

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-8

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

LITTELFUSE, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of incorporation or
organization)

36-3795742
(I.R.S. Employer Identification No.)

8755 W. Higgins Road, Suite 500
Chicago, IL 60631
(Address of Principal Executive Offices)

IXYS Corporation 2016 Equity Incentive Plan
IXYS Corporation 2013 Equity Incentive Plan
IXYS Corporation 2011 Equity Incentive Plan
IXYS Corporation 2009 Equity Incentive Plan
(Full title of the plan)

David W. Heinzmann
President and Chief Executive Officer
Littelfuse, Inc.
8755 W. Higgins Road, Suite 500
Chicago, IL 60631
(Name and Address of Agent For Service)

(773) 628-1000
(Telephone number, including area code, of Agent For Service)

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company Emerging growth company
(Do not check if a smaller reporting company)

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE

Title of securities to be registered	Amount to be registered (1)	Proposed maximum offering price per share (2)	Proposed maximum aggregate offering price (2)	Amount of registration fee
Common Stock, par value \$0.01 per share	205,688	\$215.13	\$44,249,659	\$5,509.08

- (1) Pursuant to Rule 416(a) of the Securities Act of 1933, as amended, this Registration Statement also covers an indeterminable number of additional shares of Common Stock that may become issuable pursuant to stock splits, stock dividends, or similar transactions that result in an increase in the number of shares of the registrant's outstanding Common Stock.
- (2) This calculation is made solely for the purpose of determining the registration fee pursuant to Rule 457(h) under the Securities Act. The fee is calculated on the basis of the average of the high and low sale prices per share of the Common Stock on the NASDAQ Global Select Market on August 2, 2018.

EXPLANATORY NOTE

The purpose of this Registration Statement on Form S-8 (this "Registration Statement") is to register with the U.S. Securities and Exchange Commission (the "Commission") 205,688 shares of common stock, par value \$0.01 per share (the "Common Stock"), of Littelfuse, Inc. (the "Company") that may be issued by the Company to eligible employees of the Company pursuant to the terms of the IXYS Corporation 2016 Equity Incentive Plan, the IXYS Corporation 2013 Equity Incentive Plan, the IXYS Corporation 2011 Equity Incentive Plan, and the IXYS Corporation 2009 Equity Incentive Plan (the "Plans").

PART I INFORMATION REQUIRED IN THE SECTION 10(A) PROSPECTUS

Item 1. Plan Information.

The applicable information set forth in Item 2 of this Registration Statement is incorporated by reference in this Item 1.

Item 2. Registrant Information and Employee Plan Annual Information.

The document(s) containing the information concerning the Plans specified in Part I of Form S-8 have been or will be sent or given to participants in the Plans, as specified by Rule 428(b)(1) under the Securities Act of 1933, as amended (the "Securities Act"). In accordance with the rules and regulations of the Commission and the Note to the instructions to Part I of Form S-8, such documents are not being filed with the Commission either as part of this Registration Statement or as prospectuses or prospectus supplements pursuant to Rule 424 under the Securities Act. Such documents and the documents incorporated by reference in this Registration Statement pursuant to Item 3 of Part II hereof, taken together, constitute a prospectus that meets the requirements of Section 10(a) of the Securities Act.

PART II INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The following documents filed by the Company with the Commission are incorporated by reference into this Registration Statement:

1. The registrant's Annual Report on Form 10-K for the fiscal year ended December 30, 2017, filed with the Commission on February 23, 2018.
2. All other reports of the registrant filed with the Commission pursuant to Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), since the end of the fiscal year ended December 30, 2017; and
3. The description of the registrant's Common Stock which is contained in the General Form for Registration of Securities on Form 10, filed with the Commission on July 7, 1992 (1934 Act File No. 0-20388).

In addition, all reports and documents filed by the registrant under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this Registration Statement and prior to the filing of a post-effective amendment which indicates that all securities being offered have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference in and to be part of this Registration Statement from the filing date of each such document.

For purposes of this Registration Statement, any statement contained in a document incorporated or deemed to be incorporated by reference into this Registration Statement shall be deemed to be modified or superseded for purposes hereof to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed incorporated herein by reference modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed to constitute a part of this Registration Statement, except as so modified or superseded.

Item 4. Description of Securities.

