

Height and slew limiters

ENSURE OPERATOR SAFETY AND PROTECT EQUIPMENT

Construction plant is expected to work in a variety of applications, and many of these environments can present hazards to both plant and personnel. These potential hazards come in a number of forms: power lines, overhead structures such as bridges, or even situations where the plant is working in a confined space like a tunnel. A momentary lapse of concentration, or a simple misjudgement could lead to disaster. Prolec's range of height restriction and motion control systems have been designed to reduce the potential for these types of incidents, either through providing a simple audible and visual warning, or in circumstances where further insurance is required, offering motion cut options.


Prolec's range of motion limit and control systems incorporates predictive software that achieves an unrivalled level of accuracy. Simple to use, the versatile height and slew limiters can be adapted to monitor equipment position on a variety of construction plant. Because in-cab display features are similar in all systems, operators find it easy to transfer between machines equipped with different models, keeping down-time to a minimum.

Among the wide range of Heightwatch applications are 360° excavators, backhoes equipped with loader arm and rear excavator bucket, telescopic handlers, flail mowers and tipper trucks fitted with lorry loader cranes and grabs.



MAXIMUM CONTROL IN A COMPACT PACKAGE

Heightwatch 6 is a stand-alone height restriction system designed to limit the maximum angle, and therefore the height, of a single fixed length boom. The combined computer and solid state angle sensor are mounted at the base of an excavator boom, on the moving arm of a loader or on the lifting bodywork of a tipper truck. The angle sensor contains no moving parts and the electronics are



Heightwatch lets the operator concentrate on his job when digging and lifting under power cables.

Heightwatch

Height and slew limiters



Telescopic handlers are typical examples of plant where the power of Heightwatch real-time computing can bring affordable safety and control.

protected from water, oil and dust by a potted enclosure. The system cable has a plug and socket connection at the boom end, making component replacement quick and easy. The correct installation of new components is ensured by pre-drilled location holes in the mounting shoe. With Heightwatch 6 the machine operator can adjust and set the height limit inside the cab, using a display unit that comprises a key switch, warning lamps and an audible alarm. Pre-set limits are permanently recorded and, for additional security, the key can be removed to lock the setting. Regular system checks can also be made using a test button on the display.

ACCURATE HEIGHT AND SLEW MONITORING COMBINED

Heightwatch 4 is the original stand-alone system from which the entire Prolec range has evolved. Developed over a 10 year period, it uses pendulum angle sensors mounted on the machine and an in-cab display unit similar to that of Heightwatch 6. Accurate and reliable, the system is favoured by contractors looking to monitor one or both ends of a backhoe loader or the slew and boom of a 360° excavator, when used in operations alongside roads and railway tracks and in confined spaces.

Heightwatch 4 has a separate computer installed in the cab. From this, one or two angle sensors and/or a slew sensor are fitted to the machine in order to monitor the position of the turret and its equipment. In slew limiting mode, proximity switches detect the slew ring gear teeth measuring the travel of the machine to within ¼ of a gear tooth. Separate right and left limits can be set and combined with a limit on height.

To maximise operator and plant safety, solenoid valves can be included in the boom, dipper and slew hydraulic circuits. These will stop the machine if any of the set limits are reached with movement restored by an override switch usually located inside the cab.

The in-cab display features of Prolec's height limiters are similar in all systems, allowing operators to easily transfer between machines equipped with different models.

REAL-TIME HEIGHT MONITORING

Using powerful CAN bus technology, Prolec brings the added benefits of real-time computing to plant equipped with arms that have complex geometry. Components from the Liftwatch 5 CAN bus suite are combined to create control systems capable of monitoring the wide variety of configurations in which multiple elements of a complex machine can exceed height and radius limits. Applications range from mowers, flails and scrap handlers to telescopic handlers and concrete pumps.

A real-time system monitors all the angles within the machine on a continuous basis and calculates the position of the highest element every 50 milliseconds. With this level of control operators can maximise plant capability, confident that the system will prevent damage to equipment and adjacent structures.



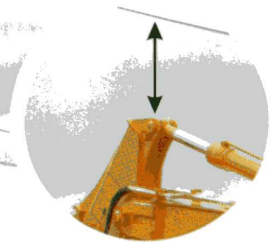


SPECIAL APPLICATIONS

Prolec's basic control systems are incredibly versatile and can be adapted to incorporate angle sensors, pitch and roll sensors and cable reeling drums. In response to specific industry requirements, Prolec has produced a high accuracy fork level monitor for telescopic handlers that move very sensitive loads, and a level indicator for plant used on sloping ground. A call to Prolec will quickly determine whether your special application can benefit from the versatile Heightwatch product range.

PRODUCT SUPPORT

The Heightwatch range, along with other Prolec systems, is supported by a service network of more than 20 mobile engineers across the UK and through selected international distributors. The company also offers a factory based product support service that provides training to engineers and customers in the operation and maintenance of all products in the Prolec range.



