

PROSPECTUS SUPPLEMENT

(to Prospectus Supplement dated October 6, 2025)

(to Prospectus dated February 2, 2024)

**Up to \$2,500,269
Common Stock**



Polar Power, Inc.

This prospectus supplement (the “Prospectus Supplement”) amends and supplements certain information in the prospectus supplement, dated October 6, 2025, to the prospectus dated February 2, 2024, filed with the Securities and Exchange Commission as part of our registration statement on Form S-3 (333-276705) (collectively, the “ATM Prospectus”), relating to the offer and sale of shares of our common stock from time to time pursuant to the terms of the ATM sales agreement, dated October 6, 2025 (the “Sales Agreement”), with ThinkEquity LLC (“ThinkEquity” or the “Sales Agent”) as sales agent. During the twelve calendar months prior to, and including, the date hereof, we have sold an aggregate of 166,127 shares of our common stock for aggregate gross proceeds of approximately \$780,461 through ThinkEquity under the Sales Agreement. This Prospectus Supplement should be read in conjunction with the ATM Prospectus, and is qualified by reference thereto, except to the extent that the information herein amends or supersedes the information contained in the ATM Prospectus. This Prospectus Supplement is not complete without, and may only be delivered or utilized in connection with, the ATM Prospectus, and any future amendments or supplements thereto.

As of the date of this Prospectus Supplement, the aggregate market value of our common stock held by non-affiliates pursuant to General Instruction I.B.6 of Form S-3 is \$9,842,189, which was calculated based on 1,867,588 shares of our outstanding common stock held by nonaffiliates and a price of \$5.27 per share, the closing price of our common stock on October 15, 2025, which is the highest closing sale price of our common stock on The Nasdaq Capital Market within the prior 60 days. As of the date of this Prospectus Supplement, we have sold securities with an aggregate market value of approximately \$780,461 pursuant to General Instruction I.B.6 of Form S-3 during the 12 calendar months prior to, and including, the date of this Prospectus Supplement. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities in public primary offerings on Form S-3 with a value exceeding one-third of our public float (as defined by General Instruction I.B.6) in any 12 calendar month period so long as our public float remains below \$75.0 million.

We are filing this Prospectus Supplement to amend the ATM Prospectus to update the maximum amount of shares that we are eligible to sell from and after the date hereof, and to specify the value of common stock we would be permitted to sell in any 12 calendar month period under General Instruction I.B.6. We may currently only offer and sell shares of our common stock having an aggregate offering price of up to \$2,500,269 pursuant to this Prospectus Supplement in accordance with the terms of the Sales Agreement, and as a result of the limitations set forth in General Instruction I.B.6. However, in the event that our public float increases or decreases, we may sell securities in public primary offerings on Form S-3 with a value up to one-third of our public float, in each case calculated pursuant to General Instruction I.B.6 and subject to the terms of the Sales Agreement. In the event that our public float increases above \$75.0 million, we will no longer be subject to the limits in General Instruction I.B.6 of Form S-3. If our public float increases such that we may sell additional amounts under the Sales Agreement and the registration statement of which this Prospectus Supplement and the ATM Prospectus are a part, we will file another prospectus supplement prior to making additional sales.

Upon our delivery of a placement notice and subject to the terms and conditions of the Sales Agreement, the Sales Agent may sell shares of common stock by methods deemed to be an “at the market offering” as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended (the “Securities Act”). The Sales Agent will use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable state and federal laws, rules and regulations and the rules of The Nasdaq Capital Market. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

We pay the Sales Agent a total commission for its services in acting as agent in the sale of common stock equal to 3.0% of the aggregate gross proceeds of the sales price of all shares sold through the Sales Agent as agent under the Sales Agreement. See “Plan of Distribution” for information relating to certain expenses of the Sales Agent to be reimbursed by us.

In connection with the sale of common stock on our behalf, the Sales Agent will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation to the Sales Agent will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to the Sales Agent with respect to certain liabilities, including liabilities under the Securities Act.

Our common stock is traded on The Nasdaq Capital Market tier of The Nasdaq Stock Market, LLC under the symbol “POLA.” On December 11, 2025, the last reported sale price of our common stock on The Nasdaq Capital Market was \$2.27 per share.

We are a smaller reporting company under Rule 405 of the Securities Act and, as such, have elected to comply with certain reduced public company reporting requirements for this prospectus, the documents incorporated by reference herein and future filings.

INVESTING IN OUR SECURITIES INVOLVES RISKS. WE STRONGLY RECOMMEND THAT YOU READ CAREFULLY THE RISKS WE DESCRIBE IN THIS PROSPECTUS SUPPLEMENT AND THE ACCOMPANYING BASE PROSPECTUS, AS WELL AS THE RISK FACTORS THAT ARE INCORPORATED BY REFERENCE INTO THIS PROSPECTUS SUPPLEMENT AND THE ACCOMPANYING BASE PROSPECTUS FROM OUR FILINGS MADE WITH THE SECURITIES AND EXCHANGE COMMISSION. SEE “RISK FACTORS” BEGINNING ON PAGE S-6 OF THE ATM PROSPECTUS AND PAGE 1 OF THE ACCOMPANYING BASE PROSPECTUS.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved the securities we may be offering or determined if this prospectus is accurate or complete. Any representation to the contrary is a criminal offense.

ThinkEquity

The date of this prospectus supplement is December 12, 2025