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ULTRAFLEX CONTROL BOXES INTRODUCTION

All Ultraflex control boxes are made specifically for the marine environment, using materials and working processes which offer long life and safety for the most extreme conditions.

How The Control Boxes Work

A boat's steering system consists of many components, all of which are essential to ensure proper operation and safety in case of emergency manoeuvres. Among the components used to control the throttle and the boat's direction, there are the Ultraflex control boxes.

RECOMMENDATIONS WHEN CHOOSING A CONTROL BOX

A correct selection of the control box depends on various factors such as:

- **ENGINE COMMUNICATION SYSTEM:** Ultraflex control boxes can be mechanical (when both throttle and shift cable is present), electronic (when both throttle and shift cable are controlled by a position sensor) and hybrid (when using the throttle position sensor and inverter cable).
- **SPACES ONBOARD:** The control boxes are usually "Top Mount" and "Side Mount". The "Top Mount" models are installed on the dashboard, the "Side Mount" models on one side of the boat. Attention must be paid to the space around them as the rotation of the lever must not be impeded; moreover, in the case of mechanical control boxes, it is necessary to ensure the correct way for the control cables.
- **DESIGN:** Ultraflex control boxes are designed with the idea of following as much as possible the style of the boat on which they are installed.

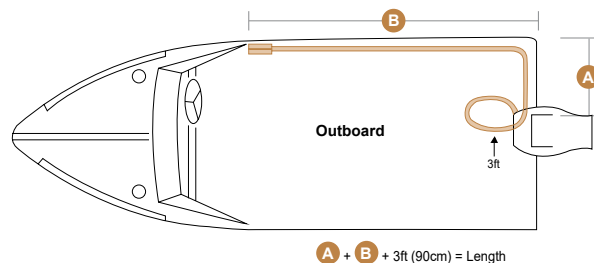
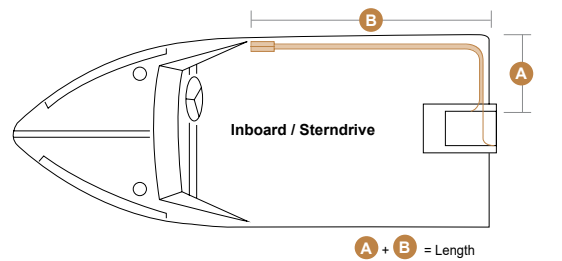
Selection Of Engine Control Cables

	Engine	Engine Control Cables
OUTBOARD	Mercury Controls Gen II™ Controls	C36, MACH™ 36
	Mercury Mariner (over 50HP)	C5, MACH™ 5
	Mariner (up to 50HP)	C16
	Force Selva Yamaha Suzuki Tohatsu Honda Nissan	C2, C8, MACH™ Zero
	(After 1979) Johnson Evinrude BRP	C14, MACH™ 14
	STERNDRIVE	Mer cruiser Controls Gen II™ Controls
Mer cruiser		C5, MACH™ 5
(After 1979) OMC BRP		C14, MACH™ 14
Volvo Penta Yanmar Volkswagen		C2, C8, MACH™ Zero, C22
INBOARD		C2, C8, MACH™ Zero, C22

HOW TO MEASURE FOR CONTROL CABLE INSTALLATION

For new installation, measure **A** and **B** distance from the control along an unobstructed cable routing to clutch and/or throttle connection. Round this dimension up to the next whole foot (304.8mm) and you will have your cable length. We recommend that the cable bends have a minimum radius of about 200mm. For outboard engine installations, add three feet to the obtained length in order to allow for the engine movement.

To determine the required length of the REPLACEMENT CABLE, measure from tip to tip. When ordering, specify the cable length in feet, rounding up to the whole foot (304.8mm). If any kit is required to complete cable connection, consult accessories section.



WARNINGS

All the control boxes, as they are steering elements, must be kept in perfect condition at all times to ensure their operation. Furthermore, in the case of mechanical and hybrid control boxes, the cables and their smoothness inside the sleeves must be checked regularly. For a correct maintenance, please refer to the user and maintenance manuals supplied with Ultraflex products.

It is recommended to combine with a universal kill switch or a safety system used to ensure the engine switch off in case of accidental movement away from the driving position.



Engine Control Cable Part Numbers

For more information on the control cables below, see following page.