Not Applicable.

Item 5. Interests of Named Experts and Counsel.

Not Applicable.

Item 6. Indemnification of Directors and Officers.

The Company's Certificate of Incorporation (the "Certificate of Incorporation") provides that directors of the Company are not liable to the Company or its stockholders for monetary damages for any breach of fiduciary duty except for liability: (i) for any breach of the director's or officer's duty of loyalty to the Company or the Company's stockholders; (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law; (iii) under Section 174 of the Delaware General Corporation Law ("DGCL"); or (iv) for any transaction from which a director or officer derives an improper personal benefit. If the DGCL is amended to authorize corporate action further eliminating or limiting the personal liability of directors or officers, then the liability of the Company's directors and officers shall be eliminated or limited to the fullest extent permitted by the DGCL, as so amended. The Certificate of Incorporation also provides that any repeal or modification of the indemnification provisions of the Certificate of Incorporation by stockholders of the Company shall be prospective only.

The Certificate of Incorporation provides for indemnification of directors and officers of the Company to the fullest extent permitted by the DGCL. Section 145 of the DGCL provides for indemnification of directors and officers from and against expenses (including attorney's fees), judgments, fines and amounts paid in settlement reasonably incurred by them in connection with any civil, criminal, administrative or investigative claim or proceeding (including civil actions brought as derivative actions by or in the right of the Company but only to the extent of expenses reasonably incurred in defending or settling such action) in which they may become involved by reason of being a director or officer of the Company if the director or officer acted in good faith and in a manner which he reasonably believed to be in or not opposed to the best interest of the Company and, in addition, in criminal actions, if he had no reasonable cause to believe his conduct to be unlawful. If, in an action brought by or in the right of the Company, the director or officer is adjudged to be liable for negligence or misconduct in the performance of his duty, he will only be entitled to such indemnity as the court finds to be proper. Persons who are successful in defense of any claim against them have a right to and are entitled to indemnification against expenses actually and reasonably incurred in connection therewith. In all other cases, indemnification shall be made (unless otherwise ordered by a court) only if the board of directors, acting by a majority vote of a quorum of disinterested directors, independent legal counsel or holders of a majority of the shares entitled to vote determines that the applicable standard of conduct has been met. Section 145 also provides such indemnity for directors and officers of a corporation who, at the request of the corporation, act as directors, officers, employees or agents of other corporations, partnerships or other enterprises.

The registrant's Bylaws require the Company to indemnify any director or officer to the fullest extent permitted by the DGCL and the registrant's Certificate of Incorporation.

The Company also maintains insurance for officers and directors against certain liabilities, including liabilities under the Securities Act. The effect of this insurance is to indemnify any officer or director of the Company against expenses, including, without limitation, attorneys' fees, judgments, fines and amounts paid in settlement, incurred by an officer or director upon a determination that such person acted in good faith. The premiums for such insurance are paid by the Company.

Item 7. Exemption from Registration Claimed.

Not Applicable.

Item 8. Exhibits

The following exhibits are filed as part of this registration statement:

Exhibit No.	Description
4.1	Certificate of Incorporation, as amended (filed as Exhibit 3.1 to the Company's Form 10-K for the fiscal year ended December 30, 2017, File No. 0-20388).
4.2	Bylaws, as amended and restated (filed as Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q filed October 31, 2014, File No. 0-20388).
4.3	IXYS Corporation 2009 Equity Incentive Plan (filed as Exhibit 4.4 to the Company's Post-Effective Amendment No. 1 on Form S-8 to the Registration Statement on Form S-4 filed January 19, 2018, File No. 333-221147).
4.4	IXYS Corporation 2011 Equity Incentive Plan (filed as Exhibit 4.5 to the Company's Post-Effective Amendment No. 1 on Form S-8 to the Registration Statement on Form S-4 filed January 19, 2018, File No. 333-221147).
4.5	IXYS Corporation 2013 Equity Incentive Plan (filed as Exhibit 4.6 to the Company's Post-Effective Amendment No. 1 on Form S-8 to the Registration Statement on Form S-4 filed January 19, 2018, File No. 333-221147).
4.6	IXYS Corporation 2016 Equity Incentive Plan (filed as Exhibit 4.7 to the Company's Post-Effective Amendment No. 1 on Form S-8 to the Registration Statement on Form S-4 filed January 19, 2018, File No. 333-221147).
5.1*	Opinion of Wachtell, Lipton, Rosen & Katz.
23.1*	Consent of Grant Thornton LLP, Independent Registered Public Accounting Firm.
23.2*	Consent of Wachtell, Lipton, Rosen & Katz (filed as a part of Exhibit 5.1).
24	Power of Attorney (included in the signature page to this Registration Statement).

