

MICRO-TEL & REACTION INSTRUMENTS



FEATURES

- Flexible System Configuration
- Plug-in System Elements
- Choose From:
 - Audio, Video, IF
Distribution Amplifiers
 - Video/IF Switch
 - IF to Tape Converter
 - Remote Controller
- Compact 5-1/4 Inch High Mainframe

DESCRIPTION

The Model 600 Modular Signal Distribution System is a highly flexible, multi-function system packaged in a compact, stand-alone chassis. Using off-the-shelf plug-in modules, a special purpose system can easily be configured, or changed, in minimum rack space and with minimum power consumption. Typical plug-in units include Audio, Video, and IF Distribution Amplifiers, a Video/IF Switch, an IF-to-Tape Converter, a remote controller and other general purpose devices routinely used in COMINT applications.

Each mainframe contains a multi-function power supply and 15 slots for user-defined functions depending upon system requirements. Each plug-in module requires only one or two slots; however, for special applications, any number of slots may be used for a single complex function.

THE 600 SERIES COMPONENTS

MODEL 601 MAINFRAME

The Model 601 Mainframe is a 5-1/4 inches high by 20 inches deep EIA standard chassis suitable for 19 inch rack mounting. In addition to the power supply, it houses up to 15 plug-in modules which may be combined and re-combined as required.

SPECIFICATIONS

| | |
|-------------------------------|--|
| Style | 5-1/4 inches high by 20 inches deep suitable for mounting in a standard EIA rack |
| Number of System Module Slots | 15 in addition to Power Supply |

MODEL 602 POWER SUPPLY

The Model 602 Power Supply provides dc power to the 15 available module slots. Exceptional EMI protection is provided.

SPECIFICATIONS

| | |
|-------|--|
| Power | 115/230 Vac (switchable) 47-62 Hz, 180 W maximum |
|-------|--|

MODEL 603 VIDEO DISTRIBUTION AMPLIFIER

The Model 603 Video Distribution Amplifier provides the isolation and linear amplification required for distribution of video or baseband signals in the frequency range from dc to 30 MHz. Low intermodulation distortion and low group delay variation make it particularly useful for distributing the output of FDM-FM demodulators to multiple loads. The Model 603 Amplifier is capable of driving up to six 50 ohm loads at a nominal level of 1 Vrms.

SPECIFICATIONS

| | |
|------------------------------|---|
| Input Frequency | DC - 30 MHz (3 dB) - Standard DC - 40 MHz - Optional |
| Number of Outputs | Six |
| Gain | 0 dB (nominal) |
| Impedance (Input & Output) | 50 ohms - Standard 75 or 93 ohms - Optional |
| Return Loss (Input & Output) | 14 dB |
| Group Delay | +/-5 ns |
| Input Gain Adjustment | +/-10 dB |
| Isolation | |
| Output to Output | 40 dB |
| Output to Input | 70 dB |
| Rated Output | 1 Vrms (+13 dBm) |
| Output Attenuator Adjustment | 0 to 20 dB - Optional |
| DC Offset Control | Output Offset Zero |
| Connectors | BNC |
| Controls | Input Gain Output Attenuators - Optional DC offset Zero |
| Indicators | Signal Present and Overload LED's - Optional |
| Mainframe Slots | One |

MODEL 604 IF DISTRIBUTION AMPLIFIER

The Model 604 IF Distribution Amplifier provides a convenient means of distributing receiver IF signals to processing equipment. The amplifier covers the IF spectrum from 21.4 MHz to 300 MHz and is available with 6 or 8 outputs. Band limiting IF filters, which suppress spurious intermods, are optional.

SPECIFICATIONS

| | |
|---------------------------------|---|
| Input Frequency | 5 to 300 MHz |
| Number of Outputs | Six (Model 604) Eight (Model 604A) |
| Gain | 0 dB (nominal) |
| Gain Flatness | +/-1 dB |
| Impedance (Input and Output) | 50 ohms |
| VSWR (Input and Output) | 2.5:1 (7 dB return loss) |
| Noise Figure | 10 dB |
| 1 dB Gain Compression | 0 dBm |
| 3rd Order Input Intercept Point | +15 dBm (referred to output) |
| Isolation | |
| Output to Output | 30 dB |
| Output to Input | 30 dB |
| Channel to Channel | 70 dB |
| Output Attenuator Adjustment | 0 to 20 dB - Optional |
| Connectors | BNC |
| Controls | Input Gain Output Attenuators - Optional |
| Mainframe Slots | Model 604: One Model 604A: Two |

MODEL 605 AUDIO DISTRIBUTION AMPLIFIER

The Model 605 Audio Distribution Amplifier provides six isolated outputs with a 1 dB frequency response extending from 200 Hz to above 6 kHz or, optionally, from 10 Hz to 100 kHz. The design of the amplifier has been optimized for signal processing in systems employing multiple FDM demodulators. Gain stability, isolation and group delay are carefully controlled parameters in this unit. Balanced outputs are optional.