Cable Length		C8	Mach™ Zero	C5	Mach™ 5	C14	Mach™ 14	C16	Mach™ 36
ft	m								
6	1.83	JPW18106	-	-	-	-	-	-	-
7	2.13	JPW18107	-	-	-	-	-	-	-
8	2.44	JPW18108	-	-	-	-	-	-	-
9	2.74	JPW18109	-	JPW18509	-	JPW18409	-	-	-
10	3.05	JPW18110	JPW18210	JPW18510	JPW18654	JPW18410	-	-	-
11	3.35	JPW18111	JPW18211	JPW18511	JPW18655	JPW18411	-	-	JPW18631
12	3.66	JPW18112	JPW18212	JPW18512	JPW18656	JPW18412	JPW18432	JPW18612	JPW18632
13	3.96	JPW18113	JPW18213	JPW18513	JPW18657	JPW18413	JPW18433	JPW18613	JPW18633
14	4.27	JPW18114	JPW18214	JPW18514	JPW18658	JPW18414	JPW18434	JPW18614	JPW18634
15	4.57	JPW18115	JPW18215	JPW18515	JPW18659	JPW18415	JPW18435	JPW18615	JPW18635
16	4.88	JPW18116	JPW18216	JPW18516	JPW18660	JPW18416	JPW18436	JPW18616	JPW18636
17	5.18	JPW18117	JPW18217	JPW18517	JPW18661	JPW18417	JPW18437	JPW18617	JPW18637
18	5.49	JPW18118	JPW18218	JPW18518	JPW18662	JPW18418	JPW18438	JPW18618	JPW18638
19	5.76	JPW18119	JPW18219	JPW18519	JPW18663	JPW18419	JPW18439	JPW18619	JPW18639
20	6.1	JPW18120	JPW18220	JPW18520	JPW18664	JPW18420	JPW18440	JPW18620	JPW18640
21	6.4	JPW18121	JPW18221	JPW18521	JPW18665	-	JPW18441	-	JPW18641
22	6.71	JPW18122	JPW18222	JPW18522	JPW18666	JPW18422	JPW18442	-	JPW18642
23	7.01	JPW18123	JPW18223	JPW18523	JPW18667	-	-	-	JPW18643
24	7.32	JPW18124	JPW18224	JPW18524	JPW18668	-	-	-	JPW18644
25	7.62	JPW18125	JPW18225	-	JPW18669	-	-	-	JPW18645
26	7.92	JPW18126	JPW18226	-	JPW18670	-	-	-	JPW18646
27	8.22	-	JPW18227	-	-	-	-	-	JPW18647
28	8.61	-	JPW18228	-	-	-	-	-	JPW18648
30	9.15	-	JPW18230	-	-	-	-	-	-
32	9.75	-	JPW18232	-	-	-	-	-	-
33	10.05	-	JPW18233	-	-	-	-	-	-
34	10.36	-	JPW18234	-	-	-	-	-	-
36	10.97	-	JPW18236	-	-	-	-	-	-
38	11.58	-	JPW18238	-	-	-	-	-	-
40	12.19	-	JPW18240	-	-	-	-	-	-
42	12.8	-	JPW18242	-	-	-	-	-	-
44	13.41	-	JPW18244	-	-	-	-	-	-

C5 Engine Control Cables

The Ultraflex C5 Control Cable is a high quality cable featuring stainless steel ends. For use with inboard, sterndrive and outboard marine engines (ideally Mercury and MerCruiser).

- High efficiency for smooth operation, and high flexibility for reduced bend radius.
- Stainless steel cable end fittings, with high-resistance black outer jacket.
- Ideal for long complex cable routing.
- Maintenance-free.
- Stroke: 95mm



C8 Engine Control Cables

The Ultraflex C8 Universal Control Cable is the equivalent to Morse-Teleflex 33C and CC332 control cables and ideal for inboard, sterndrive and outboard engines.

- High flexibility for reduced bend radius; ideal for complex cable routing.
- Stainless steel end fittings with high-resistance black outer jacket.
- Maintenance-free.
- Stroke: 87mm
- Suitable for Yamaha, Selva, Suzuki, Force, Tohatsu and Honda.



C16 Engine Control Cables

The Ultraflex C16 Control Cable is a high quality cable with stainless steel ends. Suitable for Mariner engines (up to 40HP).

- High efficiency for smooth operation, and high flexibility for reduced bend radius.
- Stainless steel cable end fittings, with high-resistance black outer jacket.
- Maintenance-free.
- Stroke: 80mm



C14 Engine Control Cables

The Ultraflex C14 Control Cable is a high quality cable with stainless steel ends; suitable for Johnson, Evinrude, OMC and BRP.

- From 1979 to current date.
- High efficiency for smooth operation, and high flexibility for reduced bend radius.
- Stainless steel cable end fittings, with high-resistance black outer jacket.
- Maintenance-free.
- Stroke: 75mm



MACH™ Series Engine Control Cables - High Efficiency and Flexibility



High performance MACH™ Cables utilise an innovative core design to maximise efficiency and minimise lost motion. The exclusive design of the conduit provides extremely high levels of flexibility.

- Suitable for outboard, inboard and sterndrive engines.
- High flexibility for reduced bend radius.
- Ideal for long complex cable routing.
- Maintenance-free.
- Stainless steel cable end fittings.
- Blue outer jacket provides high resistance against abrasion, UV and chemicals.

MACH™ Zero Engine Control Cables

The Mach™ Zero range of universal style cables is the equivalent of the Teleflex CX322 Supreme cable. The Mach™ Zero is ideally used as a high performance cable on long cable runs and complex routing.

- Stroke: 87mm
- Suitable for Yamaha, Selva, Suzuki, Force, Tohatsu and Honda.



MACH™ 5 Engine Control Cables

High performance Mach™ 5 range have a 95mm stroke to suit Mercury and Mercruisers with inboard, sterndrive and outboard engines.

