TELECONTROL SYSTEM



Bulletin 258

INDEPENDENT COMMAND AND STATUS



COMMAND TERMINAL. Command input switches are to the right on the front panel and status LED displays to the left.

Fully independent command and status reporting capability is provided by the Model TCS-1 Telecontrol System. Applications for the TCS-1 include command and status (tally-back) from broadcast transmitters, electronic news-gathering or similar antenna systems, microwave transmitters and receivers, remotely-located television cameras, or industrial applications. Consisting of a Command Terminal and Remote Terminal, the TCS-1 provides eight command and eight status functions. The TCS-1 is designed such that two systems may be combined on a single interconnecting path to provide a total of 16 command and 16 status functions. Operation is normally from AC power sources, but the TCS-1 may be optionally ordered for all common DC power sources. A block diagram of the TCS-1 appears on the rear of this product bulletin.

COMMAND

Eight fully independent command functions are provided by each TCS-1 system. No channel select, or similar operation is required. Simple depression of the "Command" switch on the Command Terminal will activate the appropriate relay in the Remote Terminal. Each "Command" switch will function as either a momentary switch or a latching switch. As the relay output follows the switch function, command outputs thus can be momentary or latching. In addition to the front panel switches, a connector mounted on the rear apron of the Command Terminal enables external initiation of all channels. Command outputs from the Remote Terminal are dry contact closures. Each output is independently programmed to function in either a normally-open (NO) or normally-closed (NC) configuration. For those applications requiring interlocked channels, the Command Terminal can be optionally ordered with the interlocking of any combination of the front-panel switches.

STATUS

Eight independent status (go/no-go) indicating functions are provided to convey information from the remote location to the control point. These functions are displayed on front-

REMOTE TERMINAL. LED displays provided to indicate activated command channels as well as status channel condition.

panel mounted, light-emitting diode (LED) displays on both the Command Terminal and the Remote Terminal. Each channel may be pre-programmed to select either normallyopen or normally-closed dry contacts to activate or illuminate a given channel. Additionally, TTL-level logic may also be used as an input. On the Command Terminal, an external output is provided allowing remote display or alarming of each status channel. Each of these outputs is a transistor sink to ground capable of switching an external load of up to 24V 100 ma.

INTERCONNECTION REQUIREMENTS

The TCS-1 is designed to operate over a two-wire 3 kHz voice-grade-type data circuit or equivalent radio circuits. Command and status data are transmitted in the form of serial digital information through the use of pulse-code modulation (PCM) techniques. This PCM data is conveyed through the use of frequency-shift keyed (FSK) audio tones. Parity, framing, and other security techniques, are used to insure reliable data transmission. To facilitate this form of data transmission, modems are contained within the TCS-1. Audio frequencies have been carefully selected for the FSK signals utilized for command information and for status return to permit two TCS-1 systems to operate on a single 3 kHz circuit. In addition to the two-wire connection provided for telephone circuit operation, unbalanced inputs and outputs are provided for command and status signals to permit interconnection via radio circuits.

ORDERING INFORMATION

The standard TCS-1 consists of one Remote Terminal and one Command Terminal. For 16 command and 16 status functions, two systems can be provided on a single interconnecting circuit. Stipulate at time of order that these two systems are to function on a single interconnecting circuit. Operation from DC sources is available on special order. Interlock capability of command functions can also be supplied on special order. Contact Moseley Associates' Marketing Department for further information on these options.

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TCS-1 TELECONTROL SYSTEM



Interior View-REMOTE TERMINAL. Command outputs appear at the left and status inputs at the center on the rear apron. Individual command relays, including their pro-gramming pins for selecting NC or NO outputs, are mounted on a printed circuit module just inside the rear of the chassis. A full RF shield with bulkhead-mount feedthrough filters isolates all active circuitry. Color-coded test points and switchable internal testing features are included in the TCS-1.



