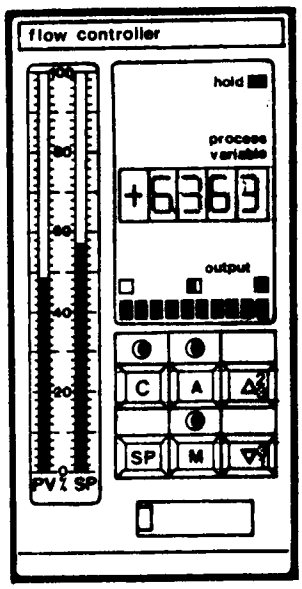
SINGLE LOOP FLOW CONTROLLER



* Microprocessor Technology and Solid State Displays for High Reliability.
* Single Loop Integrity.
* Microprocessor Flexibility Provides identical Controllers for a Variety of Tasks.
* Controller Set Up by Hand-Held Terminal Provides Parameter Security.
* Remote Monitoring Facility Via a Simple Serial Data Link.
* 3-Term Control.
* Pressure, Temperature, Density and Compressibility Compensation.

The 6363 is a single loop Flow Controller which is compatible with the TCS Matric 6000 range of equipment, and utilises a microprocessor to provide exceptional applications flexibility coupled with solid state reliability.

Single loop integrity is achieved by incorporating a microprocessor in each 6363, which is pre-programmed to accept the characteristics for any 3-Term control loop function from a plug-in 8260 Hand-Held Terminal. All controllers are therefore physically identical and inter-changeable regardless of loop function and the correct parameters are entered via the Hand-Held Terminal. The parameters are held in a battery-supported memory which will retain them for at least 5 years if the device is unpowered. Use of the Terminal ensures security of the control settings.

Functionally, the Controller operates as a conventional analogue unit, providing facilities to raise/lower the setpoint or output via front-panel push-buttons, and to change control mode to manual, automatic or computer.

The 6363 will interface to 4-20mA signals from plant mounted equipment, or 0-10V signals from the Matric 6000 range of signal conditioners and output drivers. Each Controller is provided with input linearisation routines which cover square-root extractions and all common thermocouples and platinum resistance thermometers. The computed flow value, along with the setpoint or error output, is retransmitted by the 6363 for chart recording purposes.

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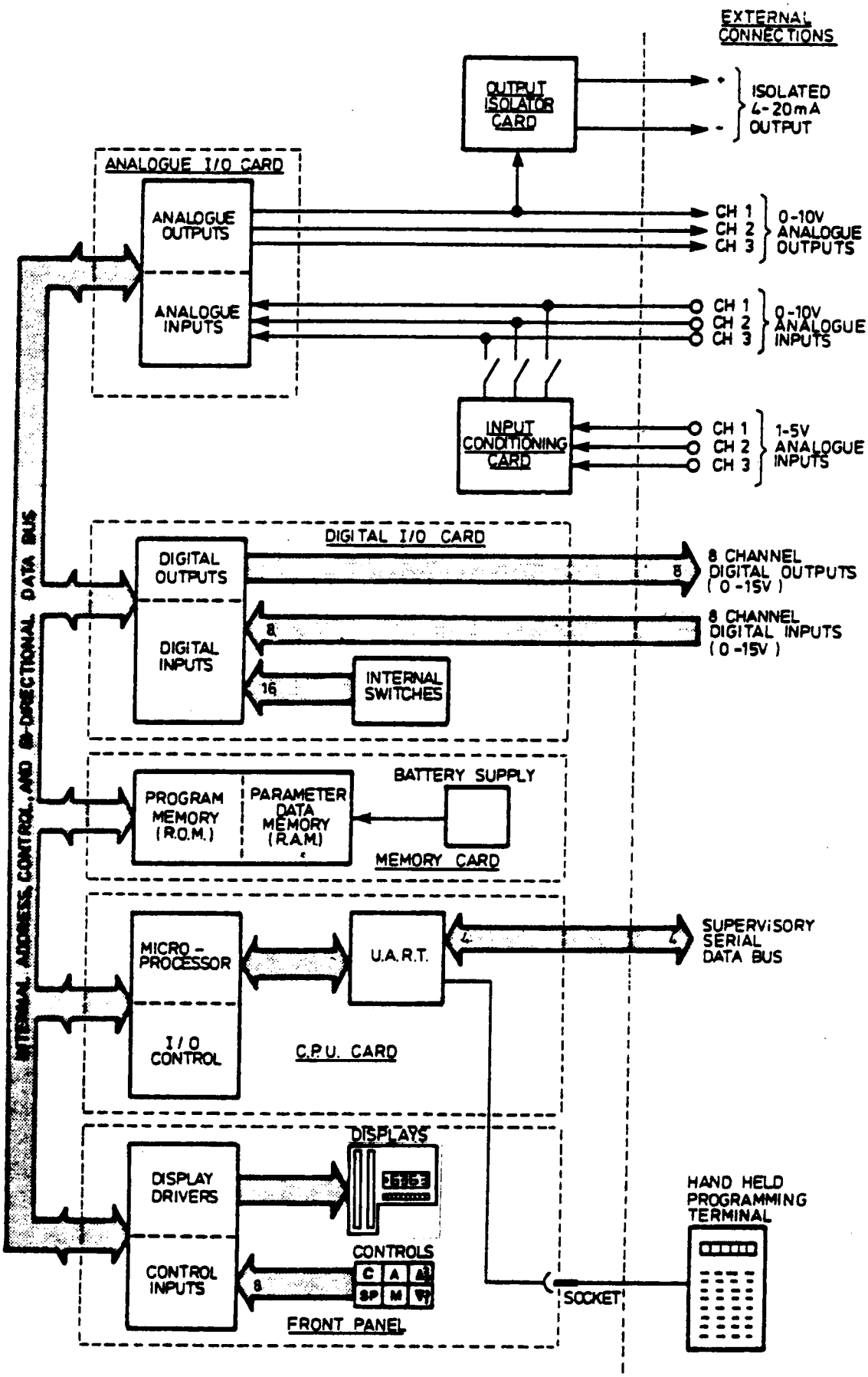
Supervision and monitoring of the 6363 is made particularly simple by the provision of a communications link in each device. This allows an intelligent device to monitor or update any of the control parameters of a network of 6363 controllers via an RS422 serial data bus.