- Stroke: 95mm



MACH™ 14 Engine Control Cables

High performance cables suit OMC, Johnson, Evinrude and BRP style engines with cable runs and complex cable routing.

- 1979 to current date.
- Stroke: 75mm



MACH™ 36 Engine Control Cables

The high performance Mach™ 36 Engine Control Cables suit Mercury and Mercruiser engines (Gen II™ series controls), and are suitable for use with inboard, sterndrive and outboard engines.

- Stroke: 87mm





Ultraflex B501 and B502 Series Top Mount Controls

With a focus on efficiency, these Single or Twin-Engine Controls have been specifically designed to improve the functionality of control systems, making the boat easier to control. Suitable for any type of boat with outboard or inboard engines and available with or without lock-in neutral, and with or without trim switches (single switch will operate both trims).

Features:

- Single lever (or Dual lever) / dual action control to operate both throttle and shift.
- Enables easy and safe shifting by preventing accidental gear engagement unless the engine is idling.
- Push in button disengages shift for warm-up.
- X12 Neutral Safety Switch prevents in-gear starting (optional).
- Exceeds EN ISO 11547 standards when X12 safety switch is installed.
- **Twin Controls with Trim:** operated simultaneously on the lever or independently on the core body.

For use with all Ultraflex control cables except C4:

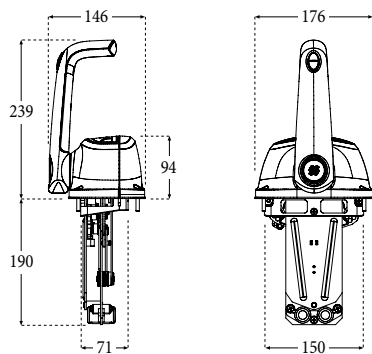
- C14 and MACH™14 cables require no kit.
- C2, C8 and MACH™Zero cables the connection kit K59 (U40144) is included.
- C5, C16 and MACH™5 cables require K60 (U40145) kit - sold separately.
- C36 and MACH™36 cables require K62 (40157J) kit - sold separately.

Two finishes available:

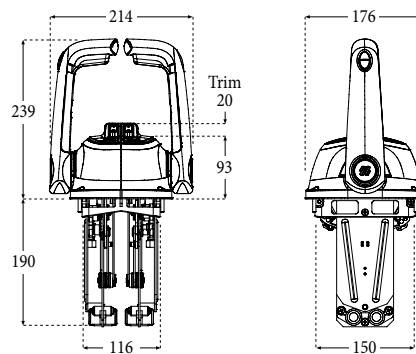
- **Chrome Plated Finish:**
High resistance ABS housing with die-cast chrome-plated levers.
- **Gunmetal Finish:**
High resistance ABS housing with die-cast black painted levers.



U34543
X12 Neutral Safety Switch
(Optional: 1 Per Engine)
- sold separately



(Dimensions in mm)



(Dimensions in mm)

B501 - Single Engine Controls

Part No.	Model	Lock	Trim	Finish
JPW18810	B501CH	No	No	Chrome
JPW18811	B501CHT	No	Yes	Chrome
JPW18814	B501BT	No	Yes	Gunmetal
JPW18809	B501CHT/L	Yes	Yes	Chrome

B502 - Twin Engine Controls

Part No.	Model	Lock	Trim	Finish
JPW18812	B502CH	No	No	Chrome
JPW18813	B502CHT	No	Yes	Chrome
JPW18818	B502BT	No	Yes	Gunmetal
JPW18819	B502CHT/L	Yes	Yes	Chrome

Ultraflex B301 and B302 “Low Profile” Top Mount Controls

Available in single or dual lever, operates both throttle and shift (twin lever for two engines). Suitable for any type of boats with outboard, inboard or I/O power plants. The compact single lever control offers a unique low profile style compared to other controls available on the market.

- Push-in button disengages shift for warm-up.
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- X12 Neutral Safety Switch (optional) prevents in-gear starting (one per engine).
- Exceeds EN ISO 11547 standards when X12 Safety Switch is installed.

For use with all Ultraflex control cables except C4:

- C14 and MACH™14 cables require no kit.
- C2, C8 and MACH™Zero cables the connection kit K59 (U40144) is included.
- C5, C16 and MACH™5 cables require K60 (U40145) kit - sold separately.
- C36 and MACH™36 cables require K62 (40157J) kit - sold separately.

Two finishes available:

- Chrome plated with chrome plated levers.
- Black powder coated dome with chrome plated levers.



JPW18823



JPW18821



JPW18824

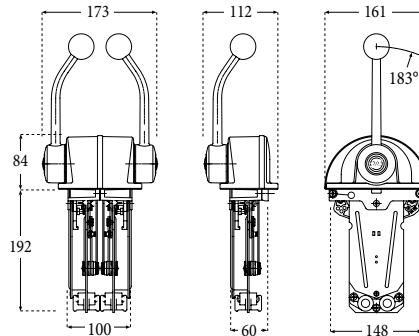
All models feature an exclusive push-button design.