SPECIFICATIONS

Status Capability	Eight channels	Command Input	switches on Command Termi-	Interconnection Requirement	s
Status Input	External (user-supplied) dry contacts or TTL-level logic- level signal for each channel. Each channel programmable to accept normally-open (Log- ic 0) or normally-closed (Log- ic 1) contacts for activation of that channel.	(con't)	nal. Switches function in mo- mentary or latching configura- tion. Mechanical interlocking available on special order. Ex- ternal input for each channel also accessible at multi-pin connector on rear apron of Command Terminal. Mating plug optional. Individual isolated, floating, dry relay contacts program- mable as normally-open (NO) or normally-closed (NC) with channel activation Contacts rated for 1A at 120 VAC/VDC, noninductive load.	Telephone	Iwo-wire, unconditioned, half- duplex 600 ohm, balanced data circuit (Reference Bel Series 3002). Maximum allow- able attenuation 30 dB, senc level 0 dBm.
				Radio	Full-duplex radio circuit. Un balanced input and output
Status Input Connector	Multi-pin connector on rear apron of Remote Terminal. Mating plug supplied.	Command Output			provided on both terminals fo FSK signals. Radio output (dB, 2200 ohms, unbalanced
Status Display	Light-emitting diode (LED), one per channel, Displays are provided on both Remote and Command Terminals.				dB, 2200 ohms, unbalanced
				Operating Temperature Range	-20°C to +50°C
External Status Output	Each status channel provided with transistor-type sink to ground capable of switching external 24 VDC 100 ma source. Outputs accessible at multipin connector on rear apron of Command Terminal. Mating plug optional.	Command Output Connector	Screw barrier strip on rear apron of Remote Terminal.	Power Requirements	120/240 VAC, ±10%, 50/6 Hz, nominal 15 watts per te
		Command Response Time	Less than 200 milliseconds	minal. Op power sou	power sources available of
		Data Transmission	Modems provided within Command and Remote Ter- minals, Frequency-shift keyed (FSK) audio signals used for transmission of command and status information in pulse- code modulation (PCM) for- mat. Command and status transmission scent 155 haud	Physical Size Command Terminal	special order. 4.5 cm x 48.4 cm x 28 cn (1% H x 19'' W x 11'' D
Status Response Time	Less than 200 milliseconds			Remote Terminal	4.5 cm x 48.4 cm x 28 cm
Command Capability	Eight Channels			System Shipping Weight	11.4 kg. (25 lbs.), approximate
Command Input	Individual channel front-panel				

RESEARCH

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TELECONTROL SYSTEM MODEL TCS-2A



Bulletin 263A

INDEPENDENT COMMAND, STATUS AND TELEMETRY



COMMAND TERMINAL. Command input switches are to the right, telemetry channel selector/display center, status LED displays and modem adjustments to the left.

Fully independent command, status reporting and telemetry capability is provided by the Model TCS-2A Telecontrol System. Applications for the TCS-2A include command, status (tally-back) and telemetry of broadcast transmitters, electronic news-gathering systems, earth stations or industrial applications. Telemetry and fail-safe capabilities enable full compliance with FCC Rules and Regulations for AM and FM broadcast transmitter remote control. Consisting of a Command Terminal and Remote Terminal, the TCS-2A provides eight command, eight status and eight telemetry functions. A Remote Terminal digital telemetry display affords one-man calibration. As detailed, via the system block diagram on the back of this brochure, the Model TCS-2A is microprocessor-based. The Motorola 6802 Microprocessor, together with customized Moseley Associates' software, enables ideal capabilities for remote command, status and telemetry operation. Facilities are also included to allow multi-site capabilities as well.

