

MKS INSTRUMENTS, INC.

CORPORATE GOVERNANCE GUIDELINES

(as amended through February 10, 2020)

The Board of Directors (the “Board”) of MKS Instruments, Inc. (the “Company”) has adopted the following Corporate Governance Guidelines (the “Guidelines”) to assist the Board in the exercise of its duties and responsibilities and to serve the best interests of the Company and its stockholders. The Guidelines should be applied in a manner consistent with all applicable laws, stock exchange rules and the Company’s charter and by-laws, each as amended and in effect from time to time. The Guidelines provide a framework for the conduct of the Board’s business. The Board may modify or make exceptions to the Guidelines from time to time in its discretion and consistent with its duties and responsibilities to the Company.

A. Director Responsibilities

1. Oversee Management of the Company. The principal responsibility of the directors is to oversee the management of the Company and, in so doing, serve the best long-term interests of the Company and its stockholders. This responsibility includes:
 - Reviewing and approving the Company’s material and fundamental operating, financial and other corporate plans, strategies and objectives.
 - Evaluating the performance of the Company and its senior executives and taking appropriate action, including removal, when warranted.
 - Confirming that there exists a corporate environment that promotes timely and effective disclosure, fiscal accountability, and compliance with laws and regulations.
 - Evaluating the Company’s compensation programs on a regular basis and determining the compensation of management.
 - Reviewing and approving management succession plans.
 - Evaluating whether corporate resources are used for appropriate business purposes.
 - Reviewing the Company’s policies and practices with respect to risk assessment and risk management.
 - Reviewing and approving material transactions and commitments not entered into in the ordinary course of business.

- Developing a corporate governance structure that allows and encourages the Board to fulfill its responsibilities.
 - Monitoring and, where appropriate, responding to communications from stockholders.
 - Providing advice and assistance to the Company's management.
 - Evaluating the overall effectiveness of the Board and its committees.
2. Exercise Business Judgment. In discharging their fiduciary duties of care and loyalty, directors are expected to exercise their business judgment to act in what they reasonably believe to be the best interests of the Company.
3. Understand the Company and its Business. Directors have an obligation to become and remain informed about the Company and its business, including the following:
- The principal operational and financial objectives, strategies and plans of the Company.
 - The results of operations and financial condition of the Company and of significant subsidiaries and business segments.
 - The relative standing of the business segments within the Company and within their applicable markets.
 - The factors that determine the Company's success.
 - The risks and problems that affect the Company's business and prospects.
4. Informing the Board. The Company shall provide periodic and timely reporting to the Board on important matters concerning the Company, including the following:
- Current business and financial performance, the degree of achievement of approved objectives and the need to address forward-planning issues.
 - Future business prospects and forecasts, including actions, facilities, personnel and financial resources required to achieve forecasted results.
 - Financial statements, with appropriate segment or divisional breakdowns.
 - Compliance programs to assure the Company's compliance with law and corporate policies.
 - Material litigation and governmental and regulatory matters.
 - The effectiveness of the Company's internal control and management information systems.

5. Board, Stockholder and Committee Meetings. Directors shall make their best efforts to attend Board meetings and meetings of committees on which they serve and devoting the time needed, and meeting as frequently as necessary, to discharge their responsibilities properly. Directors are encouraged to attend the Company's annual meetings of stockholders.
6. Reliance on Management and Advisors; Indemnification. The directors are entitled to rely on the Company's senior executives and its outside advisors, auditors and legal counsel, except to the extent that any such person's integrity, honesty or competence is in doubt. The directors are also entitled to Company-provided indemnification, statutory exculpation and directors' and officers' liability insurance.

