IMAGE SENSING SYSTEMS INC Form 424B3 December 15, 2009

Registration No. 333-162810 Filed pursuant to Rule 424(b)(3)

PROSPECTUS

Image Sensing Systems, Inc.

Common Stock

We may offer and sell from time to time up to \$15,000,000 in the aggregate of shares of our common stock.

We will provide specific terms of the offering of our common stock in supplements to this prospectus for each offering of common stock. Any prospectus supplement may also add, update or change information in this prospectus. This prospectus may not be used to offer or sell shares of our common stock unless accompanied by a prospectus supplement. You should read this prospectus and the applicable prospectus supplement carefully before you invest in our common stock.

Our common stock is listed on The Nasdaq Capital Market under the symbol ISNS. On December 14, 2009, the closing price of our common stock as quoted on The Nasdaq Capital Market was \$12.00 per share.

We may offer shares of our common stock through underwriting syndicates managed or co-managed by one or more underwriters, dealers or agents or directly to purchasers. The prospectus supplement for each offering of common stock will describe in detail the plan of distribution for that offering. For general information about the distribution of common stock, see Plan of Distribution in this prospectus.

Unless the context otherwise requires, the terms we, our, us, the Company and Image Sensing Systems refer to Image Sensing Systems, Inc. and its consolidated subsidiaries.

This investment involves risk. See Risk Factors contained in our filings with the Securities and Exchange Commission and any applicable prospectus supplement.

The aggregate market value of our outstanding common equity held by non-affiliates as of December 3, 2009 was approximately \$47.4 million. We have not issued any securities pursuant to Instruction I.B.6. of the Registration Statement on Form S-3 during the 12 calendar month period that ends on and includes the date hereof.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is December 15, 2009.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, using a shelf registration statement. Under this shelf registration statement, we may, from time to time, sell shares of our common stock in one or more offerings. The aggregate initial offering price of all shares of our common stock sold under this prospectus will not exceed \$15,000,000.

This prospectus provides you with a general description of our proposed offering of shares of our common stock. Each time we offer shares of our common stock under this prospectus, we will describe in a prospectus supplement, which we will deliver with this prospectus, specific information about the offering. In each prospectus supplement, we will include the following information:

the public offering price per share of our common stock;

the names of any underwriters, agents or dealers through or to which the shares of common stock will be sold;

any compensation of those underwriters, agents or dealers;

any risk factors applicable to the shares of common stock that we propose to sell; and

any other material information about the offer and sale of our common stock.

We will file each prospectus supplement with the SEC. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and any prospectus supplement together with additional information described under the heading. Where You Can Find More Information below.

If you are in a jurisdiction where offers to sell, or solicitations of offers to purchase, the shares of common stock offered by this document are unlawful, or if you are a person to whom it is unlawful to direct these types of activities, then the offer presented in this prospectus does not extend to you.

We have not authorized anyone to give any information or make any representation about us that is different from, or in addition to, that contained in this prospectus, including in any of the materials that we have incorporated by reference into this prospectus, any accompanying prospectus supplement, or any free writing prospectus prepared or authorized by us. Therefore, if anyone does give you information of this sort, you should not rely on it as authorized by us. Neither the delivery of this prospectus, nor any sale made hereunder, shall under any circumstances create any implication that there has been no change in our affairs since the date hereof or that the information incorporated by reference herein is correct as of any time after the date of such information.

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IMAGE SENSING SYSTEMS, INC.

We are the leading provider of software-based computer enabled detection, or CED, products and solutions for the intelligent transportation systems, or ITS, industry. Our family of products, which we market as Autoscope® and RTMS®, provides end users with the tools needed to optimize traffic flow, enhance driver safety, regulate air quality and address emerging security/surveillance concerns. Our technology analyzes signals from sophisticated sensors and transmits the information to management systems and controllers or directly to users.

CED is a process in which software rather than humans examines outputs from various types of sophisticated sensors to determine what is happening in a field of view. In the ITS industry, CED is a critical component of managing congestion and traffic flow. In many markets, it is not possible to build roads, bridges and highways quickly enough to accommodate increasing automobile ownership. For example, in 2007 there were approximately 3.0 million vehicles in Moscow, and the number of vehicles is expected to increase by 50% to 4.5 million vehicles by 2012. In China, 9.4 million new vehicles were introduced in 2008, with this annual figure expected to increase to 16.3 million new vehicles in 2014. We believe this growing use of vehicles worldwide will make CED-based ITS solutions increasingly necessary to complement existing and new roadway infrastructure to manage traffic flow and optimize throughput.