COMMAND

Eight fully independent command functions are provided by the TCS-2A System. No channel select or similar operation is required. Simple depression of the "Command" switch on the Command Terminal will activate the appropriate relay in the Remote Terminal. Each command switch will function as either a momentary or latching switch. As the relay output follows the switch function, command outputs thus can be momentary or latching. In addition to the front-panel switches, a connector mounted on the rear apron of the Command Terminal enables external initiation of all channels. Command outputs from the Remote Terminal are dry contact closures. Each output is provided as a full form "C" contact. Yellow LED indicators are provided at the Remote Terminal to display command channel activation. For those applications requiring exclusively interlocking channels, the TCS-2A can be optionally ordered with the interlocking of any combination of adjacent front-panel switches. Loss of interconnect relaxes a form "C" fail-safe relay contact. A command enable strap can be coordinated with this fail-safe relay to relax all command relay outputs. Otherwise, command functions will remain in memory upon disconnect. Selecting a telemetry channel other than "0" at the remote site disables any remote commands arriving from the Command Terminal. A status lamp labeled "Maintenance Override" indicates such at the Command Terminal.

REMOTE TERMINAL. Command and status activity LED indicators and modem adjustments are to the left, telemetry channel selector/display center and telemetry calibration to the right.

STATUS

Eight fully independent status (go/no-go) indicator functions are provided to convey information from a remote location to the control point. These functions are displayed on the front-panel mounted light-emitting diode (LED) displays on both terminals. Each channel may be pre-programmed to select either a normally-open or normally-closed dry contact to activate or illuminate a given channel. Additionally, TTL-level logic may also be used as an input. On the Command Terminal, an external output is provided allowing remote display or alarming of each status channel. Each of these outputs is a transistor sink to ground capable of switching an external load of up to 24 VDC, 100 ma. These transistor sinks may also be used to drive common alarms (perhaps aural) from several channels.

TELEMETRY

Eight fully independent telemetry channels are provided to convey digitally converted analog inputs from a Remote Terminal to the Command Terminal. The bipolar, 3-3/4 digital display (3999 max.) is selected by a push-button switch at each terminal. When the Remote Terminal selects a telemetry channel (1 through 8), the remote display is enabled and a "Maintenance Override" LED indicator is activated at the Command Terminal. Returning to channel "0" enables Command Terminal command entry. The DC analog inputs are ± 1 to 10 VDC, high impedance.

INTERCONNECTION REQUIREMENTS

The TCS-2A is designed to operate over a two-wire or four-wire, 3 kHz voice-grade type data circuit or equivalent radio circuits. Command, status and telemetry data is transmitted in the form of serial digital information appearing as FSK audio tones. Interconnect is via two-way, non-simultaneous transmission, 1200 baud.