B. Director Qualification Standards

1. Independence. Except as may otherwise be permitted by NASDAQ rules, a majority of the members of the Board shall be independent directors. To be considered independent: (1) a director must be independent as determined under the rules of the NASDAQ Stock Market, and (2) in the Board's judgment, the director must not have a relationship with the Company that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.
2. Other Directorships. A director shall limit the number of other public company boards on which he or she serves so that he or she is able to devote adequate time to his or her duties to the Company, including preparing for and attending meetings. No director shall serve on the board of directors of more than four (4) other public companies. Directors should notify the Chairman of the Board and the Chair of the Nominating and Corporate Governance Committee in advance of accepting an invitation to serve on another public company board. Service on boards and/or committees of other organizations shall comply with the Company's conflict of interest policies.
3. Tenure and Age. The Board does not believe it should establish term limits or a mandatory retirement age. Such limits could result in the loss of directors who have been able to develop, over a period of time, increasing insight into the Company and its operations and an institutional memory that benefit the entire membership of the Board as well as management. As an alternative to term limits and a mandatory retirement age, the Nominating and Corporate Governance Committee shall review each director's continuation on the Board at least once every three years. This will allow each director the opportunity to conveniently confirm his or her desire to continue as a member of the Board and allow the Company to conveniently replace directors who are no longer interested. The Nominating and Corporate Governance Committee shall take into consideration the age and tenure of Board nominees and the Board as a whole to ensure the continued independence and effectiveness of the Board.
4. Resignation Policy in Connection with a Majority Withheld Vote in an Uncontested Election of Directors. In any uncontested election of directors (i.e.,

an election where the number of nominees is not greater than the number of directors to be elected), any nominee standing for election who receives a greater number of votes “withheld” from his or her election than votes “for” such election (a “Majority Withheld Vote”), shall, promptly following certification of the stockholder vote, offer to the Board to tender his or her resignation as a director for consideration by the Board in accordance with the procedures described in Attachment B to these Guidelines. Neither broker non-votes nor abstentions shall be deemed to be votes “withheld” or “for” a nominee.

5. Selection of New Director Candidates. Except where the Company is legally required by contract, by law or otherwise to provide third parties with the right to nominate directors, the Nominating and Corporate Governance Committee shall be responsible for (i) identifying individuals qualified to become Board members, consistent with criteria approved by the Board, and (ii) recommending to the Board the persons to be nominated for election as directors at any meeting of stockholders and the persons to be elected by the Board to fill any vacancies on the Board. Director nominees shall be considered for recommendation by the Nominating and Corporate Governance Committee in accordance with these Guidelines, the policies and principles in its charter and the criteria set forth in Attachment A to these Guidelines.
6. Extending the Invitation to a New Director Candidate to Join the Board. The invitation to join the Board should be extended by the Chairman of the Board, on behalf of the Board, and the Chair of the Nominating and Corporate Governance Committee, on behalf of such Committee.
7. Former Chief Executive Officer’s Board Membership. The Board believes that the continuation of a former Chief Executive Officer of the Company on the Board is a matter to be decided in each individual instance by the Board, upon recommendation of the Nominating and Corporate Governance Committee.
8. Lead Director. In the event that the Chairman of the Board is not an independent director, and in such other instances as the Board may determine from time to time, the Nominating and Corporate Governance Committee shall designate an independent director to serve as Lead Director, who will be approved by the independent directors. The Lead Director will:
 - Have the authority to call meetings of the independent directors.
 - Preside at all meetings of the Board at which the Chairman of the Board is not present.
 - Assure that at least two meetings per year of only the independent directors are held (preferably in conjunction with regular Board meetings), and chair any such meetings of the independent directors.
 - Facilitate communications and serve as a liaison between the independent directors and the Chairman of the Board and/or the Chief Executive Officer, provided that any director is free to communicate directly with the Chairman

of the Board and with the Chief Executive Officer. The Lead Director's role is to attempt to improve such communications if they are not entirely satisfactory.

- Work with the Chairman of the Board and the Chief Executive Officer in the preparation of the agenda for each Board meeting and approve each such agenda. This will include consideration and approval of items to be included, sequence of the items, meeting schedules and approximate time to be devoted to each item to assure that there is sufficient time for discussion of all agenda items.
 - If a meeting is held between a major stockholder (including institutional investors) and a representative of the independent directors, the Lead Director shall serve, subject to availability, as such representative of the independent directors.
 - Otherwise consult with the Chairman of the Board and the Chief Executive Officer on matters relating to corporate governance and Board performance.
 - The Lead Director may, but need not, be the Chair of a Board committee. The Lead Director will be appointed annually by the independent directors.
9. Notification of Change in Corporate Affiliation. If a non-management director retires or changes the position he or she held upon first becoming a member of the Board, the director shall notify the Chairman of the Board and the Chair of the Nominating and Corporate Governance Committee of any change in his or her affiliation or responsibility. This notice allows the Board, through the Nominating and Corporate Governance Committee, to review the appropriateness of Board membership under the changed circumstances.