The microprocessor technology and the use of solid-state displays, offer high levels of reliability. The security of the instrument is ensured by extensive diagnostic procedures which are run prior to the generation of an output. The 6363 Controller is supplied as a plug-in unit, whether in rack mounted, or single-sleeve form, thus facilitating ease of servicing and replacement.



MATRIC 6363 PROCESS CONTROLLER SCHEMATIC BLOCK DIAGRAM

TECHNICAL SPECIFICATION

Parameters set by Hand-Held Terminal

Setpoint related

Setpoint range	: Set in engineering units, range within -9999 to +9999.
Setpoint limits	: High and Low limits on setpoint within the above range.
Decimal point	: Can be set in appropriate position.
Input linearisation	: Linear, square root, platinum resistance thermometers and thermocouple types J,K,T,E,S,R,B.
Setpoint travel time	: Time for raise/lower remote inputs to cause a 100% change in setpoint. Range 000.1 to 999.9 seconds.
Setpoint increment	: Set in engineering units, range within 00.00 to 99.99%.
Scaling factor (Pulse output)	: 000.1 to 999.9 (4 pulses per second maximum).
Input ranges	: High and low range settings for process variable inputs (engineering units -9999 to +9999)
Constants	: Fixed decimal points.
Base pressure/temperature	: Set in engineering units.
Alarms	: High and low deviation and absolute alarms set in engineering units with hysterysis 0.5% of setpoint span.

Control settings

Output limits	: High and low output limits set 00.00 to 99.99% of full scale.
Direct/inverse	: Direct or inverse output can be selected.
Input filter	: Time constant settable 00.04 to 99.99 secs.
Proportional band	: Settable 0.1 to 999.9%.
Integral and derivative time	: 0.01 to 99.99 sec. or 0.01 to 99.99 mins 0=off.
Error limit	: Limits error signal as seen by control algorithm within range 00.00 to 99.99%.
Setpoint	: Local setpoint can be entered via Hand-Held Terminal as well as by front panel controls.

Monitor Only

Output level	: Range 00.00 to 99.99%.
Flow total	: Range 0000 to 9999 (scaled engineering units per hour).
Process variables	: Process variable input signals - engineering units.
Deviation value	: Deviation between setpoint and process variable engineering units.
Sampling time	: 250mS in Sec mode, 600mS in min mode.

All parameters capable of being set or monitored via the 8260 Hand-Held Terminal can also be accessed via the serial communications port for supervision or monitoring.

Switch Set Parameters - Controller parameters set by internal switches.

S1 Communications:-

Integral term balance	: Disable on SP changes.
Baud rate	: Standards to 9600 Baud.
Group address	: 3 bit (0 - 7).
Protocol Type	: ASCII or Binary.