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TCS-2A TELECONTROL SYSTEM



SPECIFICATIONS

Command Input Individual channel front-panel switches on Command Terminal. Switches function in momentary or latch- ion special order. Telemetry Capability Eight channels Command Input Individual channel accessible at multipin connector on rear apron of Command Terminal. Making plug op- tional. Telemetry Capability Eight channels Command Unput Individual scalet, floating, dry reley contacts. Form Cr. (SPDT). So wats non-inductive maximum load. Telemetry Capability Eight channels Command Output Individual scalet, floating, dry reley contacts. Form Cr. (SPDT). So wats non-inductive maximum load. Telemetry Accuracy 0.5% of full scale Command Output Individual scalet (LED), vellow, one per channel activity at Command Terminal. Telemetry Response Time 250 milliseconds, nominal Command Output Connector Multipin connector, maing plug supplied. Data Transmission Seven-bit ASCI with particip and auto dispara ferminal. Command Response Time 125 milliseconds, nominal topic-level agrain for assignal for each channel. Display at Pereols Emrinal and "Mainfingneece Override". LED at Command Terminal. Telemetry Canneet Regularements Wither Connector Too-wide or four-wire, 600 ohm, balanced, Series Status Input Connector Status Input Connector Light-emitting diode (LED), red, one per channel programmable to accept normaly celvelind offour. Command Terminal auto transmiss for	Command Capability	Fight channels	Status Response Time	125 milliseconds, nominal	
Terminal. Switches function in momentary or latching configuration. Mechanical Interlocking available on special order.Telemetry InputA VDC (norminal) for Luit-scale (4606) display biodes bioral.Command Input ConnectorEach channel accessible at multipin connector on rear apron of Command Terminal. Mating plug op- tional.Telemetry Input4 VDC (norminal) for Luit-scale (4606) display, biodes bioral.Command Input ConnectorIndividual isolated, floating, dry relay contacts. Form "C" (SPD), S0 watto non-inductive maximum load.Telemetry DisplayDigital LED display, both panels 3-3/4 digit, bipolar (4696 to 4996).Command Output ConnectorMultipin connector, mating plug supplied.Telemetry DisplayDigital LED display, both panels 3-3/4 digit, bipolar (4696 to 4996).Command Output ConnectorMultipin connector, mating plug supplied.Telemetry InputTelemetry InputControl EnableStrapped screw barrie terminal at "Multinenance Override" LED at Command Terminal.Telemetry seponse Time Ure250 milliseconds, nominalCommand Response Time tatus CapabilityEight channelsTTL-level tiogic-level signal for each channel. Each channel programmable to accept normally-open (Logic 0) or normall-Costed (Logic 1) contacts or art apron of Remote Terminal and Multipin connector on rear apron of Remote Terminal tiogic-level signal for each channel. Each channel programmable to accept normally-open (Logic 0) or normall-Costed (Logic 1) contacts or art apron of Remote Terminal tiogic-level signal for each channel. Each channel programmable to accept normally-open (Logic 0) or normall-Costed (Logic 1) contacts or art apron of Remote Terminal and Terminal.Status Di	Command Input	Individual channel front-panel switches on Command	Telemetry Capability	Eight channels	
Command Input Connector Each channel accessible at multipin connector on rear apron of Command Ferminal. Mating plug op- tional. Input impedance, 1MG. Command Output Individual isolated, floating, dry relay contacts. Form "C" (SPDT), 50 watts non-inductive maximum load. Telemetry Display Digital LED display, both panels 3-3/4 digit, bjolar (-4996 to 4996). Command Display Light-emitting diode (LED), yellow, one per channel at Remote Terminal. Telemetry Nocuracy 0.5% of full scale Command Output Connector Multipin connector, mating plug supplied. 250 milliseconds, nominal Control Enable Strapped screw barrie terminals at Remote Terminal. Telemetry Response Time 250 milliseconds, nominal Maintenance Override In effect when Remote Terminal. Telemetry selector is in channel other than "0." Indicated by active value display at Remote Terminal. Maintenance Telemetry Response Time 250 milliseconds, nominal Status Capability Eight channels Telemetry selector is nonnel display at Remote Terminal. Telemetry Selector is nonnel display at Remote Terminal. Telemetry Response Time 250 milliseconds, nominal Status Input External (user supplied) dry contacts or TTL-issel logic-isse supplied) dry contacts or attransmission Radio Fuil-dupiex radio circuit. Unbalanced input and out- voide companion frequerecy.		