* filed herewith.

Item 9. Undertakings

(A) The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the registration statement is on Form S-8 and the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or 15(d) of the Exchange Act that are incorporated by reference in the registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(B) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(C) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers, and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Chicago, Illinois on this 8th day of August, 2018.

LITTELFUSE, INC.

By: /s/ David W. Heinzmann

David W. Heinzmann

President and Chief Executive Officer

(Principal Executive Officer)

POWER OF ATTORNEY

Each of the registrant and each director or officer of the registrant whose individual signature appears below hereby appoints David W. Heinzmann and Meenal A. Sethna and each of them, any of whom may act without the joinder of the others, as the true and lawful attorney-in-fact and agent of the undersigned, in any and all capacities, with full power of substitution, to sign any and all amendments to this registration statement (including post-effective amendments), and, in connection with any registration of additional securities, to sign any abbreviated registration statement and any and all amendments thereto, and to file the same with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as the undersigned might or could do in person, hereby ratifying and confirming all that each said attorney-in-fact and agent, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ David W. Heinzmann</u> David W. Heinzmann	Director, President and Chief Executive Officer (Principal Executive Officer)	August 8, 2018
<u>/s/ Meenal A. Sethna</u> Meenal A. Sethna	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	August 8, 2018
<u>/s/ Jeffrey G. Gorski</u> Jeffrey G. Gorski	Vice President and Chief Accounting Officer (Principal Accounting Officer)	August 8, 2018
<u>/s/ Tzau-Jin Chung</u> Tzau-Jin Chung	Director	August 8, 2018
<u>/s/ Cary T. Fu</u> Cary T. Fu	Director	August 8, 2018
<u>/s/ Anthony Grillo</u> Anthony Grillo	Director	August 8, 2018
<u> </u> Gordon Hunter	Director	August __, 2018
<u>/s/ John E. Major</u> John E. Major	Director	August 8, 2018
<u>/s/ William P. Noglows</u> William P. Noglows	Director	August 8, 2018
<u>/s/ Ronald L. Schubel</u> Ronald L. Schubel	Director	August 8, 2018
<u> </u> Nathan Zommer	Director	August __, 2018

INDEX TO EXHIBITS

<u>Exhibit No.</u>	<u>Description</u>
4.1	Certificate of Incorporation, as amended (filed as Exhibit 3.1 to the Company's Form 10-K for the fiscal year ended December 30, 2017, File No. 0-20388).
4.2	Bylaws, as amended and restated (filed as Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q filed October 31, 2014, File No. 0-20388).
4.3	IXYS Corporation 2009 Equity Incentive Plan (filed as Exhibit 4.4 to the Company's Post-Effective Amendment No. 1 on Form S-8 to the Registration Statement on Form S-4 filed January 19, 2018, File No. 333-221147).
4.4	IXYS Corporation 2011 Equity Incentive Plan (filed as Exhibit 4.5 to the Company's Post-Effective Amendment No. 1 on Form S-8 to the Registration Statement on Form S-4 filed January 19, 2018, File No. 333-221147).
4.5	IXYS Corporation 2013 Equity Incentive Plan (filed as Exhibit 4.6 to the Company's Post-Effective Amendment No. 1 on Form S-8 to the Registration Statement on Form S-4 filed January 19, 2018, File No. 333-221147).
4.6	IXYS Corporation 2016 Equity Incentive Plan (filed as Exhibit 4.7 to the Company's Post-Effective Amendment No. 1 on Form S-8 to the Registration Statement on Form S-4 filed January 19, 2018, File No. 333-221147).
5.1*	Opinion of Wachtell, Lipton, Rosen & Katz.
23.1*	Consent of Grant Thornton LLP, Independent Registered Public Accounting Firm.
23.2*	Consent of Wachtell, Lipton, Rosen & Katz (filed as a part of Exhibit 5.1).
24	Power of Attorney (included in the signature page to this Registration Statement).