Real time height monitoring: the position of the highest element is checked every 50 milliseconds.

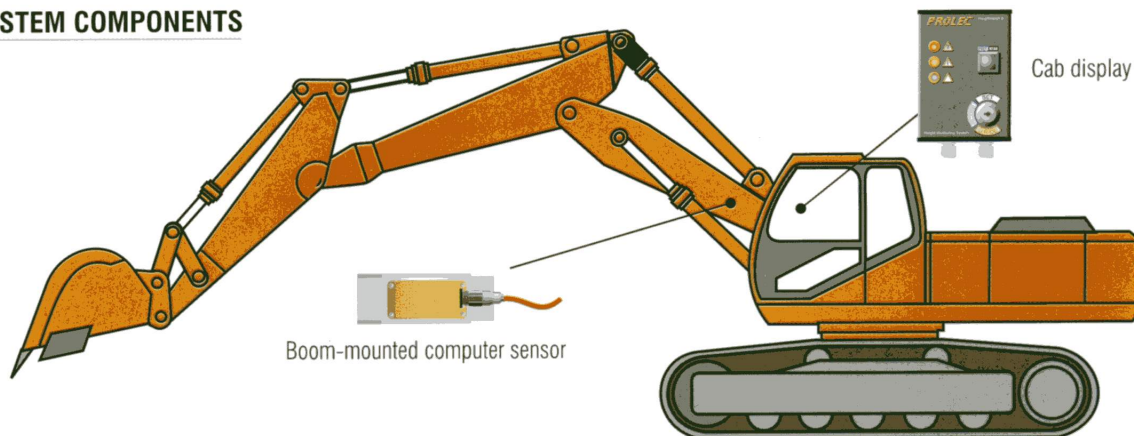
Flails, concrete pumps and other multi-arm machines can be configured using the versatile CAN bus components from Prolec's height limiter range.

Heightwatch

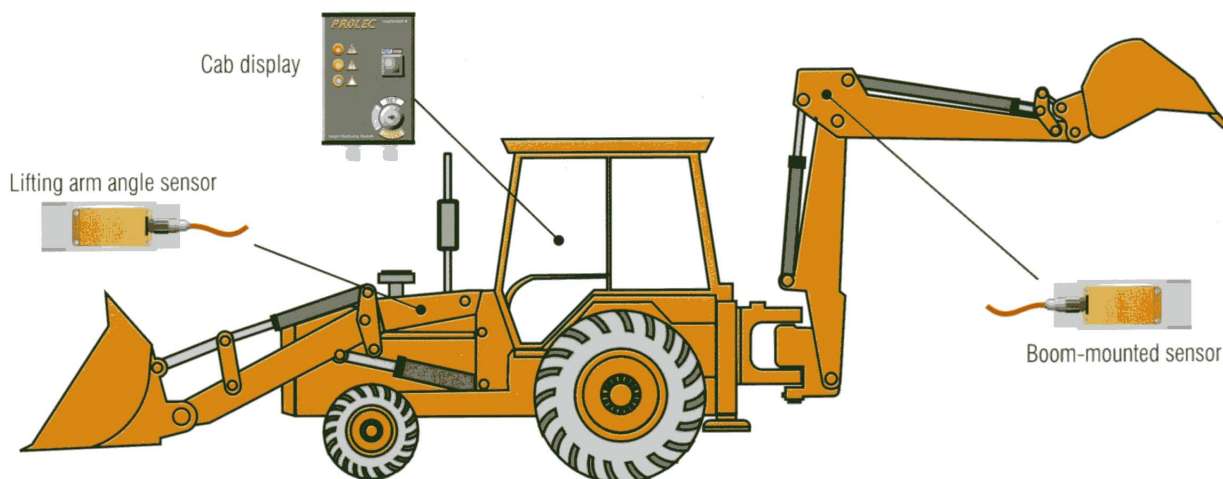
Height and slew limiters



SYSTEM COMPONENTS



EXCAVATOR



BACKHOE

TECHNICAL SPECIFICATION

DISPLAY	Dimensions: 175mm x 90mm x 60mm Weight: 1.0kg
COMPUTER	Dimensions: 220mm x 120mm x 95mm Weight: 2.0kg
INPUTS	4 x angle sensors, 1 x slew sensor, 2 x proximity sensors
OUTPUTS	3 x changeover relays
POWER SUPPLY	Operating voltage: 10V to 30V dc (derived from host machine) Operating current: 500mA
TEMPERATURE	Operating: -20°C to +60°C Storage: -40°C to +70°C
ENVIRONMENTAL	IP66
EMC	CE approved
CONTROLS	Limit selector, keyswitch, set button

MANUFACTURED BY

PROLEC LIMITED
25 Benson Road
Nuffield Industrial Estate
Poole BH17 0GB
United Kingdom

Tel: +44 (0)1202 681190
Fax: +44 (0)1202 677909
email: sales@prolec.co.uk
www.prolec.co.uk

DISTRIBUTED BY