



Intellinder

Hydraulic Cylinders with Integrated
Absolute Position Monitoring

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



ENGINEERING YOUR SUCCESS.

Intellinder. High Force Meets Absolute Position Monitoring.

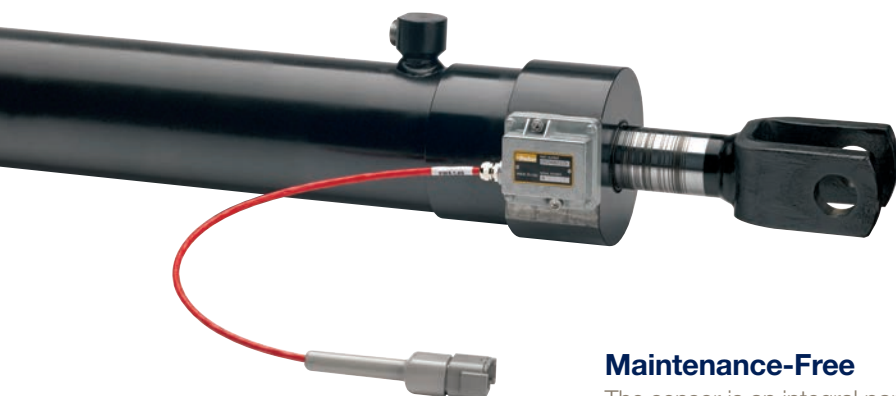
Intellinder combines an innovative absolute position monitoring system with a rugged, heavy duty hydraulic cylinder. Its sophisticated opto-electronic technology avoids the complexity and vulnerability of other position monitoring systems.

The result – enhanced productivity with low installation and maintenance costs.

Monitoring the position of a hydraulic cylinder's piston rod gives a precise, linear indication of the position of components attached to it, permitting accurate control over the position and performance of the associated machine. Combining Intellinder with Parker's IQAN vehicle automation system provides a complete actuation and control system for mobile applications.

Intellinder uses a sensor mounted in the head of the cylinder to read a pattern in the piston rod. Because it is an absolute position monitoring system, the pattern is recognised and the rod position determined without reference to a 'home' point. The signal read from the piston rod is processed by the electronics housed within the sensor unit and output via can-bus to the control system.

Intellinder has been subjected to exhaustive testing and has completed many millions of cycles under laboratory and field conditions.



The rod pattern is highly resistant to the effects of side loading, impact or dust, and rod seal life is identical to that of the standard hydraulic cylinder.

Position Monitoring – Absolute vs. Incremental

Two measurement techniques are commonly used in position sensing – absolute and incremental.

Incremental position monitoring reports an incremental change in position, measured from a reference point on start-up.

Absolute position monitoring reports position directly, without the need for any reference information.

Compared to traditional incremental monitoring systems, Intellinder absolute position monitoring is:

- **Faster** – no calibration step to slow system performance
- **Safer** – unaffected by supply voltage variations or high speed position changes
- **Higher performing** – delivers continuous productivity from start-up

Easy to Install

Intellinder is supplied fully assembled and tested. With the cylinder mounted and connected to the hydraulic system as normal, commissioning requires only an electrical connection to the controller.

Minimal Additional Build Length

Incorporating a sensor into the hydraulic cylinder results in only a minimal change in overall length. There are no null or dead zones.

Longer Measured Lengths

Intellinder is available for strokes up to 2.4 metres, with longer stroke lengths available on request.

Double Rod Cylinders

Conventional internal transducers cannot be fitted to a double rod cylinder, while remote sensor solutions are vulnerable to physical damage. Intellinder is available as a double rod cylinder, providing absolute position monitoring in safety-critical applications such as vehicle steering systems.

Multiple Redundancy

For safety-critical applications such as vehicle steering and braking systems, multiple redundancy can be

Maintenance-Free

The sensor is an integral part of the Intellinder cylinder and does not require regular maintenance. Should attention be required, the sensor can be removed without disturbing the cylinder.

Simpler Machine Design

Conventional internal feedback transducers use a gun-drilled piston rod. For long stroke cylinders with small diameter piston rods, this can reduce fatigue life – often overcome by using a larger diameter rod, adding cost and weight. Intellinder allows a standard rod diameter to be used, converting machine weight into greater payload and enhanced productivity.



built in by utilising two or more sensors mounted around a piston rod with full radial marking, providing improved redundancy over other linear sensing devices.

One Sensor for All Applications

Downtime and spares inventory is minimised by using a single design of sensor for all Intellinder cylinders.

Health Monitoring

Integrated condition monitoring recognises and compensates for external physical damage to the rod markings, with on-screen alerts to avoid unplanned downtime.