We believe our CED solutions are technically superior to those of our competitors because they have a higher level of accuracy, limit the occurrence of false detection, are generally easier to install with lower costs of ownership, work effectively in a multitude of light and weather conditions, and provide end users the ability to manage inputs from a variety of sensors for a number of tasks. It is our view that the technical advantages of our products make our solutions ideally suited for use in ITS as well as adjacent markets. We believe that the market for CED is increasingly favoring converged solutions that include ITS, security/surveillance and environmental management, which we expect to increase demand for CED products such as ours.

We believe the strength of our distribution channels positions us to increase the penetration of our technology-driven solutions in the marketplace. We market our Autoscope products in North America, the Caribbean and Latin America through an exclusive agreement with Econolite Control Products, Inc., or Econolite, which we believe is the leading distributor of ITS intersection control products in North America and the Caribbean. We market our Autoscope products outside of North America, the Caribbean and Latin America and our RTMS products through a combination of distribution and direct sales channels, including our wholly-owned subsidiaries in Hong Kong, Poland and the United Kingdom. Our end users primarily include governmental agencies and municipalities, and, as of December 31, 2008, we had sold over 100,000 instances in more than 60 countries.

In December 2007, we completed our purchase of certain assets of EIS Electronic Integrated Systems, Inc., or EIS. EIS was a leading provider of radar-based detection solutions. In addition to the increased scale we gained through the EIS asset purchase, the addition of EIS RTMS radar products enables us to provide a wider array of CED products to our end users and support the introduction of hybrid product offerings to help drive market demand. We operate the EIS asset purchase business through ISS Image Sensing Systems Canada Ltd., our wholly-owned subsidiary in Toronto, Ontario, Canada.

We were incorporated under Minnesota law in December 1984. Our executive offices are located at 500 Spruce Tree Centre, 1600 University Avenue West, St. Paul, Minnesota 55104. Our telephone number is (651) 603-7700. Our website is www.imagesensing.com. The information contained on our website is not a part of this prospectus. We have included our website address in this prospectus as an inactive textual reference only.

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RISK FACTORS

An investment in our common stock involves a high degree of risk. You should carefully consider the risk factors under the heading Risk Factors in our Annual Report on Form 10-K for the year ended December 31, 2008, which is on file with the SEC and is incorporated into this prospectus by reference. If any of these risks related to our business actually occurs, our business, financial condition and operating results would be adversely affected. The market price of our common stock could decline due to any of these risks and uncertainties related to our business, or related to an investment in our common stock, and you may lose part or all of your investment.

Those risk factors are not exhaustive. Other sections of this prospectus, any prospectus supplement and the documents incorporated by reference may include additional factors which could adversely affect our business and financial performance. Moreover, we operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for our management to predict all risk factors, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. In evaluating our business, prospective investors should carefully consider the risk factors in addition to the other information included or incorporated by reference in this prospectus.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1934 and Section 21E of the Securities Exchange Act of 1934 that involve risks and uncertainties. In some cases, you can identify forward-looking statements by the words anticipate, believe, continue, could, estimate, expect, intend, may, ongoing, plan, potential, predict, project, negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results or our industry s actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. Forward-looking statements are only predictions and are not guarantees of performance. These statements are based on our management s beliefs and assumptions, which in turn are based on currently available information.

These important factors include those described in our SEC filings and any prospectus supplement. You should read these risk factors and the other cautionary statements made in this prospectus as being applicable to all related forward-looking statements wherever they appear in this prospectus and any prospectus supplement. We cannot assure you that the forward-looking statements in this prospectus and any prospectus supplement will prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. You should read this prospectus and any prospectus supplement completely. Other than as required by law, we undertake no obligation to update these forward-looking statements, even though our situation may change in the future.

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INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus the information we file with the SEC. This means that we can disclose important information about us and our financial condition to you by referring you to those documents we filed separately with the SEC. The information incorporated by reference is considered to be part of this prospectus, and information that we file with the SEC after the date of this prospectus will automatically update and may supersede this information. We are incorporating by reference into this prospectus the documents described below which we have previously filed with the SEC:

Our Annual Report on Form 10-K for the fiscal year ended December 31, 2008;

Our Proxy Statement dated April 27, 2009;

Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2009;

Our Quarterly Report on Form 10-Q for the quarter ended June 30, 2009;

Our Quarterly Report on Form 10-Q for the quarter ended September 30, 2009;

Our Current Reports on Form 8-K filed on January 9, 2009 and March 19, 2009; and

The description of our common stock contained in our Reigstration Statement on Form 8-A dated May 10, 1995 as filed with the SEC, including any amendments or reports filed for the purpose of updating that description.