SPECIFICATIONS

| | |
|-------------------------------|--|
| Frequency Range | 200 Hz to 6 kHz - Standard 10 Hz to 100 kHz - Optional |
| Number of Outputs | Six |
| Impedance (Input and Output) | 600 ohms unbalanced (Model 605) Balanced outputs (Model 605A) |
| Group Delay (200 Hz to 6 kHz) | +/-3.0 ms |
| Input Gain Adjustment | +10 to -10 dB |
| Output Attenuator Adjustment | 0 to 20 dB - Optional |
| Connectors | BNC (Model 605) Triax with balanced outputs (Model 605A) |
| Controls | Input Gain Output Attenuators - Optional |
| Mainframe Slots | One |

MODEL 606 IF TO TAPE CONVERTER

The Model 606 IF to Tape Converter is a predetection converter which provides a choice of input and output center frequencies. Conversion may be accomplished relative to an external 1 MHz reference or an internal TCXO (1×10^{-6}). An optional Reference on Tape is available. This feature provides a 100 kHz tone, preset to -10 dBm, superimposed on the output channel. Group delay equalization of ± 150 ns is optionally available. A unique dual mode AGC circuit provides outstanding performance with Pulse and CW signals over a dynamic range greater than 70 dB.

SPECIFICATIONS

| | |
|--|---|
| Input Center Frequency | 21.4 MHz - Standard |
| Noise Figure | 21.4 and/or 160 MHz - Optional |
| Output Center Frequency | 12 dB |
| Output Bandwidth | 1.075, or 3.225 MHz (Select one) |
| 1.075 MHz Center Frequency | 0.150 to 2 MHz |
| 3.225 MHz Center Frequency | 0.450 to 6 MHz |
| Group Delay Equalization (over 90% of the band) | ± 200 ns in 2 MHz BW - Standard ± 150 ns in 2 MHz BW - Optional ± 75 ns in 6 MHz BW |
| External Reference (Synthesizer) | 1 MHz - Optional |
| Reference on Tape Impedance - All Signal Ports | 100 kHz - Optional |
| VSWR - All Signal Ports | 50 ohms |
| Harmonic Distortion | 2:1 |
| Spurious Outputs | -40 dBc |
| Image Rejection | -50 dBc |
| Output Level | 40 dB |
| AGC | +13 dBm (1 Vrms) |
| Threshold | |
| Attack Time | -75 dBm |
| Decay Time | 100 ms (nominal) |
| Two-Tone Intermodulation Products* | Dual mode 100 ms (nominal) |
| Connectors | <-40 dBc |
| Controls | BNC |
| Indicators (LEDs) | AGC/MGC, Gain, Power |
| Mainframe Slots | LO Unlock, Int. Ref. |
| | two |

* Test tones (referred to output) 0.5 Vrms at 1.6 and 1.8 MHz

MODEL 613 VIDEO/IF SWITCH

The Model 613 Video/IF Switch permits front panel selection of one of six video/IF signals with a range of DC to 500 MHz. The rear panel contains one input BNC connector and six output BNC connectors. Since the unit is bidirectional, it can also be used to channel six input signals to a single output port.

SPECIFICATIONS

| | |
|---|--|
| Input Frequency | DC to 500 MHz |
| Number of Inputs | One |
| Number of Outputs | Six |
| Return Loss (with output terminated) | 14 dB, dc to 150 MHz; 10 dB, 150 to 500 MHz |
| Isolation | 50 dB |
| Insertion Loss | 0.5 dB, maximum |
| Connectors | BNC |
| Controls | Port Selection |
| Indicators | Selected Port LED |
| Temperature - Operating | 0° to 50° C |
| Mainframe Slots | one |

MODEL 614 REMOTE CONTROLLER

The Model 614 Remote Controller is a dual-port RS-232C device that is designed specifically for controlling remotely controllable modules (such as the Model 613 Video/IF Switch) through the Model 615 Remote Control Interface. Since it has two control ports, it can control up to 28 modules housed in two Model 601 Mainframes. The Model 614 is housed in a half-rack, 1-3/4 inch high chassis and may be rack mounted, using a suitable rack adapter.