Robust Construction for Real-World Applications

Intellinder can deliver a range of functions in power-dense applications, such as electronic cushioning, load monitoring, auto-level and return to position, improving productivity and reducing downtime. Projecting just 22 mm above the surface of the cylinder and protected by a rugged cast alloy housing, the sensor is designed to withstand the harshest operating conditions.

- **Lifting, extending and handling**
rough terrain fork lifts
access systems
forestry vehicles
reach stackers
telehandlers
gantry cranes
- **Compressing and compacting**
refuse vehicles
- **Steering and braking**
truck systems
skid steer
- **Opening and closing**
door systems
grabs and buckets
- **Loading and tipping**
loader arms and hatches
tipper bodies
- **Security**
speed control
movement detection

Product Specifications

Sensor

| | |
|------------------------------|---|
| Resolution | 0.03 mm |
| Hysteresis | 0.10 mm |
| Repeatability | 0.04 mm |
| Linearity | 0.07 mm (<0.003% of FS) |
| Mechanical – vibration | 12 g, 25 Hz to 2 kHz |
| – shock | 100 g |
| Temperature – operating | -40 °C to +105 °C (SAE J1455) |
| – thermal shock | -40 °C to +105 °C (SAE J1455) |
| Data I/O | J1939 CAN, 250 KBaud, 29-bit ID |
| Report rate | 10 to 1000 ms |
| Electrical | EMI EN61000-6-2 (radiated susceptibility) |
| Ingression – sensor and lead | IP68 (10 metres, 30 minutes) |
| – connector | IP67 equivalent |

Cylinder

| | |
|--------------------|--|
| Construction | mobile type, threaded head & welded cap no limitation |
| Bore diameter | 25 mm to 127 mm |
| Rod diameter | Available for all standard pressure ratings |
| Working pressure | 2.4 m (longer lengths – consult factory) |
| Max. stroke length | |

Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates, Dubai
Tel: +971 4 8127100
parker.me@parker.com

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe,
Wiener Neustadt
Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AZ – Azerbaijan, Baku
Tel: +994 50 22 33 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@parker.com

BG – Bulgaria, Sofia
Tel: +359 2 980 1344
parker.bulgaria@parker.com

BY – Belarus, Minsk
Tel: +375 17 209 9399
parker.belarus@parker.com

CH – Switzerland, Etoy
Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klecany
Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup
Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid
Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budaörs
Tel: +36 23 885 470
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty
Tel: +7 7273 561 000
parker.easteurope@parker.com

NL – The Netherlands, Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Asker
Tel: +47 66 75 34 00
parker.norway@parker.com

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira
Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest
Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow
Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SK – Slovakia, Banská Bystrica
Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul
Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev
Tel: +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom, Warwick
Tel: +44 (0)1926 317 878
parker.uk@parker.com

ZA – South Africa, Kempton Park
Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

North America

CA – Canada, Milton, Ontario
Tel: +1 905 693 3000

US – USA, Cleveland
(industrial)
Tel: +1 216 896 3000

US – USA, Elk Grove Village
(mobile)
Tel: +1 847 258 6200

Asia Pacific

AU – Australia, Castle Hill
Tel: +61 (0)2-9634 7777

CN – China, Shanghai
Tel: +86 21 2899 5000

HK – Hong Kong
Tel: +852 2428 8008

ID – Indonesia, Tangerang
Tel: +62 21 7588 1906

IN – India, Mumbai
Tel: +91 22 6513 7081-85

JP – Japan, Fujisawa
Tel: +81 (0)4 6635 3050

KR – South Korea, Seoul
Tel: +82 2 559 0400

MY – Malaysia, Shah Alam
Tel: +60 3 7849 0800

NZ – New Zealand, Mt Wellington
Tel: +64 9 574 1744

SG – Singapore
Tel: +65 6887 6300

TH – Thailand, Bangkok
Tel: +662 717 8140

TW – Taiwan, New Taipei City
Tel: +886 2 2298 8987

VN – Vietnam, Ho Chi Minh City
Tel: +84 8 3999 1600

South America

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129

BR – Brazil, Cachoeirinha RS
Tel: +55 51 3470 9144

CL – Chile, Santiago
Tel: +56 2 623 1216

MX – Mexico, Toluca
Tel: +52 72 2275 4200

EMEA Product Information Centre

Free phone: 00 800 27 27 5374

(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL,
IS, IT, LU, MT, NL, NO, PL, PT, RU, SE, SK, UK, ZA)

US Product Information Centre

Toll-free number: 1-800-27 27 537

www.parker.com