In addition, all documents we file under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus and before the termination of the offering are also incorporated by reference and are an important part of this prospectus. Nothing in this prospectus shall be deemed to incorporate information that we furnished to but did not file with the SEC.

Any statement contained in a document incorporated by reference in this prospectus shall be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or in any other subsequently filed document which is incorporated by

reference modifies or supersedes such statement.

We will provide without charge to each person to whom this prospectus is delivered, upon written or oral request, a copy of any or all documents that have been or may be incorporated by reference in the prospectus (other than exhibits to such documents that are not specifically incorporated by reference into such documents). Your requests should be directed to our Chief Financial Officer at our principal executive offices at:

500 Spruce Tree Centre 1600 University Avenue West St. Paul, Minnesota 55104 Telephone number: (651) 603-7700

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WHERE YOU CAN FIND MORE INFORMATION

We are subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and we file annual, quarterly and special reports, proxy statements and other information with the Securities and Exchange Commission, or the SEC. You may read and copy the reports, proxy statements and other information that we file at the Commission s public reference facilities at 100 F Street NE, Washington, D.C. 20549 at prescribed rates. Our filings are also available free of charge at the SEC s website at http://www.sec.gov. You may also obtain copies of such materials by calling the SEC at 1-800-SEC-0330, or by mail from the Public Reference Room at 100 F Street NE, Washington, D.C. 20549.

This prospectus is part of a Registration Statement on Form S-3, or the Registration Statement, we filed with the SEC under the Securities Act of 1933. This prospectus does not contain all of the information set forth in the Registration Statement. For more information about us and our common stock, you should read the Registration Statement and its exhibits and schedules. Copies of the Registration Statement, including its exhibits, may be inspected without charge at the offices of the SEC or obtained at prescribed rates from the Public Reference Section of the SEC at 100 F Street NE, Washington, D.C. 20549. Copies of the Registration Statement may be obtained without charge via the SEC s website.

USE OF PROCEEDS

Unless otherwise indicated in the applicable prospectus supplement, we anticipate that the net proceeds, if any, from the sale of the shares of common stock that we may offer under this prospectus and any accompanying prospectus supplement will be used for general corporate purposes, including acquiring or investing in businesses, products or technologies. However, we have no current plans, agreements or commitments and are not currently engaged in any negotiations with respect to any transaction. We reserve the right to modify the use of proceeds for other purposes if we are unable to identify suitable acquisition partners or investment opportunities. Pending the uses described above, we intend to invest the net proceeds of this offering in short- to medium-term, investment-grade, interest-bearing securities. We cannot predict whether the net proceeds will yield a favorable return.

We have not yet determined the amount or timing of the expenditures for each of the categories listed above, and these expenditures may vary significantly depending on a variety of factors. As a result, we will retain broad discretion in the allocation and use of the net proceeds of this offering.

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DESCRIPTION OF CAPITAL STOCK

As of the date of this prospectus, we are authorized to issue 25,000,000 shares of capital stock, consisting of 20,000,000 shares of common stock, par value \$.01 per share, of which 3,985,819 shares were outstanding as of November 30, 2009, and 5,000,000 shares of undesignated preferred stock, none of which are outstanding. Our board of directors is authorized to issue preferred stock from time to time in one or more

class or series, to establish the designation and number of shares of each such class or series, and to fix the relative rights and preferences of the shares of each class or series. There is no cumulative voting by shareholders, and shareholders do not have preemptive rights.

The following is a summary of the material terms of our capital stock and certain provisions of our Articles of Incorporation and Bylaws. It also summarizes some relevant provisions of the Minnesota Business Corporation Act, which we sometimes refer to as Minnesota law. Because the terms of our Articles of Incorporation and Bylaws, and Minnesota law, are more detailed than the general information provided below, you should rely on only the actual provisions of those documents and Minnesota law. If you would like to read those documents, they are on file with the SEC, as described under the heading Where You Can Find More Information in this prospectus.