JPW18822



U34543
X12 Neutral Safety Switch
- sold separately



(Dimensions in mm)

Part No.	Model	Controls	Finish
JPW18821	B301B	Single	Black
JPW18822	B302B	Twin	Black
JPW18823	B301CR	Single	Chrome
JPW18824	B302CR	Twin	Chrome

Ultraflex B103 and B104 Top Mount Controls

Available in single or dual lever, operates both throttle and shift (twin lever for two engines). Suitable for any type of boats with outboard, inboard or I/O power plants. Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.

- Chrome-plated marine aluminium construction.
- Pull-out handle disengages shift for warm-up.
- X43 Neutral Safety Switch (optional) prevents in-gear starting (one per engine).
- Exceeds EN ISO 11547 standards when X43 Neutral Safety Switch is installed.

For use with Ultraflex control cables C2, C8 and Mach™Zero:

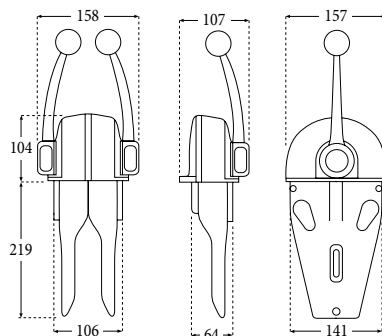
- Require no connection kit.



JPW18825



JPW18826



(Dimensions in mm)

Part No.	Model	Controls
JPW18825	B103	Single
JPW18826	B104	Twin

U38160
X43 Neutral Safety Switch - sold separately



Ultraflex B665 and B666 Top Mount Controls

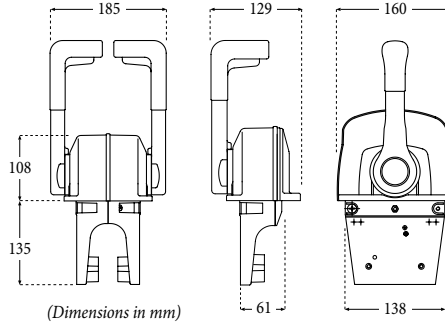
Suitable for any type of boat with inboard, outboard and sterndrive motors. Levers control and operate both throttle and shift. Easy and safe shifting preventing accidental gear engagement unless engine is idling.

- Provided with a positive lock-in neutral to prevent accidental gear engagement.
- Pull-out handle disengages shift for warm-up.
- X12 Neutral Safety Switch (optional) prevents in-gear starting.
- Exceeds safety standard EN11547 with X12 Safety Switch installed.

For use with all Ultraflex control cables except C36 and Mach™ 36:

- C33, C8, C14, Mach™ Zero and Mach™ 14 cables require no connection kit.
- C5, C16 Mach™ 5 cables require K35 (U34730) kit - sold separately.

Part No.	Model	Controls
JPW18833	B665	Single
JPW18834	B666	Twin



JPW18833



JPW18834



U34543
X12 Neutral Safety Switch - sold separately

Ultraflex B74 Twin Lever Top Mount Controls

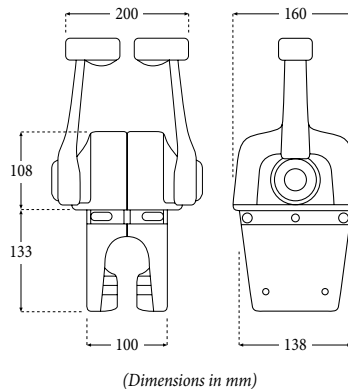
Operates both throttle and shift (twin lever for two engines) and is suitable for any type of boat with outboard, inboard or I/O power plants. The power trim switch is conveniently located in the handle grip enables for easy tilting of the engine.

- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- Marine aluminium construction with a powder coat finish.
- Pull-out handle disengages shift for warm up.
- X12 Neutral Safety Switch (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X12 Neutral Safety Switch is installed.

For use with all Ultraflex control cables except C36 and Mach™ 36:

- C8, C14, C33, Mach™ Zero and Mach™ 14 cables require no kit.
- C5, C16 and MACH™ 5 cables require K35 (U34730) kit - sold separately.

Part No.	Model
JPW18843	B74



U34543
X12 Neutral Safety Switch - sold separately



Ultraflex B35 Control Box

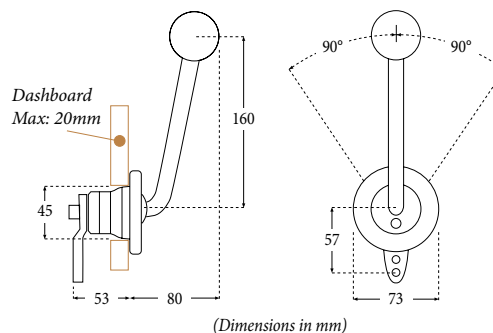
Single action, flush side mount control, particularly suitable for throttle control and hydraulic shift operation.

- Lever and flange all stainless steel.
- Provided with adjustable brake tension release and detents.

For use with Ultraflex control cables C2, C8 and Mach™ Zero:

- Require no connection kit.