C. Board Meetings

1. Selection of Agenda Items. The Chairman of the Board, in conjunction with the Lead Director, if one has been appointed, shall approve the agenda for each Board meeting. Each Board member is free to suggest the inclusion of agenda items and is free to raise at any Board meeting subjects that are not on the agenda for that meeting.
2. Frequency and Length of Meetings. The Chairman of the Board, in consultation with the members of the Board and the Lead Director, if one has been appointed, shall determine the frequency and length of the Board meetings. Special meetings may be called from time to time as determined by the needs of the business.
3. Advance Distribution of Materials. Information and data that are important to the Board's understanding of the business to be conducted at a Board or committee meeting should generally be distributed in writing to the directors before the meeting, and directors should review these materials in advance of the meeting. The Board acknowledges that certain items to be discussed at a Board or committee meeting may be of an extremely confidential or time-sensitive nature

and that the distribution of materials on these matters prior to meetings may not be appropriate or practicable. Presentations made at Board meetings should do more than summarize previously distributed Board meeting materials.

4. Executive Sessions. The independent directors shall meet at least twice a year to discuss, among other matters, the performance of the Chief Executive Officer. The independent directors will meet in executive session at other times at the request of at least two independent directors or the Lead Director. Absent unusual circumstances, these sessions shall be held in conjunction with regular Board meetings. The Lead Director shall preside at these meetings.
5. Attendance of Non-Directors at Board Meetings. The Board encourages the senior executives of the Company to, from time to time, bring Company personnel into Board meetings (i) who can provide additional insight into the items being discussed because of personal involvement in these areas or (ii) so that the Board can better understand the Company, its operations and its personnel.

D. Board Committees

1. Key Committees. The Board shall have at all times an Audit Committee, a Compensation Committee and a Nominating and Corporate Governance Committee. Each such committee shall have a charter that has been approved by the Board. The Board may, from time to time, establish or maintain additional committees as necessary or appropriate.
2. Assignment of Committee Members. The Nominating and Corporate Governance Committee shall be responsible for recommending to the Board the directors to be appointed to each committee of the Board. Except as otherwise permitted by the applicable rules of the Securities and Exchange Commission and NASDAQ, each member of the Audit Committee, the Compensation Committee and the Nominating and Corporate Governance Committee shall be an “independent director” as defined by such rules.
3. Committee Charters. In accordance with the applicable rules of NASDAQ, the charters of the Audit Committee, the Compensation Committee and the Nominating and Corporate Governance Committee shall set forth the purposes, goals and responsibilities of the committees as well as qualifications for committee membership, procedures for committee member appointment and removal, committee structure and operations and committee reporting to the Board. The Board shall, from time to time as it deems appropriate, review and reassess the adequacy of each charter and make appropriate changes.
4. Selection of Agenda Items. The chair of each committee, in consultation with the committee members, shall develop the committee’s agenda.
5. Frequency and Length of Committee Meetings. The chair of each committee, in consultation with the committee members, shall determine the frequency and length of the committee meetings consistent with any requirements set forth in the

committee's charter. Special meetings may be called from time to time as determined by the needs of the business and the responsibilities of the committees.

E. Director Access to Management and Independent Advisors

1. Access to Officers and Employees. Directors have full and free access to officers and employees of the Company. Any meetings or contacts that a director wishes to initiate may be arranged through the Chairman of the Board, the Chief Executive Officer or directly by the director. The directors shall use their judgment to ensure that any such contact is not disruptive to the business operations of the Company and shall, to the extent appropriate, copy the Chief Executive Officer on any written communications between a director and an officer or employee of the Company.
2. Access to Independent Advisors. The Board and each committee have the power to hire and consult with independent legal, financial or other advisors for the benefit of the Board or such committee, as they may deem necessary, without consulting or obtaining the approval of any officer of the Company in advance. In the discretion of the Board or applicable committee, such independent advisors may (but need not) be the regular advisors to the Company. The Board or any such committee is empowered, without further action by the Company, to cause the Company to pay the compensation of such advisors as established by the Board or any such committee.