Common Stock

All shares of common stock are voting shares and are entitled to one vote per share. Subject to any preferential rights of preferred shareholders, holders of common stock are entitled to a pro rata share, based upon the number of shares held, of any dividends or distributions that are declared by the board of directors, and of any distribution of assets of our company upon its liquidation, dissolution or winding up.

Undesignated Preferred Stock

In authorizing the issuance and establishing the rights and preferences of one or more class or series of preferred stock, the board is permitted to provide that shares in a class or series of preferred stock are entitled to cumulative, partially cumulative or non-cumulative dividends; are entitled to preferential dividends over one or more other classes of capital stock; are entitled to a preference with respect to distribution of assets upon liquidation, dissolution or winding up over one or more other classes of capital stock; are redeemable or exchangeable at the option of our company; are entitled to the benefits of a sinking fund; are convertible at the option of the holders into shares of any other class or series of capital stock; are exchangeable at the option of the holders for cash, capital stock or indebtedness; are entitled to certain voting rights at all times or upon the occurrence of specified events; and are subject to restrictions on the issuance of additional shares of preferred stock of such class or series or of any other class or series.

Anti-Takeover Provisions

Minnesota Law. We are subject to the anti-takeover provisions of section 302A.671 of the Minnesota Business Corporation Act, or the MBCA. This provision generally limits the voting rights of a shareholder acquiring at least 20% of the voting shares of a corporation in an attempted takeover or otherwise becoming a substantial shareholder unless holders of a majority of the voting power of the disinterested shares approve full voting rights for such substantial shareholder, with certain exceptions.

Section 302A.673 of the MBCA generally prohibits a public Minnesota corporation from engaging in a business combination with an interested shareholder for a period of four years after the date of the transaction in which the person became an interested shareholder unless before the date of the transaction, a committee of the board of directors of the corporation consisting of one or more disinterested directors, or, if the board has no disinterested directors, by three or more disinterested persons selected by the board, approved either the business combination or the transaction which resulted in the shareholder becoming an interested shareholder. As used in section 302A.673, a business combination includes:

any merger or consolidation involving our company or our subsidiary and the interested shareholder;

any exchange under a plan of exchange of shares or other securities of our company or our subsidiary or money, or other property for shares, other securities, money or property of the interested shareholder;

any sale, lease, exchange, mortgage, pledge, transfer or other disposition involving the interested shareholder of 10% or more of the assets of our company; and

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the receipt by the interested shareholder of the benefit of any loans, advances, guarantees, pledges or other financial assistance provided by or through our company.

In general, as used in section 302A.673, an interested shareholder is any entity or person beneficially owning, directly or indirectly, 10% or more of the outstanding voting stock of our company, or an affiliate or associate of our company that, at any time within the four-year period immediately before the date in question, was the beneficial owner, directly or indirectly, of 10% or more of the outstanding voting stock of our company.

Articles of Incorporation. Certain provisions of our articles of incorporation may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which shareholders might otherwise receive a premium for their shares, or transactions that our shareholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our articles of incorporation:

permit our board of directors to issue up to 5,000,000 shares of preferred stock with any rights, preferences and privileges as they may designate, including the right to approve an acquisition or other change in our control;

provide that the authorized number of directors may be changed by resolution of the board of directors;

provide that all vacancies, including newly-created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum; and

do not provide for cumulative voting rights (therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose).

Limitation on Liability of Directors and Indemnification

Our articles of incorporation limit the liability of our directors to the fullest extent permitted by Minnesota law. Minnesota law provides that a director s personal liability to our company or our shareholders for monetary damages for breach of fiduciary duty may be eliminated, except for liability due to:

breach of the duty of loyalty to our company or our shareholders;

an act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;

unlawful payment of dividends or redemption of shares as provided in section 302A.559 of the MBCA or civil liability for securities violations under section 80A.76 of the Minnesota Statutes; or

transaction from which the directors derived an improper personal benefit.

These limitations of liability do not apply to liabilities arising under federal securities laws and do not affect the availability of equitable remedies such as injunctive relief or rescission.

Our bylaws provide that we will indemnify and advance expenses to our directors, officers and persons serving in any other capacity at our request to the fullest extent permitted by Minnesota law. Section 302A.521 of the MBCA also permits us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in connection with their services to us. We maintain a directors—and officers—liability insurance policy.

At present, there is no pending litigation or proceeding involving any of our directors or officers as to which indemnification is required or permitted, and we are not aware of any threatened litigation or proceeding that may result in a claim for indemnification.