Part No.	Model
JPW18840B	B35



Ultraflex B400 Series Single Lever Side Mount Controls



Featuring a stainless steel lever and bezel, the B400 has a sleek and modern design that's ideal for sailboats. This side-mount control has a universal control mechanism to allow for both 'push' or 'pull' for throttle and shift, push button warm up, and will accept 33C style cables, as well as BRP, Mercury Gen I and Gen II cables with optional adapters. Available in mechanical version or hybrid version (patented) to control the shift by a mechanical cable and the throttle via a 0-5V electric signal.

- AISI 316-grade stainless steel lever and flange for better resistance in the marine environment.
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- Can be installed horizontally or vertically, on the starboard or port side of the boat.
- Provided with an easily adjustable brake tension release system.
- Push-in button for throttle operation in Neutral (ENGINE WARM-UP).
- Includes X41 Neutral Safety Switch to prevent in-gear starting.
- Exceeds EN ISO 11547 standards when X41 Neutral Safety Switch is installed.

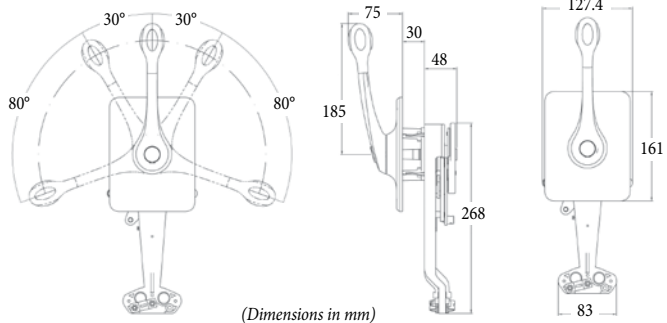
The B400 ETC (Electronic Throttle Control) version is available on request. The sensor has an analogue output signal that can be single or redundant. The output voltage range is chosen by the user between 0 and 5V. Power supply 5V +/- 10%, linearity +/- 1%. For ETC controls please contact your sales representative for custom configuration.

For use with Ultraflex control cables C2, C8 and Mach™Zero:

- Require no connection kit.



X41 Neutral Safety Switch included



Part No.	Model	Version
JPW18807	B400	Fully Mechanical
JPW18808	B400-ETC	Hybrid

Ultraflex B310 Series Side Mount Controls



Single lever operates both throttle and shift, suitable for any type of boat with outboard, inboard or I/O power plants. Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling and can be installed horizontally or vertically, on the starboard or port side of the boat.

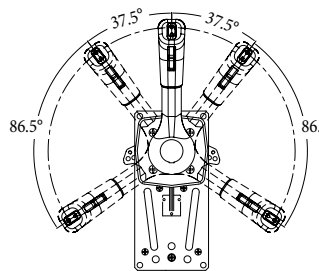
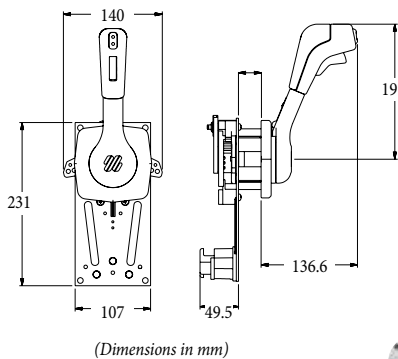
- Provided with a brake tension release system, adjustable from outside.
- Pull-out handle disengages shift for engine warm up.
- Trim switch conveniently located in the handle grip.
- Provided with positive lock-in neutral to prevent accidental gear engagement.
- X12 Neutral Safety Switch prevents in-gear starting (optional).
- Exceeds EN ISO 11547 standards when X12 Safety Switch is installed.

For use with all Ultraflex control cables except C36 and Mach™36:

- C8, C14, C33, Mach™ Zero and Mach™ 14 cables require no kit.
- C5, C16 and MACH™5 cables require K35 (U34730) kit - sold separately.



U34543 X12 Neutral Safety Switch - sold separately



JPW18817



JPW18815



JPW18816

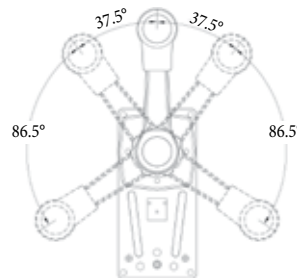
Part No.	Model	Trim	Handle Finish
JPW18815	B310CH	Yes	Chrome
JPW18816	B310B	Yes	Black
JPW18817	B310B-NT	No	Black



Ultraflex B85, B183 and B184 Single Lever Side Mount Controls

Suitable for any type of boat with outboard, inboard or I/O power plants, these side mount control have single lever/ dual action control to operate both throttle and shift.