F. Director Compensation

1. Role of Board and Compensation Committee. The form and amount of director compensation shall be determined by the Board in accordance with the policies and principles set forth below. The Compensation Committee shall conduct periodic reviews of the compensation of the Company's directors.
2. Form of Compensation. The Board believes that directors should be incentivized to focus on long-term stockholder value. Including equity as part of director compensation helps align the interest of directors with those of the Company's stockholders.
3. Amount of Consideration. The Company seeks to attract strong talent to its Board. Therefore, the Company's policy is to compensate directors competitively relative to comparable companies. The Company's management shall, from time to time, present a comparison report to the Board, comparing the Company's director compensation with that of comparable companies. The Board believes that it is appropriate for the Chairman of the Board, the chair and members of the committees and the Lead Director to receive additional compensation for their services in those positions.
4. Employee Directors. Directors who are also employees of the Company shall receive no additional compensation for Board or committee service.

G. Director Stock Ownership

Directors shall comply with any stock retention, ownership or similar guidelines in effect from time to time.

H. Director Education

Each director is encouraged to be involved in continuing director education on an ongoing basis to enable him or her to better perform his or her duties and to recognize and deal appropriately with issues that arise. The Company shall pay all reasonable expenses related to continuing director education.

I. Management Succession

The Compensation Committee shall be responsible for continuously reviewing succession planning as it relates to the Chief Executive Officer of the Company and such other executive officers as the Compensation Committee shall determine is appropriate from time to time. The Compensation Committee shall determine the nature and frequency of the evaluation, supervise the conduct of the evaluation and periodically prepare a succession plan, to be discussed with the independent members of the Board.

J. Annual Performance Evaluation of the Board

With the goal of increasing the effectiveness of the Board and its committees and their relationship to management, the Nominating and Corporate Governance Committee shall be responsible for conducting an annual evaluation of the Board's performance as a whole and the performance of its committees. This assessment should include self-evaluations by each director to be administered by the Nominating and Corporate Governance Committee along with an analysis of such items as the frequency of Board and committee meetings and the contribution of the Board as a whole and its committees. The results of the assessment should be discussed with the full Board.

K. Board Interaction with Stockholders, Institutional Investors, the Press, Customers, Etc.

The Board will give appropriate attention to written communications that are submitted by stockholders and other interested parties, and will respond if and as appropriate. Absent unusual circumstances or as contemplated by the committee charters, the Chair of the Nominating and Corporate Governance Committee shall, subject to advice and assistance from the Corporate Counsel, (1) be primarily responsible for monitoring communications from stockholders and other interested parties, and (2) provide copies or summaries of such communications to the other directors as he or she considers appropriate.

L. Periodic Review of the Corporate Governance Guidelines

The Nominating and Corporate Governance Committee shall, from time to time as it deems appropriate, review and reassess the adequacy of these Guidelines and recommend any proposed changes to the Board for approval.

CRITERIA FOR NOMINATION AS A DIRECTOR

General Criteria

1. Nominees should have a reputation for integrity, honesty and adherence to high ethical standards.
2. Nominees should have demonstrated business acumen, experience and ability to exercise sound judgments in matters that relate to the current and long-term objectives of the Company and should be willing and able to contribute positively to the decision-making process of the Company.
3. Nominees should have a commitment to understand the Company and its industry and to regularly attend and participate in meetings of the Board and its committees.
4. Nominees should have the interest and ability to understand the sometimes conflicting interests of the various constituencies of the Company, which include stockholders, employees, customers, governmental units, creditors and the general public.
5. Nominees should not have, nor appear to have, a conflict of interest that would impair the nominee's ability to represent the interests of all the Company's stockholders and to fulfill the responsibilities of a director.
6. Nominees shall not be discriminated against on the basis of race, religion, national origin, sex, sexual orientation, disability or any other basis proscribed by law. The value of diversity on the Board should be considered.
7. Each nominee's independence and effectiveness should be considered.

