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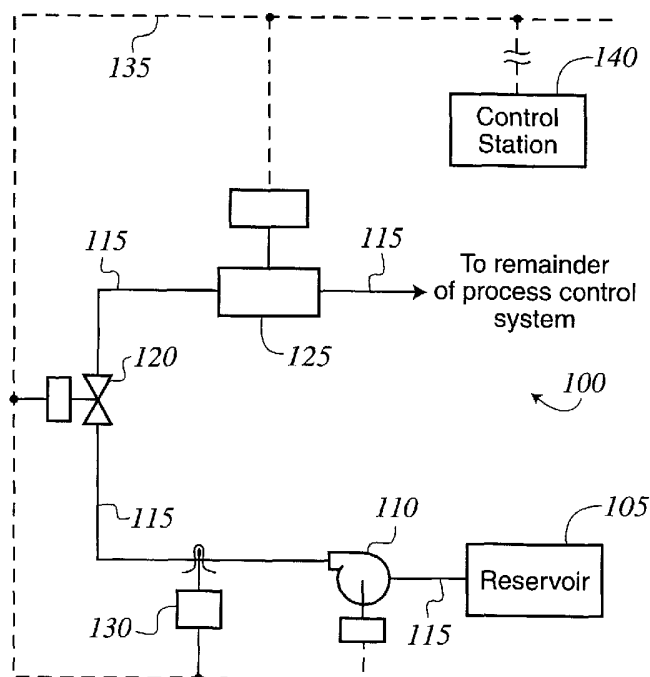
(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier applications:
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US 09/954,205 (CON)
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(71) Applicant (for all designated States except US): INVEN-SYS SYSTEMS, INC. [US/US]; 33 Commercial Street, Foxboro, MA 02035-2099 (US).

[Continued on next page]

(54) Title: VARIABLE POWER CONTROL FOR PROCESS CONTROL INSTRUMENTS



(57) Abstract: A process control instrument includes a sensor/actuator portion and a transmitter portion connected to the sensor/actuator portion. The transmitter portion is operable to communicate with other process variable transmitters through a communication network. The transmitter includes a processing module and a power module operable to generate a power output supplied to at least the transmitter portion, wherein the power module is operable to adjust the power output based on a power control signal. Moreover, the power control signal may be generated by a controller device remote from the process control instrument and communicated to the process control instrument over the communication network. Additionally, the power module includes a power control module for adjusting the power output. This power control module includes an amplitude limiter operable to limit a power input to the process control instrument according to a controllable amplitude limit, and a power rate of change unit operable to limit a rate of change of the power input to the process control instrument according to a controllable adjustment rate limit.

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Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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(88) Date of publication of the international search report:

21 August 2003

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/00546

<p>A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G05B19/042</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>																										
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) IPC 7 G05B</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data</p>																										
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category °</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>US 5 668 537 A (CHANSKY LEONARD M ET AL) 16 September 1997 (1997-09-16) column 3, line 16 -column 8, line 21; figures 1-7</td> <td>1-13, 18-32</td> </tr> <tr> <td></td> <td>---</td> <td></td> </tr> <tr> <td>X</td> <td>US 4 418 333 A (CHAPMAN MICHAEL K ET AL) 29 November 1983 (1983-11-29) column 3, line 58 -column 29, line 25; figures 1-6</td> <td>1-13, 18-32, 14-17, 33-36</td> </tr> <tr> <td>Y</td> <td>---</td> <td></td> </tr> <tr> <td>Y</td> <td>US 5 754 767 A (RUIZ JOHN) 19 May 1998 (1998-05-19) column 2, line 8 -column 5, line 31; figures 1-4</td> <td>14-17, 33-36</td> </tr> <tr> <td></td> <td>---</td> <td></td> </tr> <tr> <td></td> <td>--- -/--</td> <td></td> </tr> </tbody> </table>			Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	US 5 668 537 A (CHANSKY LEONARD M ET AL) 16 September 1997 (1997-09-16) column 3, line 16 -column 8, line 21; figures 1-7	1-13, 18-32		---		X	US 4 418 333 A (CHAPMAN MICHAEL K ET AL) 29 November 1983 (1983-11-29) column 3, line 58 -column 29, line 25; figures 1-6	1-13, 18-32, 14-17, 33-36	Y	---		Y	US 5 754 767 A (RUIZ JOHN) 19 May 1998 (1998-05-19) column 2, line 8 -column 5, line 31; figures 1-4	14-17, 33-36		---			--- -/--	
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<p><input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.</p>																										
<p>° Special categories of cited documents :</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="vertical-align: top;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p> </td> </tr> </table>			<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>																						
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<p>Date of the actual completion of the international search 28 March 2003</p>		<p>Date of mailing of the international search report 25. 06. 2003</p>																								
<p>Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016</p>		<p>Authorized officer Tran-Tien, T</p>																								

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/00546

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 390 132 A (SHIOE YASUHIKO ET AL) 14 February 1995 (1995-02-14) column 3, line 39 -column 7, line 55; figures 1-4	1-3,18, 19
A	--- US 5 942 814 A (TENNEFOSS MICHAEL R ET AL) 24 August 1999 (1999-08-24) abstract	1-36
A	--- US 5 160 924 A (CONIL JEAN-PIERRE ET AL) 3 November 1992 (1992-11-03) abstract	1-33
A	--- US 5 045 774 A (BROMBERG MICHAEL A) 3 September 1991 (1991-09-03) abstract -----	1-36

INTERNATIONAL SEARCH REPORT

International Application No

PC 1/US 02/00546

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-36

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-36

A remote power control system for process instruments

2. Claims: 37-66

A process control system power management method

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 02/00546

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