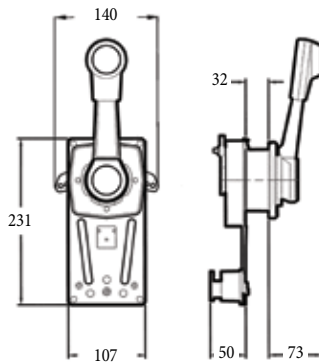
- Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.
- Can be installed horizontally or vertically, on the starboard or port side of the boat.
- Provided with a brake tension release system, adjustable from outside.
- Pull-out handle disengages shift for warm-up.
- Exceeds EN ISO 11547 standards when X12 Neutral Safety Switch is installed, as it prevents in-gear starting.
- All models are provided with positive lock-in neutral to prevent accidental gear engagement.
- B184 model is provided with a power trim switch conveniently located in the handle grip that enables an easy tilting of the engine.



JPW18840

For use with all Ultraflex control cables except C36 and Mach™36:

- C8, C14, C33, Mach™Zero and Mach™14 cables require no kit.
- C5, C16 and MACH™5 cables require K35 (U34730) kit - sold separately.



(Dimensions in mm)



U34543
X12 Neutral Safety Switch
- sold separately



JPW18839



JPW18827

Part No.	Model	Trim	Suits Boat Type
JPW18839	B183	No	Motor Boat
JPW18827	B184	Yes	Motor Boat
JPW18840	B85	No	Sail Boat

Ultraflex B89 and B90 Single Lever Side Mount Controls

The single lever operates both throttle and shift and is suitable for boats with outboard, inboard or I/O power plants. Enables easy and safe shifting by preventing accidental gear engagement unless engine is idling.

- Can be installed horizontally or vertically, on the starboard or port side of the boat.
- Pull-out handle disengages shift for warm-up.
- Painted marine aluminium construction.
- X12 Neutral Safety Switch (optional) prevents in-gear starting.
- Exceeds EN ISO 11547 standards when X12 Safety Switch is installed.
- Provided with a positive lock-in neutral to prevent accidental gear engagement.



For use with all Ultraflex control cables except C4, C22, C36 and Mach™36:

- C8 and Mach™Zero cables require no kit.
- C5, C16 and MACH™5 cables require K35 (U34730) kit - sold separately.
- C14 and Mach™14 cables require K51 (U32526) kit - sold separately.



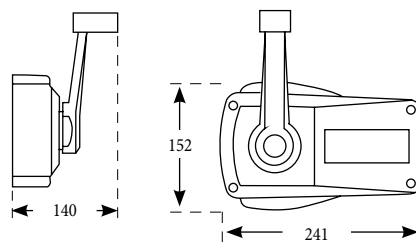
JPW18828



JPW18842



U34543
X12 Neutral Safety Switch
- sold separately



(Dimensions in mm)



Lock in neutral

Part No.	Model	Finish
JPW18828	B90	Black
JPW18842	B89	Ivory

Accessories for Control Boxes

• Kits to connect Ultraflex control cables to Ultraflex controls.



U34713



U32773



U32775



U34730



U32526



U40144



U40145



U40147

Part No.	Model	Suits Cable	Suits Control Box
U34713	K22	C22	B46, B50, B58, B59, B204, B208, B322 and B324
U32773	K23	C14 and Mach™14	B47 and B49
U32775	K25	C33, C8 and Mach™Zero	B47 and B49
U34730	K35	C5, C16 and Mach™5	All single lever controls except B301, B302, B103 and B104
U32526	K51	C14 and Mach™14	B89 and B90
U40144	K59	C2, C8 and Mach™Zero	B301 and B302 (supplied with box)
U40145	K60	C5, C16 and Mach™5	B301 and B302
U40147	K62	C36 and Mach™36	B301 and B302

L23 Selector Unit for Dual Station Applications

Selector unit for use with single lever controls in dual station applications.

- Enables independent control over throttle and shift from either the main station or the flying bridge station.
- Only for inboard and sterndrive engines.

NOTE: before changing station, throttle must be on idling position and shift in neutral.



Part No.
U31649

Accessories for Engine Control Cables

• Ultraflex engine control spares and accessories.



U30324



U30325



U38078



U30334



U30335



U30336



U31906

Part No.	Model	Description	Suits Cables
U30324	L2	Cable Clamp Block	All
U30325	L3	Shim and Clamp Block	C2, C8 and Mach™Zero
U38078	L7	Stainless Steel Ball Joint 10-32 UNF	C2, C8 and Mach™Zero
U30334	L12	Cable End Pivot	C2, C8 and Mach™Zero
U30335	L13	Stop Collar	B14
U30336	L14	Cable Clamp Block	C2, C8 and Mach™Zero
U31906	L25	Clevis 10-32 UNF	C2, C8 and Mach™Zero

Adaptors To Suit OMC or Mercury Control Box

This adaptor kit connects the C8 or Mach™Zero control cable (10-32 UNF threaded ends) with a OMC or Mercury control box.

- Each kit contains a pair to use on two control cables.

Part No.	Suits Control Box
JPW18403	OMC
JPW18603	Mercury



Yamaha Engine Kits



U30321



U38098

Part No.	Model	Description
U30321	K8	Kit for 25hp engines
U38098	K14F	Kit for 10hp - 15hp engines
U32654	S-2674	Yamaha Throttle Connector
U32655	S-2675	Yamaha Shift Connector



U32654
U32655

Power A Mark II™

Smooth, effortless, positive control of shift and throttle for up to four stations.

