Parker Hydraulics

Electronic Control System EHC35, 0–5 V

ICL4 Coordinate Lever Unit

Catalogue HY17-8376/UK
January, 2002

Applications

The ICL4 co-ordinate lever unit (joystick) is intended for the proportional control of 2 or 3 double-acting functions. The third function is operated via a toggle in the lever handle. The lever unit can be equipped with different types of handle, depending on the environment and application. In cases where the customer wishes to fit a handle of another make, the unit can be supplied without a handle. The ICL4 lever unit is particularly suitable for applications requiring a somewhat harder grip of the lever, or for those in which the operator wears work gloves.

IPS mode

The ICL4 is primarily intended to control Parker PVE102, PVC102 and PVC25 electro-hydraulic pilot valves via the IPS302 control unit. The pilot valves in turn control mobile directional valves or regulating devices for variable pumps proportionally by means of hydraulic pilot pressure. In principle, however, the ICL4 can be used in any application where a lever movement is required to be converted - via the IPS302 control unit - into a proportional electric, pulse-width modulated signal.

0-5 volt, single mode

The ICL4 lever unit can also be equipped with a 0-5 V output (0.5-4.5 V) so that it can be used as a direct alternative to most potentiometer-based levers. This variant is intended for other control systems that have 0-5 V analog inputs, e.g. the Parker IQAN system. When the lever unit is used with non-Parker systems, however, it is important to remember that this system treats 0 V as a fault. (In the event of a fault in the ICL4, the output signal goes to 0 V, not to 2.5 V.) When connected to the IQAN system, the lever unit should be supplied with power (5-36 V) externally via a 1 A fuse. For more information about electrical and mechanical installation, please see the IPS-mode installation instructions, printed matter No. 91298300-49 or, for single mode, No. 91298323-02.

Construction and function

The ICL4 has contactless sensors that have a very long service life. The lever handle is of grip-friendly plastic. The G-type handle is adjustable by means of a lockable ball joint. The lever is borne in a robust, rotation-locked ball joint and centred by a stainless-steel pressure spring. The internal parts of the lever unit are protected by bellows of moulded chloroprene. The under side of the lever unit is protected by a stainless-steel casing.

The ICL4 is equipped with an optical neutral-position breaker that breaks the entire control circuit within approx. ±4° of the neutral position (X and Y) and within ±3° for the toggle switch (Z). This applies to the IPS mode only. For single mode, the deadband around the neutral position can be specified (see ordering key). The internal neutral-position breaker is then bridged out, but its signal (NP+, NP-) can be taken out as an extra safety function (see graph).

The lever unit is supplied with a 2-metre cable, which is connected by means of a Molex connector in the bottom of the protective casing.

The ICL4 is available with different types of handle (see drawings on backe page). Moreover, it can be supplied with different stroke lengths (14, 16, 18 and 20°). Please see the Product Guide for more detailed information.

Characteristics

The ICL4 lever unit has many well thought-out functions. The units are lightweight with small installation dimensions and low, well adapted lever forces. They are available with different types of handle and with different optional functions. This gives machine manufacturers great flexibility in the creation of ergonomic, functionally correct cab environments.

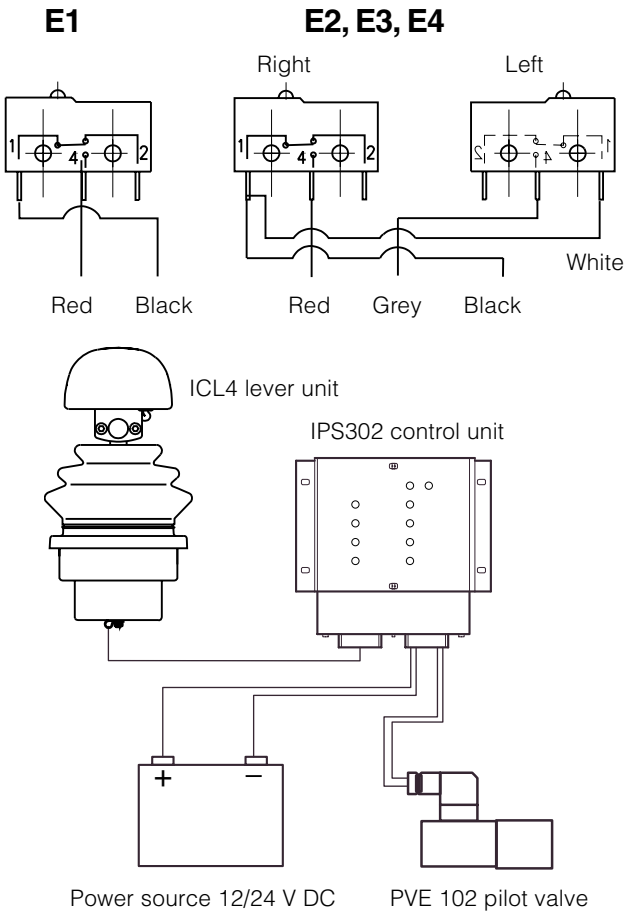
With the aid of controls mounted in the armrests, the operator can control the machine with small physical movements while seated comfortably with good support for the entire body. Armrest-mounted controls also reduce the amount of mechanical feedback from a shaking machine into its control system.