S2 Control Modes:-

Operation mode	: Orifice plate/turbine meter calculation.
Hold mode	: Low output.
Output	: Inverse/normal.
Return mode after power fail (or O/C input)	: Manual with output at low limit/ previous mode (or manual with last output).
Setpoint action in manual	: Track PV/hold constant.
Function of output 3	: Setpoint/Deviation.
Time constants	: seconds/minutes

S3 Input Selection:-

Process Variable 1 input	: 0-10V/1-5V (for 4-20mA)
Process Variable 2 input	: 0-10V/1-5V (for 4-20mA)
Process Variable 3 input	: 0-10V/1-5V (for 4-20mA)

Operator Controls and Displays

Process variable and setpoint	: Two red bargraphs to indicate Process Variable and Setpoint with a resolution of 1%.
Computed process variable	: Four digit display in engineering units.
Setpoint	: Setpoint displayed in engineering units by depressing [SP] button. Setpoint can be changed by pressing [△] (Raise) or [▽] (Lower) in conjunction with the [SP] button.

Alarm indication : Alarms are indicated by flashing the process variable bargraph.

Power-on indication : The bottom segment of each vertical bargraph is illuminated.

Output indication : Horizontal yellow bargraph with a resolution of 10%. By pressing the appropriate mode button, [A] [M] or [C], the output is presented on the digital display with a resolution of 0.025%.

Alarm levels : These can be shown on the vertical bargraphs. High alarms are shown when the [△3] button only is pressed, and low alarms are shown when the [▽1] button is pressed.

Operating Modes and Indication

Manual : Selected by [M] button with yellow LED status display. Output changed by [△3] and [▽1] buttons in manual mode, raise and lower buttons operate in accelerating mode.

Auto : Mode selected by [A] pushbutton with green LED status display. Provides closed loop control from local setpoint.

Computer : Mode selected by [C] button with green LED status display. Allows the setpoint to be varied by digital inputs.

Process Variable 1 : Main display shows Process Variable 1 (Flow) by depressing [▽1] button.

Process Variable 2 : Main display shows Process Variable 2 (Temperature) by depressing [△3] button.

Process Variable 3 : Main display shows Process Variable 3 (Pressure/Density) by depressing [▽1] and [△3] buttons together.

Analogue Inputs

Channel 1	: Process Variable 1 (Flow/ Differential Pressure).
Channel 2	: Process Variable 2 (Temperature)
Channel 3	: Process Variable 3 (Pressure/ Density).
All inputs	: 0-10V or 1-5V (for 4-20mA with external burden resistors), non-isolated.

Input resistance 150Kohm with pull-down to 0V.

Resolution 1 digit in ± 9999.

Accuracy ± L.S. digit of reading.

Drift ± 0.025%, 0 to 50°C, sampling period 36mSec.

Analogue Outputs

Channel 1	: 3-term Control Output 0-10V and 4-20mA.
Channel 2	: Process Variable (Computed) 0-10V
Channel 3	: Setpoint Output or Amplified Deviation (± 6.25% of span) 0-10V

0-10V outputs are unisolated.

Resolution 0.025% of full scale.

Accuracy ± 0.01%, 0-50°C.

Drive ± 5mA maximum.

4-20mA Output : Isolated, 50V isolation voltage.

Accuracy : ± 0.5% of full scale.

Update Period : 36mS.

Output Drift Under Watchdog Failure Conditions : Less than 1% of full scale in 3 minutes.

Digital Inputs

4 unit address bits (0 to F),

2 Enable inputs and the setpoint Raise/Lower inputs.

Logic 1 = +15V, Logic 0 = 0V

Input impedance 100Kohm pull-down to 0V.

Digital Outputs

8 Alarm and Status outputs, including 1 user logic bit and computed flow rate pulse (4Hz max).

Logic 1 = +15V, Logic 0 = 0V.

Output drive 2K2 open collector pull-up to +15V.

Maximum logic zero sink current 16mA.

Transmitter Supply

26V ± 1.5V at 4mA.

30V ± 0.5V at 20mA.

50V isolation with respect to ground.

Power Supply

20-35V DC
may be unsmoothed or full-wave rectified AC.

Supply current at 28V DC, 600mA without Hand-Held Terminal.
700mA with Hand-Held Terminal.

Fused 2A with over-voltage protection.

Memory Standby Battery

5 year life minimum on continuous standby

8-10 year shelf life.

Supervisory Communications Link

Transmission standard	: 4-wire RS422.
Line impedance	: 120-240ohm twisted pair.
Line length	: 4000ft (1300m) maximum.
Number of controllers	: Up to 16 per line.
Data rate	: Selectable from 110 to 9600 Baud.
Protocol	: Binary synchronous American Standard ANSI-X3.28-2.5-A4 Revision 1976.

