ADDRESSABLE CONTROL FOR LOOP-THRU WIRING

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An increasing number of subscribers are being served by loop-thru wiring in apartment houses and a strong need exists for systems to control service to those subscribers. Two new devices, a flush-mounted wall-box intelligent tap and an addressable disconnect unit are now available to exercise control. The intelligent tap for loop-thru service is part of a complete system of addressable control for basic services and Pay-TV. The limited address disconnect device is offered as a means of cutting losses in problem locations.

Would you, an experienced cable operator, build and operate a cable system in a community where you could not get at your cable to service it, where the subscriber had control over the provision of the service, where the subscriber could decide to pay or not pay for service, and where the subscriber could walk away with your $40 or $60 converter/descrambler. Most of you say you wouldn't build and operate such a system, but many of you have, and more probably will. What has been described is essentially a modified MATV system, in an apartment house, where the wiring is in walls and/or in conduit, and is looped-thru from subscriber to subscriber.

As cable television moves into the urban markets more and more subscribers are added thru modification of the service being supplied in apartment houses by MATV systems. In the majority of cities the existing MATV system is improved to a minor degree and the loop-thru wiring of the system remains as the distribution system for the cable customers.

Where this wiring is in conduit or in walls, in a finished building, it is very difficult and extremely costly to rewire or to replace and thus the desirable "home-run" concept is rationalized out to allow the "loop-thru" to stay, with all of its problems.

The problems are rather well known; lack of access to inspect and repair problems, and most of all, lack of control, particularly important today with high-fee services and high costs for the provision of the service of Premium TV and multi-channel services.

Last year the industry was greeted by the introduction of prototypes of outdoor addressable taps and their companion apartment-house versions for "home-run" wiring. These units, which I expect to see go into operation this year, serve an economically beneficial purpose for individual homes and for "home-runs" in apartments but do not lend themselves to the "loop-thru" type of wiring in their present configurations.

To meet the needs of the "loop-thru" wiring systems, two organizations are about to introduce control system devices that will allow the "inaccessable" apartment connection to be "accessable" from outside the apartment. With these new systems the CATV operator once more has control over the service he is providing; can provide it when it is desired and paid for, and can deny it when no longer desired or, when not paid for. Complete control without the problems of access can be provided, insuring payment for services rendered.

The first device which will soon surface, and indeed may be shown here at the convention, is the apartment house Intelligent Tap, IT-I. This unit is a companion to the four output Intelligent Tap, IT-4, and it fits into a standard wall box and offers the control of one sub-

scriber tap, in a loop-thru apartment structure. The unit is a scaled down, miniaturized version of the IT-4, using exactly the same communications system, many of the same parts, and is fully compatible with the strand mounted, pedestal mounted or home-run apartment house IT-4 and IT-60 systems.

It is part of a total addressable tap system design to meet all needs of a cable system. It is also usable as a stand-alone package for apartment-house systems that are fed from an MDS receiver or a Pay-TV local origination package. Basically, it will first be offered as a basic service control unit, having a built-in tap, data-power logic system, and solid-state switch. A later version will add control of Pay-TV in addition to control of basic service, matching the features of the IT-4, simply by adding the Pay-TV modules to the existing package, which already contains all of the logic and control circuits required.

The Intelligent Tap system is designed with a simplicity and reliability that allows the packaging of a complete control system in a standard wall box, due to the lack of telemetry receivers, demodulators and multiple components to decode and control. The Intelligent Tap system achieves control by communicating with Data Power, or, more simply, sends data to the tap control as direct data, not using RF and, not subject to false operations due to RFI; CB equipment, spurious signals, receiver radiation.

The cable system is basically capable of carrying energy in two separate spectrums, the powering frequency spectrum, from about 30 hertz to 2,000 hertz, and the RF spectrum from about 5 megahertz to 300 megahertz. In the proprietary intelligent tap system, control data is sent as pulse with modulated and frequency shift keyed signals in the 60 to 120 hertz region, and is configured so that it appears to be a 60 hertz signal to all devices and power supplies that wish to look at a 60 hertz signal. The data signals provide the power requirements for amplifiers in the system and, in fact, allow them to operate more efficiently than usual due to its square waveform. The portion of the system not requiring power simply looks at this signal as data, and as data, it operates a single LSI chip directly, to control the services being supplied to the CATV system subscriber.

Control of the data is effected from a variety of optional control packages, ranging from a small manual entry calculator type of controller, thru an intelligent terminal/printer up to any type of business computer, local or remote, that may be used for a large system or group of systems. The speed of control is such that less than ten minutes is required to individually change the services supplied to each of 10,000 subscribers. The speed is slow enough to insure reliability under all types of operating conditions and fast enough to allow for per-program service control as well. The IT-I completes the system of subscriber control allowing individual homes, home-run wired apartments, loop-thru apartments, stand-alone Pay-TV systems and MDS systems to control their services and their cash flow.

A second device for control of loop-thru services is also available. This is a limited-address control system which can only turn service OFF. At first that may seem of little use, but its object is to permit the disconnect of service in a loop-thru system where access is denied, and also where the "barricaded" subscriber has an expensive converter and/or descrambler belonging to the cable system.

This device is called the "SQUIB" and is a one-time operable unit, which responds to a specific frequency, waveform and signal application to operate an irreversible circuit opener. It is designed specifically for operation with ten different addresses so that it can be used in systems where the cable drop is available just outside the home or apartment, as well as the more important case where the only access to the cable is at a floor distribution box, or the start of a "run" in the basement or roof-top area.

Control is effected from a small shoulder case mounted transmitter-controller, battery operated. The person initiating the "disconnect" simply opens the cable to the "run" or drop, screws the connector into his controller-transmitter, sets the control switch on the code letter designated for that particular subscriber, presses the "operate" button, and that's all; the service at that location is terminated, and no other subscribers are affected, once the cable is reconnected to the system.

The "SQUIB" unit itself is installed in the apartment wall box, can be fastened to the output connector of a wall box with a locking connector, can be mounted on a converter with a locking connector, or can be built into a converter or descrambler. It can be used to turn off service, or simply to disable a

converter, to make it less desirable to "carry away" or to sell in the "Flea Market." All in all, the "SQUIB" offers another level of control for a heretofore inaccessible location.

Using good MATV wiring, or a loop-thru system no longer means losing control over revenue. Control systems are now available to give the operator what he needs to provide the same service, under the same conditions, in a loop-thru system as he does in a classical home-run system. These new innovations meet an industry need for servicing its customers needs, basic cable service, subscription Pay-TV service, per-program Pay-TV service, and stand-alone or MDS service.