ICL4 lever units are tested in accordance with EMC Directive 89/336/EEC and meet the criteria required for CE marking.

Technical data

Ambient temperature for function:	- 30 to + 70 °C
Approved testing:	CE marked
Supply voltage, IPS mode:	Via IPS302
Supply voltage, single mode, external:	5 to 36 V
(lever unit equipped with 1 A fuse)	
Output voltage, single mode:	0.5-4.5 V
Neutral position, single mode:	2.5 V
Current consumption,	
single mode, 5 V supply:	approx. 175 mA
single mode, 12 V supply:	approx. 80 mA
single mode, 24 V supply:	approx. 50 mA
Load resistor	Min 60 Ohm
Load capacitor	Max 0.1 µF
Function buttons in handle types E and N:	max. 2.0 A
(If inductive load, use transient supressor)	at 30 V DC
Start-up time:	250 ms
Lever force in neutral position, XY axes:	0.55 Nm
Lever force, fully actuated, XY axes:	1.0 Nm
Activating force	
toggle in neutral position, Z axis:	0.02 Nm
toggle fully actuated, Z axis:	0.04 Nm
Lever movement, full actuation,	
X or Y, specifiable:	± 14°, 16°, 18°
or 20°	
Lever movement at start signal, XY, IPS mode:	±4°
Linearity:	2%
Resolution:	0.5%
Protection rating,	
above flange, G- and U-type handles:	IP65
above flange, E- and N-type handles:	IP44
(lever recommended for mounting in	
operator's cab)	
Protection rating below flange:	IP20
Round cable 8 x 0.25 mm^2:	2 m
Weight:	approx. 0.8 kg

See also installation instructions for IPS mode, printed matter No. 91298300-49 or, for single mode, No. 91298323-02.



Parker Hannifin
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Borås, Sweden

Ordering code

(Example) **ICL4 2 7 – N2T / 2**

Code	Number of double-acting functions
2	2 double-acting functions for handle types E, N or U
3	3 double-acting functions for handle type G

Code	Output signal
5	Analog, IPS mode
7	Analog, single mode, 0-5 V

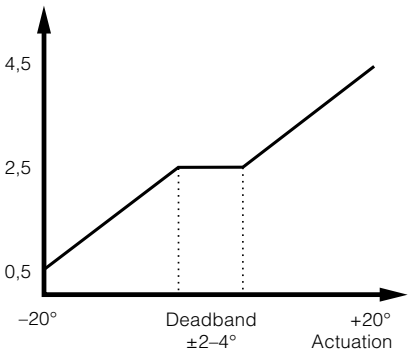
Code	Handle
U	Lever shaft without handle
E0	Handle without function button
E1	Handle with spring-back function button, (on)-off *
E2	Handle with 3-position spring-back function button, (on)-off-(on) *
E3	Handle with 3-position function button, one spring-back and one fixed position, (on)-off-on *
E4	Handle with 3-position function button, 2 fixed positions, on-off-on *
N0	Handle without function button
N2	Handle with 2 function buttons *
N2T	Handle with 2 function buttons and trigger *
N4	Handle with 4 function buttons *
N4T	Handle with 4 function buttons and trigger *
G	Handle with toggle for proportional control of third function (Z)

Code	Deadband
/	IPS mode (Output signal code 5 only)
2, 3, 4	Deadband in ° (Output signal code 7 only) 2° is standard

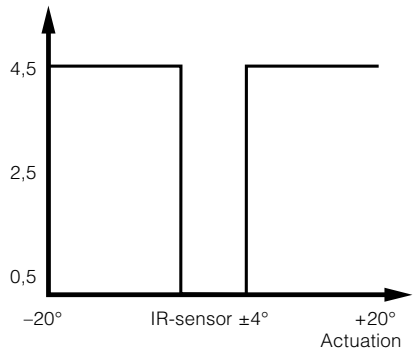
Code	12 or 24 V
12	For 12 V system, IPS mode
24	For 24 V system, IPS mode
/	Single mode, 0-5 V output voltage (output-signal code 7 only)

* Connection to function button is via cable in bottom of lever unit.