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Insofar as indemnification for liabilities arising under the Securities Act of 1933, or the Securities Act, may be permitted for directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, we have been advised that in the opinion of the SEC, this indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. If a claim for indemnification against these 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 the director, officer or controlling person in connection with the securities being registered, we will, unless in the opinion of our counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether this indemnification by us is against public policy as expressed in the

Securities Act and will be governed by the final adjudication of such issue.

Nasdaq Capital Market Listing

Our common stock is listed on the Nasdaq Capital Market under the symbol ISNS .

Transfer Agent And Registrar

The transfer agent and registrar for our common stock is Continental Transfer and Trust Company.

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PLAN OF DISTRIBUTION

We may sell the shares of common stock being offered pursuant to this prospectus:

directly to purchasers;

to or through underwriters;

through dealers or agents; or

through a combination of methods.

We may distribute the shares of common stock from time to time in one or more transactions at a fixed price or prices, which may be changed, at market prices prevailing at the time of sale, at prices related to the prevailing market prices or at negotiated prices. We may also determine the price or other terms of the shares of common stock offered under this prospectus by use of an electronic auction.

Any prospectus supplement with respect to the shares of common stock being offered will set forth the terms of the offering, including the names of any underwriters, dealers or agents, the purchase price of the shares, the net proceeds to us, any underwriting discounts and other items constituting underwriters—compensation, and any discounts or concessions allowed or reallowed or paid to dealers. Also, if applicable, we will describe in the prospectus supplement how any auction will determine the price or any other terms, how potential investors may participate in the auction, and the nature of the underwriters—obligations with respect to the auction.

If underwriters are used in an offering, we will sign an underwriting agreement with the underwriters and will specify the name of each underwriter and the terms of the transaction (including any underwriting discounts and other terms constituting compensation of the underwriters and any dealers) in a prospectus supplement. If an underwriting syndicate is used, the managing underwriter(s) will be identified on the cover of the prospectus supplement. If underwriters are used in the sale, the shares of common stock will be acquired by the underwriters for their own accounts and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Any public offering price and any discounts or concessions allowed or reallowed or paid to dealers may be changed from time to time. Unless otherwise set forth in any prospectus supplement, the obligations of the underwriters to purchase the shares of common stock will be subject to conditions precedent, and the underwriters will be obligated to purchase all of the shares if any are purchased.

If dealers are used in an offering, we will sell the shares of common stock to the dealers as principals. The dealers then may resell the shares to the public at varying prices that they determine at the time of resale. The dealers and the terms of the transaction will be identified in a prospectus supplement.

The shares of common stock may be sold directly by us or through agents we designate. If agents are used in an offering, the agents will be identified and the terms of the agency will be described in a prospectus supplement. Unless otherwise indicated in a prospectus supplement, the agents will act on a best efforts basis for the period of their appointment.

Dealers and agents named in a prospectus supplement may be deemed to be underwriters (within the meaning of the Securities Act of 1933) of the shares of common stock offered. In addition, we may sell the shares directly to institutional investors or others who may be deemed

to be underwriters within the meaning of the Securities Act of 1933 with respect to any resales thereof.

Underwriters, dealers and agents may be entitled to indemnification by us against specific civil liabilities, including liabilities under the Securities Act of 1933, or to contribution with respect to payments that the underwriters or agents may be required to make in respect thereof, under underwriting or other agreements. Certain underwriters, dealers or agents and their associates may engage in transactions with and perform services for us in the ordinary course of business.

Any common stock sold pursuant to a prospectus supplement will be eligible for listing and trading on The Nasdaq Capital Market, subject to official notice of issuance. Any underwriters to whom shares are sold by us for public offering and sale may make a market in our common stock, but the underwriters will not be obligated to do so and may discontinue any market making at any time without notice.

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LEGAL MATTERS

Winthrop & Weinstine, P.A., Minneapolis, Minnesota, is giving an opinion on validity of our shares of common stock being offered by this prospectus.

EXPERTS

The consolidated financial statements incorporated in this prospectus by reference to our Annual Report on Form 10-K for the year ended December 31, 2008 have been so incorporated in reliance on the report of Grant Thornton LLP, an independent registered public accounting firm, as indicated in their report with respect thereto, and are incorporated by reference herein in reliance upon the authority of said firm as experts in auditing and accounting.

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\$15,000,000

IMAGE SENSING SYSTEMS, INC.

Common Stock

PROSPECTUS

December 15, 2009