Terminal. Switches function in momentary or latch- ing configuration. Mechanical interlocking available on special order.	Telemetry Input	4 VDC (nominal) for full-scale (4096) display, bipola against chassis common. Individual channel calibra tion potentiometers enable inputs of 1 to 10 VDC	
Command OutputIndividual isolated, floating, dry relay contacts. Form "C" (SPDT), 50 watts non-inductive maximum load, at Remote Terminal.Digital LED display, both panels 3-3/4 digit, bjoplar (4-096 to 4096 to 4096).Command OutputIndividual isolated, floating, dry relay contacts. Form "C" (SPDT), 50 watts non-inductive maximum load, at Remote Terminal.Telemetry Accuracy0.5% of full scaleCommand DisplayLight-emitting diode (LED), velow, one per channel at Remote Terminal.Telemetry Response Time250 milliseconds, nominalControl EnableStrapped screw barrier terminals at Remote Terminal.Data TransmissionSeven-bit ASCII with parity plus LRC. 1200 baud each direction, two-way non-simultaneous.Maintenance OverrideIn effect when Remote Terminal.The Interconnect RequirementsTwo-wire of our-wire, 600 ohm, balanced. Series 3002 (unconditioned) data channel per Bell System torical. Retence PUB-41004. Two-way non- simultaneous. Nominal send level 0 dBm, receive level 30 dBm minimum.Command Response Time125 milliseconds, nominalRadioFull-duplex radio circuit. Unbalanced input and out- status CapabilityStatus InputExternal (user-supplied) dry contacts or TTL-level logic-level signal for each channel. Each channel programmable to accept normally-poil. (Ligh). Provided on both Terminal and the Status or mormal-ly-closed (Ligh). red, one per channel.RadioStatus Input ConnectorMultipin connector on rear apron of Remote Termi- nal. Mating plug supplied.Status Channel for Status Channel programmable to accept normal/-per (Ligh). Provided on both Terminal and terminal.Status Input ConnectorMultipin connector on rear	Command Input Connector	Each channel accessible at multipin connector on		Input impedance, 1MΩ.	
Command Output Individual isolated, floating, dry relay contacts. Form "C" (SPD), 50 watts non-inductive maximum load. at Remote Terminal. Telemetry Accuracy 0.5% of full scale Command Display Light-emitting diode (LED), yellow, one per channel at Remote Terminal. Telemetry Accuracy 0.5% of full scale Command Output Connector Multipin connector, mating plug supplied. Telemetry Response Time 250 milliseconds, nominal Control Enable Strapped screw barrier terminals at Remote Termi- nal. Lifting strap relaxes all relays. Data Transmission Seven-bit ASCII with parity plus LFC. 1200 baud each direction, two-way non-simultaneous. Maintenance Override In effect when Remote Terminal telemetry selector is in channel other than "0." Included by active value display at Remote Terminal and "Maintenance Override" LED at Command Terminal. Two-wire or four-wire, 600 ohm, balanced. Series 3002 (uncondinced dat channel per Bell System Technical Reference PUB-41004, Two-way non- simultaneous. Command Response Time 125 milliseconds, nominal Radio Status Display Eight channels Falmente Terminal. Status Display Light-channel (DEC), red, one per channel, Displays are provided on both Remote and Com- mand Terminals. Operating Temperature Range O°C to + 50°C Status Input Connector Multipin connector on rear apron of Remote Termi- nal. Mating plug supplied. Operating Temperature Range		tional.	Telemetry Display	Digital LED display, both panels 3-3/4 digit, bipolar (-4096 to 4096).	