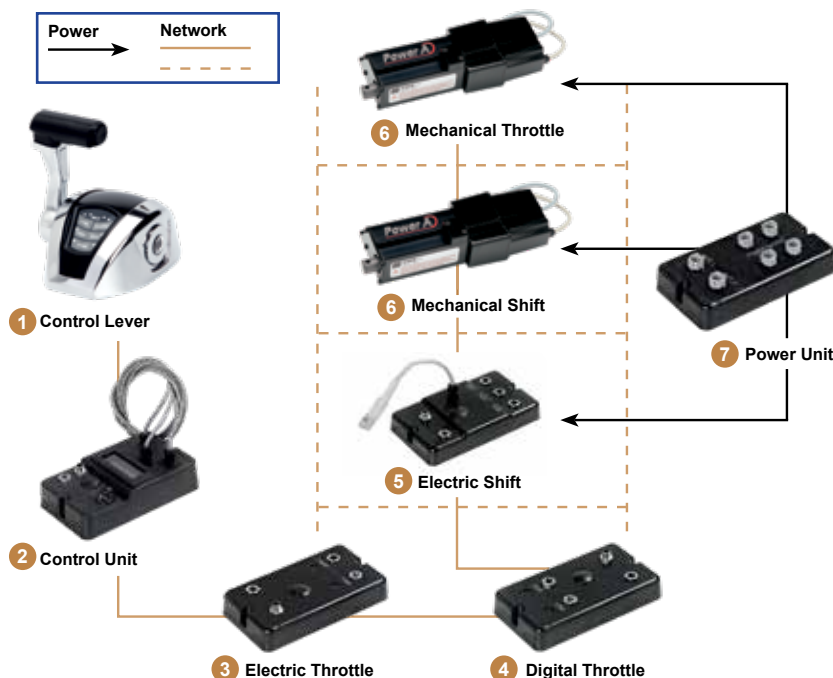
The easy to install **Power A Mark II™** control system provides fingertip operation of throttle and shift levers. Using reliable and precise digital data transmission, this single or dual function control system is specifically designed to work on mechanically controlled as well as electronic and electro-hydraulic gas and diesel inboards, sterndrives, and outboards.



- With the ability to control up to 2 engines from up to 4 different stations, the Power A Mark II™ is a modular and flexible system with simple to install components. The unique Control Unit Display of the Power A Mark II™ provides simple touch pad programming with descriptive information regarding the set up, tuning and diagnostics of the system.
- This unique system can replace mechanical controls either on fully mechanical engines, or on fully electrical engines, or on engines with the combination of both characteristics.

SPECIAL FEATURES

- **Dock Assist** – allows the operator to reduce the sensitivity of the throttle function for easier dock side handling.
- **RPM Synchronisation** – reduces engine vibration and improves fuel economy.
- **High Idle** – increase RPM where higher idle is necessary for cold engine operations. Plus a programmable **Trolling Valve Control** and **Neutral Warm-Up**.
- The stylish and ergonomically designed control makes the Power A Mark II™ suitable for many types of applications ranging from sport boats and yachts to commercial applications.
- Private protocol can bus for data transmission.
- Available with and without trim, the control has audible and visual interfaces that alert the operator to the current status of the control system.
- Connection of multiple stations up to four controls.
- Modular system.
- Direct communication with electronic engines (SAE J 1939 or NMEA 2000).
- Plug 'n' Play connectivity.
- Automatic engines synchronisation.
- Fully programmable shift delays.



Systems will be quoted up on individual requests.

Information required to quote:

- Vessel size.
- Vessel electrical systems voltage.
- Number of engines.
- Brand of engine (size and model).
- Drive unit type, brand and model.
- Number of control stations.



1 Control Stations

- Single Lever/Dual Function and Dual Lever/Dual Function for shift, throttle and trolling.
- **Power supply:** 9v (min) to 32v (max)
- **Working temperature:** -25°C to +75°C
- **Control station functions:**
 - Station Select, Engines Warm Up, High Idle, Docking, Engine Synchronization, Trolling Valve (on request)
- **Electronic throttle outputs:**
 - Voltage (double output 0-5V and 0-2.5V)
 - PWM (0-100%, frequency from 200Hz to 1kHz)
 - Current (4-10mA)
- **Trolling valve output:**
 - Voltage (0-5V)
 - PWM (0-100%, frequency from 100Hz to 1kHz)
 - Current (4-20mA)
- **Electric shift control:**
 - 2 or 3 ON/OFF or proportional solenoids
 - Shift delays fully settable.
- **Digital throttle output:**
 - SAE J 1939
 - NMEA 2000

Part No.	Controls	Trim	Finish
JPW15604	Single	No	Chrome
JPW15603	Single	Yes	Chrome
JPW15601	Twin	No	Black
JPW15602	Twin	No	Chrome
JPW15605	Twin	Yes	Chrome



2 Control Unit

User interface for the configuration, settings and diagnostic of all the modules in a system.