Application of Criteria to Existing Directors

The re-nomination of existing directors should not be viewed as automatic but should be based on continuing qualification under the criteria set forth above. In addition, the Nominating and Corporate Governance Committee shall consider the existing directors' performance on the Board and any committee.

Criteria for Composition of the Board

The backgrounds and qualifications of the directors considered as a group should provide a significant breadth of experience, knowledge and abilities that shall assist the Board in fulfilling its responsibilities.

**RESIGNATION PROCEDURES IN CONNECTION WITH A MAJORITY WITHHELD
VOTE IN AN UNCONTESTED ELECTION OF DIRECTORS**

In connection with Section B.4 of these Guidelines, the Board shall follow the following procedures in deciding whether or not to request and accept a director's resignation, all of which procedures shall be completed within 90 days following certification of the stockholder vote:

- The Committee (as defined below) shall evaluate the best interests of the Company and its stockholders and shall recommend to the Board the action to be taken with respect to such offer to resign (which can include, for example, requesting and accepting the resignation, maintaining the director but addressing what the Committee believes to be the underlying cause of the withheld votes, resolving that the director will not be re-nominated in the future for election, or rejecting the offer to resign). In reaching its recommendation, the Committee shall consider all factors it deems relevant, including, as it deems appropriate, any stated reasons why stockholders withheld votes from such director, any alternatives for curing the underlying cause of the votes withheld from such director, the total number of shares voting and how such shares were voted, the number of broker non-votes, the director's tenure, the director's qualifications, the criteria for nomination as a director set forth in Attachment A to these Guidelines, the director's past and expected future contributions to the Company and the overall composition of the Board, including whether accepting the resignation would cause the Company to fail to meet any applicable SEC or NASDAQ requirement.
- The Board shall decide whether to accept, reject or modify the Committee's recommendation. In acting on the Committee's recommendation, the Board will consider all of the factors considered by the Committee and such additional factors as it deems relevant.
- Following the Board's determination, the Company shall promptly publicly disclose the Board's decision regarding the offer to resign and if such offer is rejected, the rationale behind the decision.
- A director who is required to offer his or her resignation in accordance with this policy is expected not to be present during deliberations or voting of the Committee or the Board regarding whether to accept his or her offer to resign or, except as otherwise provided below, an offer to resign offered by any other director in accordance with this policy. Prior to voting on a proposed action relative to a director's offer to resign, the Committee and the Board will afford the affected nominee an opportunity to provide the Committee or the Board with a statement or any information that he or she deems relevant.

If the Board requests and accepts a director's resignation under this policy, then the Board may fill the resulting vacancy pursuant to the provisions of Section 2.5 of the Company's by-laws or may decrease the size of the Board pursuant to the provisions of Section 2.2 of the Company's by-laws.

For purposes of this policy, the term "Committee" means (i) the Nominating and Corporate Governance Committee, provided such committee then consists of at least three directors, each of whom is an independent director (as defined in accordance with these Guidelines) and none of whom is a director who is required to offer his or her resignation in accordance with this policy or (ii) if clause (i) is not satisfied, a committee of at least three directors designated by the Board, each of the members of which is an independent director and none of whom is required to offer his or her resignation in accordance with this policy; provided, however, that if there are fewer than three independent directors then serving on the Board who are not required to offer their resignations in accordance with this policy, then the Committee shall be comprised of all of the independent directors and each independent director who is required to offer his or her resignation in accordance with this policy is expected to recuse himself or herself from the Committee and Board's deliberations and voting with respect to his or her individual offer to resign.

A director who receives a Majority Withheld Vote in an uncontested election shall continue to serve as a director while the Committee and the Board decide whether to accept or reject his or her offer to resign.

Whenever there is an uncontested election, the foregoing procedures will be summarized and disclosed in the proxy statement for such stockholders meeting.