Command DisplayLight-emitting diode (LED), yellow, one per channel at Remote Terminal. "Shadow" switches indicate activity at Command Terminal.Telemetry Input ConnectorMultipin connector, mating plug supplied.Command Output ConnectorMultipin connector, mating plug supplied.Strapped screw barrier terminals at Remote Terminal.Telemetry Response Time250 milliseconds, nominalMaintenance OverrideIn effect when Remote Terminal.In effect when Remote Terminal.Telemetry Response Time250 milliseconds, nominalCommand Response Time125 milliseconds, nominalData TransmissionSven-bit ASCI with parity plug LRC. 1200 baud each direction, two-way non-simultaneous.Command Response Time125 milliseconds, nominalData TransmissionSven-bit ASCI with parity plug LRC. 1200 baud each direction, two-way non-simultaneous.Command Response Time125 milliseconds, nominalTelemetry Response TimeData TransmissionStatus CapabilityEight channelsThe channelData TransmissionStatus DisplayLight-channel.Contexts or TL-level logic-level signal for each channel, Displays are provided on both Remote Terminal.RadioStatus Input ConnectorMultipin connector on rear apron of Remote Terminal.RadioStatus Input ConnectorMultipin connector on rear apron of Remote Terminal.Status Input ConnectorMultipin connector on rear apron of Remote Terminal.Status DisplayLight-channel contrally-open (Logic 0) or normally-closed (Logic 1) contacts or activation of capable of switching external 24 VDC, -100 ma source.Power Requirements <t< td=""><td>Command Output</td><td>Individual isolated, floating, dry relay contacts. Form "C" (SPDT), 50 watts non-inductive maximum load.</td><td>Telemetry Accuracy</td><td>0.5% of full scale</td></t<>	Command Output	Individual isolated, floating, dry relay contacts. Form "C" (SPDT), 50 watts non-inductive maximum load.	Telemetry Accuracy	0.5% of full scale	
activity at Command Terminal.Telemetry Response Time250 milliseconds, nominalCommand Output ConnectorMultipin connector, mating plug supplied.Data TransmissionSeven-bit ASCII with parity plus LRC. 1200 baud each direction, two-way non-simultaneous.Maintenance OverrideIn effect when Remote Terminal and "Maintenance Override" LED at Command Terminal.Interconnect RequirementsTwo-wire or four-wire, 600 ohm, balanced. Series 300 clunconditioned) data channel per Gell System Technical Reference PUB-41004. Two-way non-simultaneous.Command Response Time Ustatus Capability125 milliseconds, nominalTwo-wire or four-wire, 600 ohm, balanced. Series 300 clunconditioned) data channel per Gell System Technical Reference PUB-41004. Two-way non-simultaneous.Two-wire or four-wire, 600 ohm, balanced. Series 300 clunconditioned) data channel per Gell System Technical Reference PUB-41004. Two-way non-simultaneous.Command Response Time Istatus Capability125 milliseconds, nominalTelemetry Response Time Indicated by active aule display at Remote Terminal.Radio Interconnect RequirementsStatus CapabilityEight channelsExternal (user-supplied) dry contacts or TTL-level logic-level signal for each channel. Each channel programmable to accept normally-open (Logic 0) or normally-closed (Logic 1) contacts for activation of that channel.Radio Output CorrectStatus DisplayLight-emiting diode (LED), red, one per channel. 	Command Display	Light-emitting diode (LED), yellow, one per channel at Remote Terminal. "Shadow" switches indicate	Telemetry Input Connector	Multipin connector on rear apron of Remote Termi- nal. Mating connector supplied.	
Command Output ConnectorMultipin connector, mating plug supplied.Data TransmissionSeven-bit ASCII with parity plus LRC. 1200 baud each direction, two-way non-simultaneous.Control EnableStrapped screw barrier terminals at Remote Terminal nal. Lifting strapped screw barrier terminals and "Maintenance Override"Data TransmissionSeven-bit ASCII with parity plus LRC. 1200 baud each direction, two-way non-simultaneous.Maintenance OverrideIn effect when Remote Terminal telemetry selector is in channel other than "0." Indicated by active value display at Remote Terminal and "Maintenance 		activity at Command Terminal.	Telemetry Response Time	250 milliseconds, nominal	