Part No.	Model	Dimensions L x W (mm)
JPW15608	PA2-CU	210 x 120

5 Shift Unit

Controls up to 2 shifts with solenoids. Required for use with direct connection to the electrical shift unit on the transmission.



Part No.	Model	Dimensions L x W (mm)
JPW15613	PA2-SU	210 x 120

3 V-Throttle or I-Throttle Unit

Supplies the throttle electronic signal. Required for use with direct connection to the electronic throttle on the engine.

- **JPW15610:** For 0-5v interfaces (voltage).
- **JPW15611:** For 4-20mA (current).



Part No.	Model	Dimensions L x W (mm)
JPW15610	PA2-VT (V-Throttle)	205 x 110
JPW15611	PA2-IT (I-Throttle)	205 x 110

6 Mechanical Throttle / Shift

The electromechanical actuators can control any mechanical interface (throttle shift or custom made trolling valve) through Mach™ Zero and C8 mechanical cables.



Part No.	Model	Length (mm)
JPW15626	PA2-MA	320

4 PWMT-Throttle Unit

Supplies the electrical signals to PWM interfaces.



Part No.	Model	Dimensions L x W (mm)
JPW15612	PA2-PWMT	205 x 110

Network Terminators

Each system requires two terminators. For cable ends - choose terminator according to your needs.



Part No.	Model
JPW15628	PA2-NT

Throttle Units



Part No.	Model	Interface	Features	No. of Engines	Engine Type
JPW15610	V-Throttle	Analog voltage	Redundant voltage input, IVS.	1 - 2	FPT, Yanmar, Mercruiser, Lombardini
JPW15611	I-Throttle	Current analog	Current out puts.	1 - 2	4 - 20 mA throttle engines
JPW15612	PWM Throttle	PWM	PWM outputs	1 - 2	Perkins, Caterpillar

Main System Cables

Note: Should the engine inverter need the neutral solenoid, the proper shift cable must be used. Custom cabling can be done, upon request.

Main Power Supply Cables

- Main power supply of the system.
- Connectors: One each battery.

Part No.	Length (m)
U42052	1
U42053	3
U42054	7
U42055	10



Power Cable Extensions

- Power extension cable for modules connection.
- Connectors: One each mechanical actuator or shift unit.

Part No.	Length (m)
U42056	1
U42057	3
U42058	7
U42059	10



Shift Cables

- Solenoid connection cable.
- Connectors: One each solenoid shift.

Part No.	Length (m)
U42060	1
U42061	3
U42062	7
U42063	10



Three-Solenoid Shift Cables

- Three-solenoid connection cable (neutral solenoid).
- Connectors: One each 3 solenoid shift.

Part No.	Length (m)
U42072	1
U42073	3
U42074	7
U42075	10



CAN Cables

- Network connection cable.
- Connectors: CAN cable.

Part No.	Length (m)
U73639	1
U73680	3
U73681	7
U71021	10
U71031	15
U71032	20



Throttle Cables

Part No.	Length (m)	Model	Application	Connectors
U42029	2	Universal V-Throttle cable	Not redundant 5V cable/1 engine	None
U42030	4			
U42350	2	FPT V-Throttle cable	FPT engines 0 – 5V cable	FPT, all engines with J-INV connector
U42351	4			
U42348	2	FPT V-Throttle cable	FPT engines 0 – 5V cable	FPT, all engines with J-D connector
U42349	4			
U42033	2	VW V-Throttle cable (4-5-6 cylinder)	VW engines 0 – 5V cable	VW, 4, 5 and 6 cylinder
U42034	4			
U42035	2	Mercruiser 4.2 Black V-Throttle cable	Mercruiser engines 0 – 5V cable	Mercruiser 4.2 black engines
U42036	4			
U42037	2	Mercruiser QSD V-Throttle cable	Mercruiser engines 0 – 5V cable	Mercruiser QSD engines
U42038	4			
U42039	2	Lombardini V-Throttle cable	Lombardini engines 0 – 5 V cable	180 and 240 HP Lombardini engines
U42040	4			
U42041	2	Yanmar V-Throttle cable	Yanmar engines 0 – 5 V cable	Yanmar BY engines
U42042	4			
U42043	2	Universal I/PWM Throttle cable	PWM throttle cable with no connector	Compatible with CAT electronic engines C30/C32
U42044	4			
U42045	2	Universal SAEJ1939 Throttle cable	S A E J 1 9 3 9 cable with no connector	None
U42046	4			
U42047	1	NMEA2000 Throttle cable	NMEA2000 cable	DeviceNet cable Drop type for NMEA2000 connection
U42048	3			
U42049	7			
U42288	2			
U42289	4	Hyundai V-Throttle cable	Hyundai engines 0 – 5 V cable	Hyundai engines
U42314	2			
U42315	4	VM V-Throttle cable	V M engines 0 – 5 V cable	VM engines
U42374	2			
U42373	4	Perkins PWM-Throttle cable	Perkins engine PWM Throttle cable	Perkins engines

Mechanical Throttle and Mechanical Shift - Single Engine