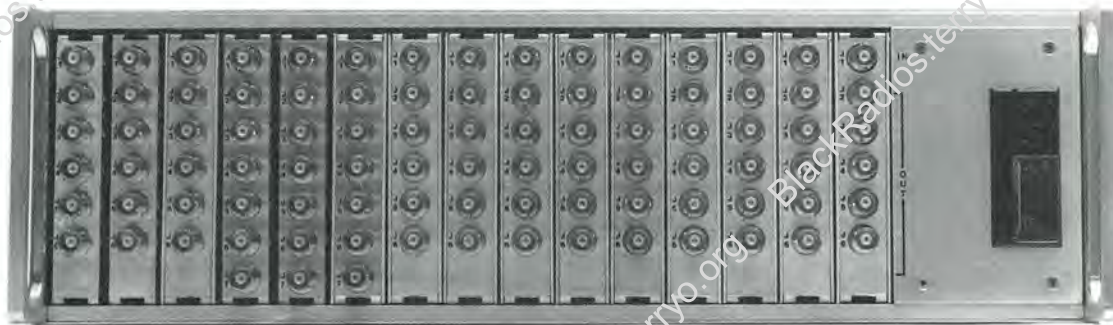
MODEL 615 MICROPROCESSOR

Housed in a single-slot-wide module, the Model 615 Remote Control Interface provides for the remote control of up to 14 remotely controllable modules (such as the Model 613 Video/IF Switch). External control is effected by an RS-232C interface connected to either an external computer or a Model 614 Remote Controller.

ORDERING INFORMATION

The Model 600 Series consists of a Model 601 Mainframe, a Model 602 Power Supply and up to 15 single-slot modules. When ordering please specify:

| | | | |
|------------|--|------------|--|
| 601 | Mainframe | Option R01 | 10 Hz to 100 kHz Frequency Range |
| 602 | Power Supply | Option L01 | Output Attenuator Adjustment |
| 603 | Video Distribution Amplifier | 606 | IF to Tape Converter (21.4 MHz Input Center Frequency, 1.075 MHz Output Center Frequency, ± 200 ns Group Delay Equalization) |
| Option J01 | Signal LED's | Option D15 | ± 150 ns Group Delay at 1.075 MHz Output Center Frequency |
| Option L01 | Output Attenuator Adjustment | Option C02 | 160 MHz Input Center Frequency |
| Option R01 | Extended Frequency | Option C01 | 160 and 21.4 MHz Input Center Frequency |
| Option Z05 | 50 ohm Input Impedance | Option C23 | Intermediate 21.4 MHz Output |
| Option Z07 | 75 ohm Input Impedance | Option C21 | 3.225 MHz Output Center Frequency |
| Option Z09 | 93 ohm Input Impedance | Option G02 | Dual Outputs |
| Option Z25 | 50 ohm Output Impedance | Option E01 | 1 MHz External Reference |
| Option Z27 | 75 ohm Output Impedance | Option G05 | 100 kHz Reference on Tape |
| Option Z29 | 93 ohm Output Impedance | 611 | Blank Front Panel |
| 604 | IF Distribution Amplifier (six outputs) | 612 | Power Extender Cable |
| Option F01 | IF Filter (Specify center frequency and bandwidth) | 613 | Video/IF Switch |
| Option L01 | Output Attenuator Adjustment | 614 | Remote Controller |
| 604A | IF Distribution Amplifier (eight outputs) | 615 | This unit requires a Model 697-1 Rack Adapter for mounting in a standard 19 inch EIA rack. |
| Option F01 | IF Filter (Specify center frequency and bandwidth) | | Remote Control Interface |
| Option L01 | Output Attenuator Adjustment | | |
| 605 | Audio Distribution Amplifier (unbalanced outputs) | | |
| Option R01 | 10 Hz to 100 kHz Frequency Range | | |
| Option L01 | Output Attenuator Adjustment | | |
| 605A | Audio Distribution Amplifier (balanced outputs) | | |



Rear View of Model 600 Modular Signal Processor

WARRANTY

All of M/A-COM Government Products equipment is warranted for one year, except for damage caused by accident or misuse, provided the equipment is returned for repair to the plant in Hunt Valley, MD



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