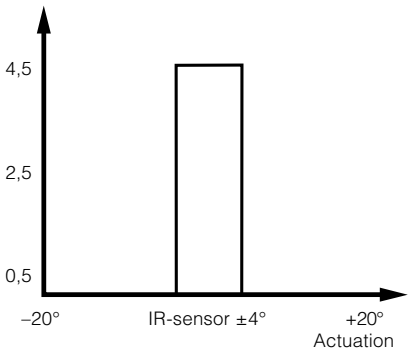
Output voltage (V) *Single mode*



Neutral position (NP+) *Single mode*



Neutral position (NP–) *Single mode*



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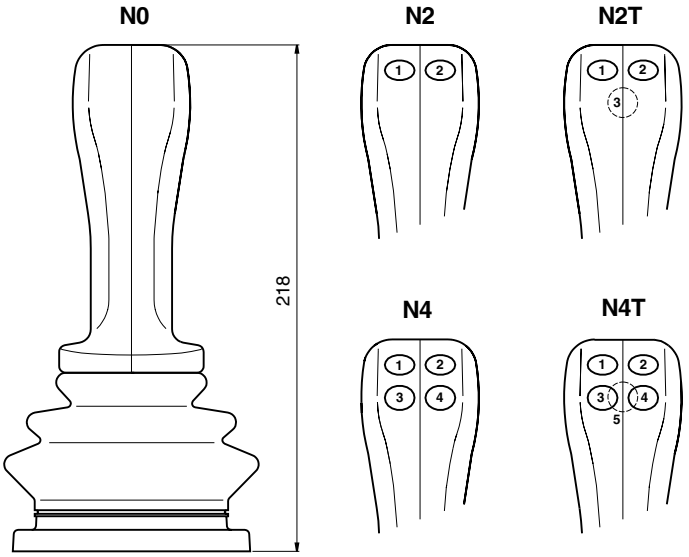
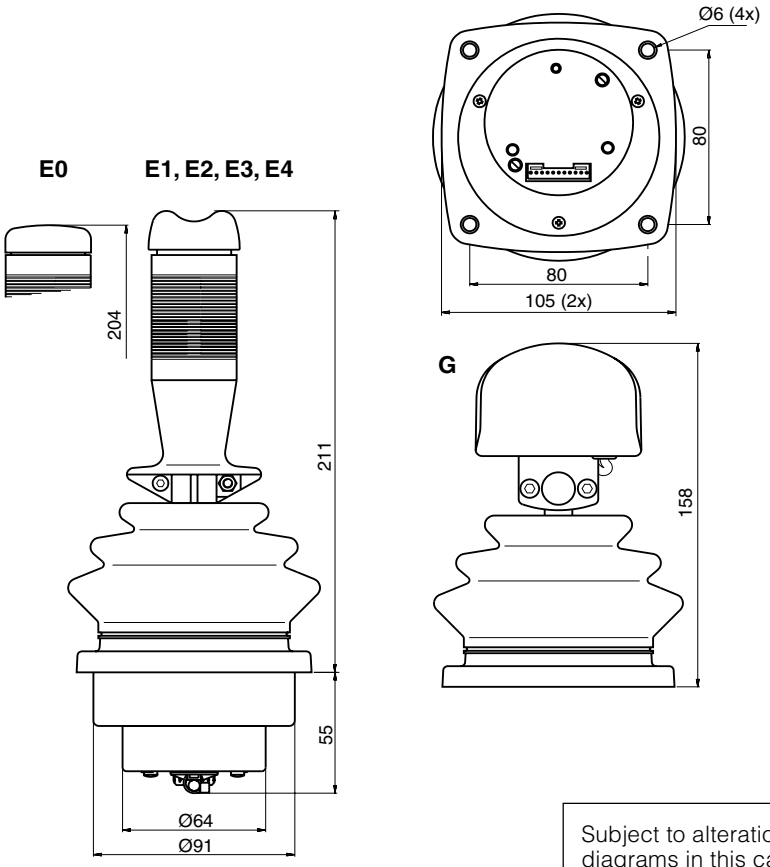
Dimensions





Subject to alteration without prior notice. The graphs and diagrams in this catalogue are typical examples only. While the contents of the catalogue are updated continually, the validity of the information given should always be confirmed. For more detailed information, please contact Parker Mobile Hydraulics.

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