

RESTATED CERTIFICATE OF INCORPORATION

OF

ZYGO CORPORATION

It is hereby certified that:

1. (a) The name of the corporation (hereinafter called "corporation") is ZYGO CORPORATION.

(b) The name under which the corporation was originally incorporated is ISOTEC CORPORATION and the date of filing the original certificate of incorporation of the corporation with the Secretary of State of Delaware is June 10, 1970. An amendment to the certificate of incorporation was filed with the Secretary of State of Delaware on July 22, 1970, a Restated Certificate of Incorporation was filed with the Secretary of State of Delaware on June 10, 1971, and a Restated Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on August 18, 1983. The certificate of incorporation as amended is herein referred to as the certificate of incorporation.

2. The certificate of incorporation of the corporation is hereby further amended by substituting a new Article FOURTH which is contained in the Restated Certificate of Incorporation hereinafter set forth.

3. The provisions of the certificate of incorporation of the corporation as heretofore amended and as herein amended, are hereby restated and integrated into the single instrument which is hereinafter set forth and which is entitled Restated Certificate of Incorporation of ZYGO CORPORATION without any further amendments

other than the amendments herein certified and without any discrepancy between the provisions of the certificate of incorporation as heretofore amended and the provisions of the single instrument hereinafter set forth.

4. The Restated Certificate of Incorporation of ZYGO CORPORATION, including the amendments herein certified, has been duly adopted by a majority of the directors of the Corporation in accordance with the provisions of Section 242 and 245 of the General Corporation Law of the State of Delaware.

5. The certificate of incorporation of the corporation as amended and restated herein, which (until amended as provided by law and separate and apart from this document) may be separately certified as the Restated Certificate of Incorporation of ZYGO CORPORATION, is as follows:

Restated Certificate of Incorporation

of

ZYGO CORPORATION

FIRST: The name of the corporation (hereinafter called the "corporation") is ZYGO CORPORATION.

SECOND: The address, including street, number, city and county of the registered office of the corporation in the State of Delaware is 229 South State Street, City of Dover, County of Kent; and the name of the registered agent of the corporation in the State of Delaware at such address is The Prentice-Hall System, Inc.

THIRD: The purpose of the corporation is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of the State of Delaware.

FOURTH: The total number of shares of stock which the corporation shall have authority to issue is 10,400,000, all of which shares of the par value of \$.10 each are Common Stock ("Common Stock"). Of the shares of Common Stock, 200,000 shares are Class D Common Stock ("Class D Common Stock"), and 200,000 shares are Junior Common Stock ("Junior Common Stock").

A statement of the designations and the powers, preferences and rights, and the qualifications, limitations or restrictions thereof, which are permitted by §151 of Title 8 of the Delaware Corporation Law in respect of the Common Stock, the Class D Common Stock, and the Junior Common Stock and the fixing of which by this Certificate of Incorporation is desired, is as follows:

4.01 COMMON STOCK

Each and every share of Common Stock other than the Junior Common Stock issued by the corporation, irrespective of class, shall be in every respect identical and shall be entitled to share and share alike, and, without preference or discrimination as between shares and classes of shares of Common Stock, to identical and equal rights, advantages, benefits, privileges and dividends, interest and participation in profits, property and distribution and management, with every other share except that

Class D Common Stock shall have no right to vote on any issue and shall not have the right to receive notice of any meeting or consent, except as required by law. Each share of Common Stock, except shares of Class D Common Stock, and shares of Junior Common Stock shall entitle the holder thereof to one vote upon all matters upon which holders of Common Stock shall have the right to vote.

The Junior Common Stock may be issued from time to time in one or more series, with such serial designations as shall be set forth in the resolution or resolutions adopted by the Board of Directors for the issuance of shares of each particular series. The designation of each particular series of Junior Common Stock and its terms shall be fixed and determined by the Board of Directors in any manner permitted by law and stated in the resolution or resolutions providing for the issuance of such shares adopted by the Board of Directors pursuant to the authority hereby vested in it, before any shares of such series are issued, and shall be set forth in full or summarized on the certificate for such series. The Board of Directors may from time to time increase the number of shares of any series of Junior Common Stock already created by providing that any unissued Junior Common Stock shall constitute part of such series, or may decrease (but not below the number of shares thereof then outstanding) the number of shares of any series of Junior Common Stock already created by providing that any unissued

shares previously assigned to such series shall no longer constitute part thereof. The Board of Directors is hereby empowered to classify or reclassify any unissued Junior Common Stock by fixing or altering the terms thereof and by assigning the same to any existing or newly created series from time to time before the issuance of such shares.