* filed herewith

[Letterhead of Wachtell, Lipton, Rosen & Katz]

August 8, 2018

Littelfuse, Inc.
8755 West Higgins Road, Suite 500
Chicago, Illinois 60631

Re: Registration Statement on Form S-8

Ladies and Gentlemen:

We have acted as special counsel to Littelfuse, Inc., a Delaware corporation ("Littelfuse"), in connection with the preparation and filing of Littelfuse's Registration Statement on Form S-8 (the "Registration Statement," which term does not include any other document or agreement whether or not specifically referred to therein or attached as an exhibit or schedule thereto), relating to up to 205,688 shares of Littelfuse's common stock, par value \$0.01 per share (the "Littelfuse Shares"), that may be issued by Littelfuse upon the exercise of certain outstanding option awards held by certain persons that qualify as current employees of IXYS Corporation, a Delaware corporation ("IXYS"), or its subsidiaries immediately prior to the acquisition of IXYS by Littelfuse pursuant to the terms of the Agreement and Plan of Merger, dated as of August 25, 2017, as amended by Amendment No. 1 to the Agreement and Plan of Merger, dated as of December 4, 2017, by and among Littelfuse, IXYS, Iron Merger Co., Inc., a Delaware corporation and wholly owned subsidiary of Littelfuse, and IXYS Merger Co., LLC, a Delaware limited liability company and wholly owned subsidiary of Littelfuse. The options were granted under the IXYS Corporation 2009 Equity Incentive Plan, the IXYS Corporation 2011 Equity Incentive Plan, the IXYS Corporation 2013 Equity Incentive Plan and the IXYS Corporation 2016 Equity Incentive Plan (collectively, the "Plans").

For purposes of giving this opinion, we have examined the Registration Statement, Littelfuse's Certificate of Incorporation, as amended, and Littelfuse's Bylaws, as amended and restated. Also, we have examined the originals, or duplicates or certified or conformed copies, of such corporate records, agreements, documents and other instruments and have made such other investigations as we have deemed relevant and necessary in connection with this opinion. As to questions of fact material to this opinion, we have relied, with your approval, upon oral and written representations of Littelfuse and certificates or comparable documents of public officials and of officers and representatives of Littelfuse.

In making such examination and rendering this opinion, we have assumed without verification the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the authenticity of the originals of such documents submitted to us as certified copies, the conformity to originals of all documents submitted to us as copies, the authenticity of the originals of such documents, that all documents submitted to us as certified copies are true and correct copies of such originals and the legal capacity of all individuals executing any of the foregoing documents.

Based upon and subject to the foregoing examination and in reliance thereon, and subject to the qualifications, assumptions and limitations stated herein and in reliance on statements of fact contained in the documents that we have examined or reviewed, we are of the opinion that the Littelfuse Shares to be issued by Littelfuse pursuant to and in the manner contemplated by the applicable Plan and relevant agreements duly authorized by and in accordance with the terms of the applicable Plan will be, upon issuance, duly authorized and such Littelfuse Shares will be validly issued, fully paid and nonassessable.

We are members of the bar of the State of New York. Littelfuse is a Delaware corporation, and we have not considered, and we express no opinion as to, any law other than the Delaware General Corporation Law (including the statutory provisions, and reported judicial decisions interpreting the foregoing).

We hereby consent to be named in the Registration Statement as the attorneys who passed upon the legality of the Littelfuse Shares to be issued pursuant to the Registration Statement and to the filing of a copy of this opinion as Exhibit 5.1 to the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act of 1933, as amended, and the rules and regulations of the Securities and Exchange Commission promulgated thereunder. This opinion speaks as of its date, and we undertake no (and hereby disclaim any) obligation to update this opinion.

Very truly yours,

/s/ Wachtell, Lipton, Rosen & Katz

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our reports dated February 23, 2018, with respect to the consolidated financial statements and internal control over financial reporting of Littelfuse, Inc. included in the Annual Report on Form 10-K for the year ended December 30, 2017, which are incorporated by reference in this Registration Statement. We consent to the incorporation by reference of the aforementioned reports in this Registration Statement.

/s/ GRANT THORNTON LLP

Chicago, Illinois
August 8, 2018