the order on the harness wire.

***i-kon™ Detonator VS* connector**

Once hook-up is complete, or at any time during logging, the system may be fully tested by using the *i-kon™ Logger VS* test menu. This causes the *i-kon™ Logger VS* to communicate with every detonator individually and determine its status. If errors are detected the *i-kon™ Logger VS* will display these in a meaningful way along with comprehensive help information.

Current leakage is continuously monitored during logging and can be measured using the 'Measure Leakage' function.

To fire the blast, the *i-kon™ Loggers VS* are placed at a safe position from the blast and connected to the *i-kon™ Blaster 400* via a firing line. The Blaster communicates with the *i-kon™ Detonators VS* via the *i-kon™ Loggers VS*. *i-kon™ Blasters 400* are protected by a firing key to prevent use by unauthorised personnel. The *i-kon™ Blaster 400* can fire up to 400 Detonators on 2 *i-kon™ Loggers VS*.

Application

The *i-kon™ VS* System is designed to provide accurate, flexible and reliable sequencing of both surface and underground blasts. The *i-kon™ Detonator VS* will directly initiate detonator sensitive packaged explosives.

Priming and subsequent operations must be carried out in a manner that will ensure that the lead wires and *i-kon™ Detonator VS* are not damaged. The *i-kon™ Detonator VS* should always be secured inside a suitable primer that fully encloses the Detonator shell to protect it from damage during charging. Exposed Detonators should not be placed inside blastholes or charging hoses. *i-kon™ Detonator VS* should normally be "reverse-primed", with the Detonator base pointing towards the blasthole collar.

The lead wire is extremely robust, however if the insulation is cut or split, moisture may cause earth leakage problems causing testing and communication errors with the *i-kon™ VS* System, therefore care must be taken when handling and loading the product.

Excessive force should not be applied to the lead wires under any circumstances. If a primer becomes stuck when attempting to retrieve or reposition it, a replacement unit should be used.

i-kon™ VS Electronic Blasting System

Care should be taken during loading and hook up to avoid dirt and water entering the connector. The connector contains silicon grease for water proofness. Joins in the harness wire should be made secure and kept free from moisture.

To assist connecting of the *i-kon™ VS* System at the face or on the bench a specially designed sling bag has been provided. The sling bag is designed to deploy the draw-from-centre harness wire. Care should be taken to ensure that the *i-kon™ Logger VS* and *i-kon™ Blasters 400* are kept dry and free from dust and grease.

The *i-kon™ Blaster 400* should only be connected to the firing line at a point of safety. *i-kon™ Logger VS* and *i-kon™ Blasters 400* contain sensitive electronic circuits and are designed to be robust under normal operating conditions. However, care should be taken to prevent this equipment being subject to mechanical damage through rough handling or impact.

Recommendations for Use

These products are available for use in ground temperatures -20 °C to a maximum of 70 °C. If your application requires you to operate outside this temperature range please contact your local Orica Account Manager.

- Not to be used in mines with hazards of coal dust or fire damp explosions.
- Only to be operated by *i-kon™ Logger VS* and *i-kon™ Blaster 400*.

Technical Properties

Lead wire (mm)	0.6 / Steel	
Insulation diameter (mm)	1.8	
Tensile strength (N)	180	
Form, Insulation	Duplex, PVC or PP	
Wire color	orange	
Base charge (mg)	Pentolite alternative PETN	
	750	
Initiating charge (mg)	Lead Azide	PETN
	60	20
Connector		
Material	PE	
Color	yellow	
Terminals	brass	

System Specification

i-kon™ Detonator VS	Programmable from 0 ms to 8000 ms in 4 ms or 5 ms increments. Accuracy: 0,01 %
Harness wire	0.6 mm twin twist copper on 200 m.
i-kon™ Logger VS	Inherently Safe, hand-held logging and testing device. Includes system memory. Maximum of 200 i-kon™ detonators VS per Logger VS.
Firing Cable	Dependent upon cable characteristics. Consult Orica for specific recommendations.
i-kon™ Blaster 400	Hand held device able to provide the voltage and digital signalling required to fire i-kon™ detonators VS. Capable of firing up to 400 detonators.

Product Classification

Authorised Name:	*i-kon™ Detonator VS*		
Proper Shipping Name:	Detonators, electric		
UN:	0030	0255	0456
Classification:	1.1B	1.4B	1.4S
EC Type Certificate:	0589.EXP.0992/03		
Authorised Name:	*i-kon™ Logger VS*		
Approval Number:	-		
Authorised Name:	*i-kon™ Blaster 400*		
Approval Number:	-		
EC Type Certificate:	01190201		

Storage and Handling

- *i-kon™ Detonator VS* should be stored in a cool, dry licensed detonator maga*zine.*
- *i-kon™* Detonators VS are best stored at ambient temperatures of 0 °C to 40 °C.
- Stacks of cases should be no more than 2 metres high. *i-kon™ Logger VS* and *i-kon™ Blasters 400* should be stored in a protective case in a location not subject to high temperatures or humidity. Normal storage precautions applying to electronic equipment will maximise the useful life of the control equipment.
- *i-kon™ Detonator VS* have a storage life of 2 years in stable, temperate conditions.

i-kon™ VS Electronic Blasting System

Packaging

i-kon™ Detonator VS are packed into cardboard cases. All units are presented coiled on plastic spools apart from the 6 m products, which is presented in a folded format. *i-kon™ Logger VS* and *i-kon™ Blasters 400*'s are provided in nylon carry cases to protect equipment during transport and storage.

Packaging Details

Lead Length (m)	1.1B Units per Case	1.4B Units per Case	1.4S Units per Case
6	80	80	40
10	60	60	40
15	54	54	32
20	54	54	32
25	48	48	32

Safety

The *i-kon™ Digital Energy Control*® System complies with the The *i-kon™ VS* system complies with the Orica principle of 'Inherent Safety' for electronic blasting systems. This means the *i-kon™ Logger VS*, used at the blasthole, is unable to fire an *i-kon™ Detonator VS* even if the detonator is faulty.

i-kon™ Detonator VS have protection structures in the electronic circuitry, which give a high level of protection against stray currents, high voltage, static and electromagnetic induction.

The unique i-kon™ Det ID is printed on the flag tag and allows full production traceability for detonators. *i-kon™ Detonator VS* have a special copper/zinc alloy shell to provide a high level of shock protection. Like all detonators, the *i-kon™ Detonator VS* contains sensitive explosives. Care should be taken not to cause initiation by intense impact, friction or heat.

***i-kon™ VS Detonator* tag showing ID**

Training

This Technical Data Sheet is for information only. The *i-kon™ VS* System should only be used by personnel who have been trained and assessed as competent.

User Servicing

i-kon™ Logger VS and *i-kon™ Blaster* 400 are powered by rechargeable batteries. Mains chargers are supplied. A 12 V car charger is provided for *i-kon™ Logger VS* and *i-kon™ Blaster 400*. The batteries must be charged regularly as they are critical to the effective functioning of the *i-kon™* VS System. *i-kon™ Logger VS* and *i-kon™ Blasters* 400 contain no other serviceable parts and must be returned to Orica for replacement. Faulty equipment should be tagged out and returned to Orica.

Orica Norway AS
Røykenveien 18
3412 LIERSTRANDA
Norway
Phone: +47 32 22 91 00
Email: nordics@orica.com

Emergency Telephone Numbers

Within Norway: +47 91 70 58 50
Outside Norway: contact local representative