

2.1 Handbook information

This handbook describes installation of the Evolution autopilot system.

The handbook includes information to help you:

- plan your autopilot system and ensure you have all the necessary equipment,
- install and connect the EV-1 and ACU (if applicable) as part of the autopilot system,
- obtain support if required.

This and other Raymarine product documentation is available to download in PDF format from www.raymarine.com.

Applicable products

Part number	Name	Description	Maximum continuous drive power output
E70096	EV-1	Attitude Heading Reference Sensor (AHRS)	Not applicable.
E70098	ACU-100	Actuator Control Unit (ACU)	7 A
E70374	ACU-150	Actuator Control Unit (ACU)	12 A
E70099	ACU-200	Actuator Control Unit (ACU)	15 A
E70139	ACU-300	Actuator Control Unit (ACU)	5 A
E70100	ACU-400	Actuator Control Unit (ACU)	30 A

Product documentation

The following documentation is applicable to your product:

Evolution documentation

Description	Part number
Evolution autopilot system Installation instructions Plan and install an autopilot system including an EV-1 Attitude Heading Reference Sensor (AHRS) and an Actuator Control Unit (ACU).	87180
Evolution Drive-By-Wire (DBW) autopilot system Installation instructions Plan and install a DBW autopilot system including an EV-2 AHRS.	87181
ACU-100 and ACU-150 Mounting template Template for surface mounting the ACU-100 or ACU-150.	87192

Description	Part number
ACU-200, ACU-300 and ACU-400 Mounting template Template for surface mounting the ACU-200, ACU-300 or ACU-400.	87176
EV-1 and EV-2 mounting template Template for surface or wall mounting the EV-1/EV-2 sensor.	87170

Autopilot controller documentation

Commissioning and operating instructions for your autopilot with compatible Autopilot Controllers are shown below:

Description	Part number
p70/p70R installation and operation instructions Installation, commissioning and operation instructions including connection to a wider system of marine electronics.	81355
p70s/p70Rs installation and operation instructions Installation, commissioning and operation instructions including connection to a wider system of marine electronics.	81365
LightHouse™ MFDs Operations and autopilot commissioning instructions including connection to a wider system of marine electronics.	81360

All documents are available to download from the Raymarine website: www.raymarine.com/manuals

Autopilot drive unit documentation

Installation instructions for your autopilot drive unit are listed below. Please select the appropriate document for your autopilot drive unit:

Description	Part number
Tiller Drive Installation instructions Installation and commissioning instructions for the following Tiller Drive: Q047	87279
ST1000+ / ST2000+ Tiller Drive Owner handbook Installation and commissioning instructions for the following Tiller Drives: A12004, A12005	81130
Wheel Drive Installation instructions Installation and commissioning instructions for the following Wheel Drive: E12093	87287
Constant Running Hydraulic Pump Installation instructions Installation and commissioning instructions for the following Constant Running Hydraulic Pumps: E12171, E12172	87039

TABLE IX - CONDUCTORS SIZED FOR 3 PERCENT DROP IN VOLTAGE**NOTE: In the event of a conflict between the voltage drop table and the ampacity table, use the larger wire size.**

Length of Conductor from Source of Current to Device and Back to Source - Feet																
TOTAL CURRENT ON CIRCUIT IN AMPS	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140
	12 Volts - 3% Drop Wire Sizes (gauge)								Based on Minimum CM Area							
5	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6
10	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2
15	12	10	10	8	8	6	6	6	4	4	2	2	2	2	2	1
20	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0
25	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0
30	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0
40	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0
50	6	6	4	4	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0	
60	6	4	4	2	2	1	0	2/0	3/0	3/0	4/0	4/0	4/0			
70	6	4	2	2	1	0	2/0	3/0	3/0	4/0	4/0					
80	6	4	2	2	1	0	3/0	3/0	4/0	4/0						
90	4	2	2	1	0	2/0	3/0	4/0	4/0							
100	4	2	2	1	0	2/0	3/0	4/0								
TOTAL CURRENT ON CIRCUIT IN AMPS	24 Volts - 3% Drop Wire Sizes (gauge)								Based on Minimum CM Area							
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140
5	18	18	18	16	16	14	12	12	12	10	10	10	10	10	8	8
10	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6
15	16	14	12	12	10	10	8	8	6	6	6	6	6	4	4	4
20	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2
25	12	12	10	10	8	6	6	6	4	4	4	4	2	2	2	2
30	12	10	10	8	8	6	6	4	4	4	2	2	2	2	2	1
40	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0
50	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0
60	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0
70	8	6	6	4	4	2	2	1	1	0	0	2/0	2/0	3/0	3/0	3/0
80	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0
90	8	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0
100	6	6	4	4	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0	

TABLE IX – CONDUCTORS SIZED FOR 3 PERCENT DROP IN VOLTAGE - Continued, 32 Volts**NOTE: In the event of a conflict between the voltage drop table and the ampacity table, use the larger wire size.**