Control EnableStrapped screw barrier terminals at Remote Terminal. Lifting strap relaxes all relays.Interconnect Requirements Wireeach direction, two-way non-simultaneous.Maintenance OverrideIn effect when Remote Terminal telemetry selector is in channel other than "0." Indicated by active value display at Remote Terminal.Interconnect Requirements WireTwo-wire or four-wire, 600 ohm, balanced. Series 3002 (unconditioned) data channel per Bell System Technical. Reference PUB-41004. Two-way non- simultaneous. Nominal send level 0 dBm, receive level-30 dBm minimum.Command Response Time125 milliseconds, nominal Estatus CapabilityFight channels External (user-supplied) dry contacts or TTL-level logic-level signal for each channel. Each channel. Esternal (Light-emitting diode (LED), red, one per channel. Displays are provided on both Remote Termi- mand Terminals.RadioFull-duplex radio circuit. Unbalanced adjust- able. Radio input .025V p-p. 22003, unbalanced, adjust- able. Radio input .025V p-p. 22003, unbalanced, adjust- able. Radio input .025V p-p. 22003, unbalanced, adjust- able. Radio input .025V p-p. 22003, unbalanced, adjust- adjust-set adjust- adjust-set adjust- adjust-se	Command Output Connector	ommand Output Connector Multipin connector, mating plug supplied. Strapped screw barrier terminals at Remote Termi- nal. Lifting strap relaxes all relays.		Seven-bit ASCII with parity plus LRC. 1200 baud each direction, two-way non-simultaneous.	
Maintenance OverrideIn effect when Remote Terminal telemetry selector is in channel other than "0." Indicated by active value display at Remote Terminal and User is in channel other than "0." Indicated by active value display at Remote Terminal and 125 milliseconds, nominal Etatus CapabilityWireTwo-wire or four-wire, 600 ohm, balanced. Series 3002 (unconditioned) data channel per Bell System Technical Reference PUB-41004. Two-way non- simultaneous. Nominal send level 0 dBm, receive 	Control Enable				
Command Response Time125 milliseconds, nominalRadioFull-duplex radio circuit. Unbalanced input and out- put provided on both terminals for FSK signals. Radio output 1V p-p. 22002, unbalanced, adjust- able. Radio input 025 V-p. 22002, unbalanced, adjus	Maintenance Override	In effect when Remote Terminal telemetry selector is in channel other than ''0." Indicated by active value display at Remote Terminal and ''Maintenance Override'' LED at Command Terminal.	Wire	Two-wire or four-wire, 600 ohm, balanced. Series 3002 (unconditioned) data channel per Bell System Technical Reference PUB-41004. Two-way non- simultaneous. Nominal send level 0 dBm, receive level -30 dBm minimum	
Status CapabilityEight channelsFluidStatus InputEight channelsExternal (user-supplied) dry contacts or TTL-level logic-level signal for each channel. Each channel programmable to accept normally-coles d(Logic 1) contacts for activation of that channel.Fluid-ubjek radio for terminals for FSK signals. Radio output 1V D25V D2, 2000, unbalanced, adjust- able. Radio input 025V D2, 2000, unbalanced, adjust- minimum. Model SCM-1 Subcarrier Main Frame pro- vides companion FM subcarrier system for aural subcarrier system for aural 	Command Response Time 125 milliseconds, nominal		Padla	Evil dupley radio elevit Lipholopood input and out	
Status Input External (user-supplied) dry contacts or TTL-level logic-level signal for each channel. Each channel. Each channel. Each channel. Hadio output v D-P, 2200Q, unbalanced, adjust-able. Radio input v D-P, 2200Q, unbalanced, minimum. Model SCM-1 Subcarrier Main Frame provides companion FM subcarrier system for aural studio-transmitter link, or other radio link systems. When ordering the SCM-1 Subcarrier system for aural studio-transmitter link, or other radio link systems. When ordering the SCM-1, please specify exact radio link system model number and subcarrier operating frequency. Status Display Light-emitting diode (LED), red, one per channel. Displays are provided on both Remote and Command Terminals. Operating Temperature Range 0*C to + 50*C Status Input Connector Multipin connector on rear apron of Remote Terminal. Mating plug supplied. Power Requirements 120/240 VAC, ± 10%, 50/60 Hz. External Status Output Each channel provided with transistor sink to ground capable of switching external 24 VDC, -100 ma source. Physical Size Command Terminal 4.5 cm H x 48.4 cm W x 35.5 cm D (1.75'' H x 19'' W x 14'' D) External Status Output Multipin connector on rear apron of Command Terminal. Remote Terminal 4.5 cm H x 48.4 cm W x 35.5 cm D (1.75'' H x 19'' W x 14'' D) System Shipping Weight 16 kg. (35 lbs.), approximate System Shipping Weight 16 kg. (35 lbs.), approximate	Status Capability	Eight channels	Hadio	put provided on both terminals for FSK signals.	
