United States Patent [19]

DiGiulio et al.

[11] **Patent Number: 4,947,317**

[45] **Date of Patent: Aug. 7, 1990**

[54] **COMMUNICATION PROTOCOL FOR A THREE NODES SYSTEM HAVING DEDICATED CONNECTIONS AND BIT INDICATING FUNCTION OF EXCHANGED MESSAGE**

[75] Inventors: **Peter C. DiGiulio**, Bridgeport; **David K. Lee**, Monroe, both of Conn.

[73] Assignee: **Pitney Bowes Inc.**, Stamford, Conn.

[21] Appl. No.: **256,811**

[22] Filed: **Oct. 12, 1988**

[51] **Int. Cl.**[5] **G06F 13/42**; G06F 15/16

[52] **U.S. Cl.** **364/200**; 364/228; 364/240.8; 364/240.9; 364/261.2; 371/32; 375/117; 370/48

[58] **Field of Search** ... 364/200 MS File, 900 MS File; 371/32; 375/117; 370/48, 49

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,271,511	6/1981	Manber et al.	371/8
4,298,978	11/1981	Nakamura	370/92
4,498,169	2/1985	Rozmus	370/85
4,512,026	11/1985	Vander Meiden	375/114
4,689,786	8/1987	Sidhu et al.	370/94
4,750,176	6/1988	Van Velduizen	371/32
4,773,001	9/1988	Blair et al.	364/200
4,779,274	10/1988	Takahashi et al.	371/32
4,805,194	2/1989	Wesolowski	375/75

Primary Examiner—Thomas C. Lee

Attorney, Agent, or Firm—Charles G. Parks, Jr.; David E. Pitchenik; Melvin J. Scolnick

[57] **ABSTRACT**

A communication network comprised of a first, second and third controller node. Each of the controller nodes includes a microprocessor for generating and receiving data messages. The first nodes has a transmit pin in line communication with the receive pin of the second nodes and has a receive pin in line communication with the transmit pin of the second node. The third controller receive pin is in line communication with the transmit pin of the first node and its transmit pin is in line communication with the receive pin of the first node. The microprocessors are programmed to respond to and generate suitable formatted data message bytes. The microprocessors are further programmable to respond only to a unique address-command data message byte from the message source node. The microprocessor will then issue a reply message byte to the destination node. The transmitting node will then send a data message. Where the receiving node is the third node, a data message from the third node must then follow. The protocol is software implemented and includes means of detecting a message error and resolving transmission line content.

6 Claims, 26 Drawing Sheets