4.02

PREEMPTIVE RIGHTS

In the event of the proposed issuance by the corporation of shares of a class of Common Stock, or the proposed grant or issuance by the corporation of warrants or other rights to subscribe for or purchase shares of a class of Common Stock, or the proposed issuance by the corporation of securities convertible into or exchangeable for, or carrying warrants or other rights to subscribe for or purchase shares of a class of Common Stock, the holders of such class of Common Stock shall have the exclusive right during a reasonable time and on reasonable conditions, both to be fixed by the Board of Directors, to purchase, at a price not less favorable than that on which such shares, warrants or other rights, or securities will be offered to others, such number of the shares, warrants or other rights, or securities to be offered as shall nearly as practicable preserve each stockholder's relative ownership in the entire number of shares of such class of Common Stock of the corporation. Notwithstanding the foregoing, (a) no such rights shall exist with respect to Class D Common Stock, and (b) no stockholder

shall have any preemptive rights with respect to any shares, warrants or other rights, or securities to be issued (1) for property other than cash and (2) as additional consideration in connection with any loans to the corporation. This provision contained in this section 4.02 shall be null and void and of no further force and effect at such time as the corporation files a registration statement under the Securities Act of 1933 for the sale of shares of its common stock and such registration statement is declared effective.

FIFTH: Any action required or permitted to be taken by stockholders of the corporation by any provision of the General Corporation Law of the State of Delaware or by this certificate of incorporation may be taken without a meeting, without prior notice and without a vote, if a consent in writing, setting forth the action so taken is signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted. Prompt notice of the taking of the corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing.

SIXTH: In furtherance and not in limitation of the powers conferred by law, the Board of Directors is expressly authorized:

- A. To make, alter, or repeal the by-laws of the corporation;
- B. To direct and determine the use and disposition

of any annual net profits or net assets in excess of capital; to set apart out of any of the funds of the corporation available for dividends a reserve or reserves for any proper purpose; and to abolish any such reserve in the manner in which it was created;

C. To establish bonus, profit-sharing, stock option, retirement or other types of incentive or compensation plans for the employees (including officers and directors) of the corporation and to fix the amount of the profits to be distributed or shared and to determine the persons to participate in any such plans and the amounts of their respective participations;

D. From time to time to determine whether and under what conditions and regulations, the accounts and books of the corporation (other than the stock ledger), or any of them, shall be open to the inspection of the stockholders; and no stockholder shall have any right to inspect any account or book or document of the corporation, except as conferred by statute or authorized by the Board of Directors or by a resolution of the stockholders;

E. To authorize, and cause to be executed, mortgages and liens upon the real and personal property of the corporation;

F. No election of directors need be by written ballot.

SEVENTH: Whenever a compromise or arrangement is

proposed between this corporation and its creditors or any class of them and/or between this corporation and its stockholders or any class of them, any court of equitable jurisdiction within the State of Delaware may, on the application in a summary way of this corporation or of any creditor or stockholder thereof or on the application of any receiver or receivers appointed for this corporation under the provisions of section 291 of Title 8 of the Delaware Code or on the application of trustees in dissolution or of any receiver or receivers appointed for this corporation under the provisions of section 279 of Title 8 of the Delaware Code order a meeting of the creditors or class of creditors, and/or of the stockholders or class of stockholders of this corporation, as the case may be, to be summoned in such manner as the said court directs. If a majority in number representing three-fourths in value of the creditors or class of creditors, and/or of the stockholders or class of stockholders of this corporation, as the case may be, agree to any compromise or arrangement and to any reorganization of this corporation as consequence of such compromise or arrangement, the said compromise or arrangement and the said reorganization shall, if sanctioned by the court to which the said application has been made, be binding on all the creditors or class of creditors, and/or on all the stockholders or class of stockholders, of this corporation, as the case may be, and also on this corporation.

EIGHTH: The corporation shall, to the fullest extent permitted by Section 145 of the General Corporation Law of Delaware, as the same may be amended and supplemented, indemnify any and all persons whom it shall have power to indemnify under said section from and against any and all of the expenses, liabilities or other matters referred to in or covered by said section, and the indemnification provided for herein shall not be deemed exclusive of any other rights to which those indemnified may be entitled under any By-Law, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in his official capacity and as to action in another capacity while holding such office, and shall continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

NINTH: The corporation reserves the right to amend, alter, change or repeal any provision contained in this certificate of incorporation, in the manner now or hereafter prescribed by statute, and all rights conferred upon stockholders herein are granted subject to this reservation.

IN WITNESS WHEREOF, ZYGO CORPORATION has caused its corporate seal to be hereunto affixed and this Restated Certificate of Incorporation to be signed by its President and

attested to by its Secretary on the 17th day of October,
1983.

ZYGO CORPORATION

ZYGO CORPORATION
CORPORATE SEAL
1970 DELAWARE

By _____
President

ATTEST:

Robert Nelson
Secretary

STATE OF NEW YORK)
 : ss.:
COUNTY OF NEW YORK)

BE IT REMEMBERED that on this 17th day of October, 1983, personally came before me, a Notary Public in and for the County and State aforesaid, PAUL F. FORMAN President of ZYGO CORPORATION, a corporation of the State of Delaware, and he duly executed the foregoing certificate before me and acknowledged the said certificate to be his act and deed and the act and deed of said corporation and that the facts stated therein are true; and that the seal affixed to said certificate and attested by the Secretary of said corporation is the common or corporate seal of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and seal of office the day and year aforesaid.

Notary Public

JEROLD K. LEVINE
Notary Public, State of New York
No. 31-4633035
Qualified in New York County
Commission Expires March 30, 1985