Status Display Light-emitting diode (LED), red, one per channel. Displays are provided on both Remote and Com- mand Terminals. radio link system model number and subcarrier operating frequency. Status Input Connector Multipin connector on rear apron of Remote Termi- nal. Mating plug supplied. Operating Temperature Range 0°C to + 50°C External Status Output Each channel provided with transistor sink to ground capable of switching external 24 VDC, 100 ma source. Physical Size Command Terminal 120/240 VAC, ± 10%, 50/60 Hz. External Status Output Connector Multipin connector on rear apron of Command Ter- minal. Mating plug optional. Multipin connector on rear apron of Command Ter- minal. Mating plug optional. Remote Terminal 4.5 cm H x 48.4 cm W x 35.5 cm D (1.75" H x 19" W x 14" D) System Shipping Weight 16 kg. (35 lbs.), approximate	Status Input External (user-supplied) dry contacts or TTL-lev logic-level signal for each channel. Each chann programmable to accept normally-open (Logic 0) or normally-closed (Logic 1) contacts for activation that channel.			Hadio output 1V p-p, 2200∑, unbalanced, adjust- able. Radio input .025V p-p, 2200∑, unbalanced, minimum. Model SCM-1 Subcarrier Main Frame pro- vides companion FM subcarrier system for aural studio-transmitter link, or other radio link systems. When ordering the SCM-1, please specify exact	
mand Terminals. Operating Temperature Range 0°C to +50°C Status Input Connector Multipin connector on rear apron of Remote Terminal. Mating plug supplied. Power Requirements 120/240 VAC, ± 10%, 50/60 Hz. External Status Output Each channel provided with transistor sink to ground capable of switching external 24 VDC, 100 ma source. Physical Size Command Terminal 4.5 cm H x 48.4 cm W x 35.5 cm D (1.75" H x 19" W x 14" D) External Status Output Connector Multipin connector on rear apron of Command Terminal Remote Terminal 4.5 cm H x 48.4 cm W x 35.5 cm D (1.75" H x 19" W x 14" D) System Shipping Weight 16 kg. (35 lbs.), approximate	Status Display	Light-emitting diode (LED), red, one per channel. Displays are provided on both Remote and Com-		radio link system model number and subcarrier operating frequency.	
Status Input Connector Multipin connector on rear apron of Remote Terminal. Mating plug supplied. Power Requirements 120/240 VAC, ± 10%, 50/60 Hz. External Status Output Each channel provided with transistor sink to ground capable of switching external 24 VDC, 100 ma source. Physical Size Command Terminal 4.5 cm H x 48.4 cm W x 35.5 cm D (1.75" H x 19" W x 14" D) External Status Output Connector Multipin connector on rear apron of Command Terminal. Remote Terminal 4.5 cm H x 48.4 cm W x 35.5 cm D (1.75" H x 19" W x 14" D) System Shipping Weight 16 kg. (35 lbs.), approximate	and a start and a second	mand lerminals.	Operating Temperature Range	0°C to + 50°C	
External Status Output Each channel provided with transistor sink to ground capable of switching external 24 VDC, 100 ma source. Physical Size Command Terminal 4.5 cm H x 48.4 cm W x 35.5 cm D (1.75" H x 19" W x 14" D) External Status Output Connector Multipin connector on rear apron of Command Terminal. Remote Terminal 4.5 cm H x 48.4 cm W x 35.5 cm D (1.75" H x 19" W x 14" D) System Shipping Weight 16 kg. (35 lbs.), approximate	Status Input Connector	Multipin connector on rear apron of Remote Termi- nal. Mating plug supplied.	Power Requirements	120/240 VAC, ± 10%, 50/60 Hz.	
External Status Output Connector Multipin connector on rear apron of Command Ter- minal. Mating plug optional. Remote Terminal 4.5 cm H x 48.4 cm W x 35.5 cm D (1.75" H x 19" W x 14" D) System Shipping Weight 16 kg. (35 lbs.), approximate	External Status Output	Each channel provided with transistor sink to ground capable of switching external 24 VDC, 100 ma	Physical Size Command Terminal	4.5 cm H x 48.4 cm W x 35.5 cm D (1.75" H x 19" W x 14" D)	
System Shipping Weight 16 kg. (35 lbs.), approximate	External Status Output	Multiplin connector on rear apron of Command Ter-	Remote Terminal	4.5 cm H x 48.4 cm W x 35.5 cm D (1.75'' H x 19'' W x 14'' D)	
	Connector	minar. Mating plug optional.	System Shipping Weight	16 kg. (35 lbs.), approximate	

Contact any Moseley Associates Sales Representative for further details.

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