Mechanical

Width	: 72mm
Height	: 142mm
Depth	: 300mm
Weight	: 1650g

Environmental Range

Operating ambient temp.	: 0°C to 50°C.
Storage temperature.	: -20°C to 70°C.
Humidity	: 5% to 90% non-condensing.

Ordering Information

6363 Microprocessor based Flow Controller.

Order Code: 6363

Options: None

FLOW CALCULATIONS

The Flow Controller equations are:

Computed Variable : $PV = 1K \times 2K \times \begin{pmatrix} 1V \\ \text{or} \\ \sqrt{1V} \end{pmatrix} \times \begin{pmatrix} DCT \\ \text{or} \\ \sqrt{DCT} \end{pmatrix}$

Density Correction Term (DCT) : $\left(\frac{PF + PA}{PO}\right) \times \left(\frac{TO}{TF + TA}\right) \times \frac{1}{SG} \times \frac{XO}{ZF}$

Measured Variables : PV1 (channel 1) = 1V = Primary Input Variable
: PV2 (channel 2) = TF = Temperature
: PV3 (channel 3) = PF = Static Pressure

Presettable Constants : PA = Offset to absolute pressure.
: PO = Reference Pressure (absolute).
: TA = Offset to absolute temperature.
: TO = Reference temperature (absolute).
: SG = Relative density (Specific Gravity).
: XO = Base compressibility (A value of Ø disables the compressibility factor)
: 1K, 2K, 3K, 4K, 5K, 6K, 7K and 8K = scaling factors.

Compressibility factor for 0°C<TF<40°C and PF<70 bar:

$$ZF = 1 + b(PF + PA) + c(PF + PA)^2$$

$$b = [3K + (4K \times TF) - (5K \times TF)] \times 10^{-5}$$

$$c = [6K + (7K \times TF) + (8K \times TF)] \times 10^{-8}$$

S2 No. 1 is used to enable the square root on 1V
S2 No. 2 is used to enable the square root on the DCT

EXAMPLE TURBINE METER (S2 No. 1 and No. 2 OFF)

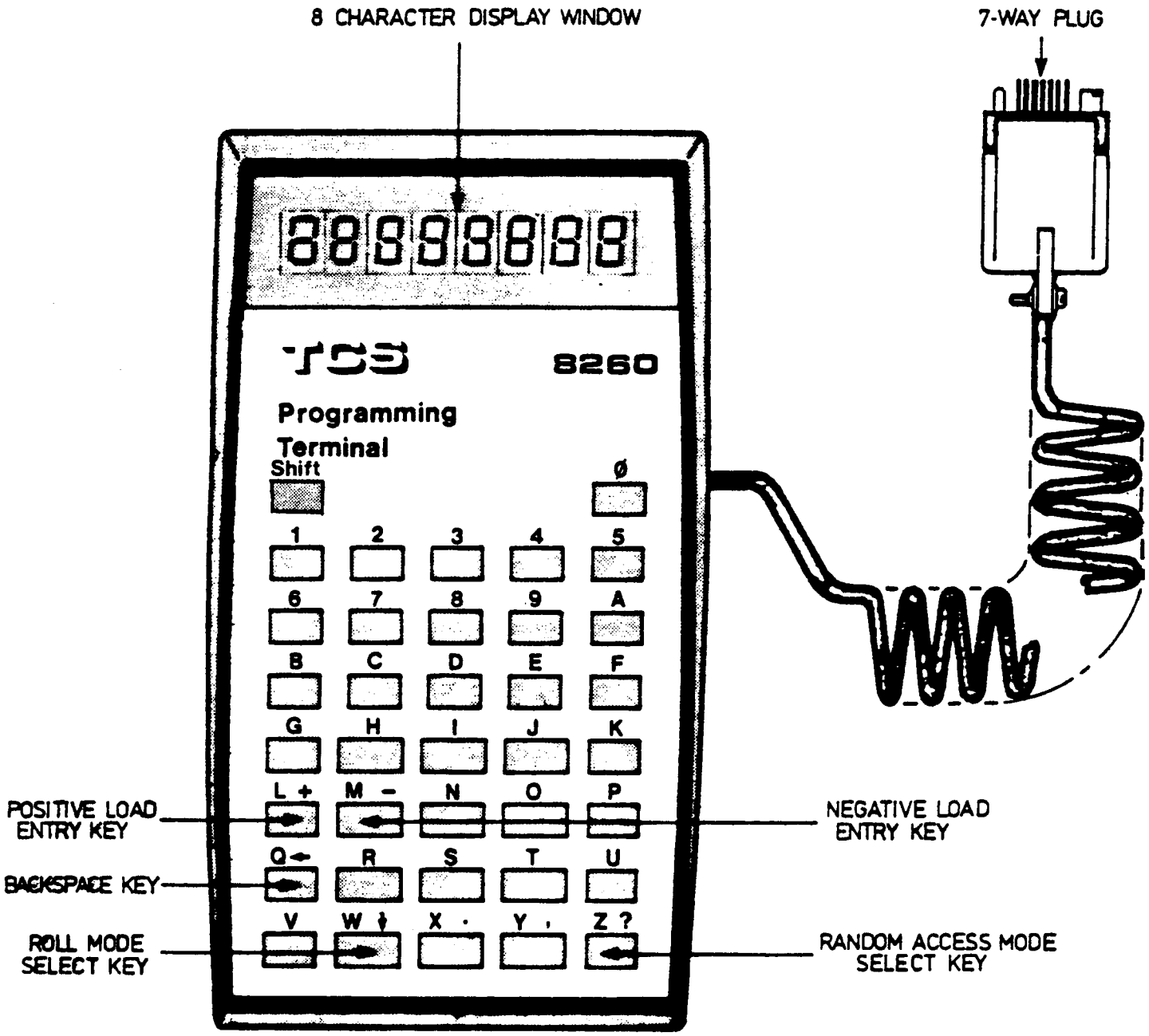
Computed Variable:

$$PV = 1K \times 2K \times 1V \times \left(\frac{PF + PA}{PO}\right) \left(\frac{TO}{TF + TA}\right) \frac{1}{SG} \times \frac{XO}{ZF}$$

ORIFICE PLATE METER (S2 No. 1 and No. 2 ON)

Computed Variable:

$$PV = 1K \times 2K \times \sqrt{1V} \times \sqrt{\left(\frac{PF + PA}{PO}\right) \times \left(\frac{TO}{TF + TA}\right) \times \frac{1}{SG} \times \frac{XO}{ZF}}$$



8260 HAND-HELD TERMINAL KEYBOARD LAYOUT

COMMAND MNEMONICS	COMMAND PARAMETER FUNCTION	UNITS	FORMAT	DP NO	PARAMETER
II	Instrument Identity	-	XXXX	-	Status
DP	Decimal Point Position Sel	-	XXXX	-	Words
IC	I/P Channel Processing and Pushbutton Disable	-	5	-	
1H	Flow/Diff Press. High Range	Eng	-	1	)CH1
1L	Flow/Diff Press. Low Range	Eng	-	1	) input
2H	Temperature High Range	Eng	-	2	)CH2
2L	Temperature Low Range	Eng	-	2	) Chanl
3H	Press/Density High Range	Eng	-	3	)CH3
3L	Press/Density Low Range	Eng	-	3	) range
SH	SP High Range (Computed Flow)	Eng	-	4	
SL	SP Low Range (Computed Flow)	Eng	-	4	
TT	Setpoint Travel Time	Secs	XXX.X		
SI	Setpoint Increment	%	XX.XX		
1V	Flow/Diff Press (Read Only)	Eng	-	1	
TF	Temperature (Read Only)	Eng	-	2	
PF	Pressure/Density (Read Only)	Eng	-	3	
HS	High Setpoint Limit	Eng	-	4	
LS	Low Setpoint Limit	Eng	-	4	
HA	High Absolute Alarm	Eng	-	4	Limit
LA	Low Absolute Alarm	Eng	-	4	and
HD	High Deviation Alarm	Eng	-	4	Alarm
LD	Low Deviation Alarm	Eng	-	4	Settings
HO	High Output Limit	%	XX.XX	-	
LO	Low Output Limit	%	XX.XX		
1K	Scaling Factor	-	XXX.X	-	
2K	" "	-	XX.XX	-	
SG	Specific Gravity	-	X.XXX	-	
PA	Offset to Absolute Pressure	Eng	X.XXX	-	
PO	Reference Pressure	Eng	X.XXX	-	
XO	Base Compressibility	-	.XXXX	-	Input
3K	Compressibility Constant	-	XXX.X	-	Comput'n
4K	" "	-	XX.XX	-	Functions
5K	" "	-	X.XXX	-	
6K	" "	-	XXX.X	-	
7K	" "	-	XX.XX	-	
8K	" "	-	X.XXX	-	
TA	Offset to Absolute Temp.	Eng	XXX.X	-	
TO	Reference Temperature	Eng	XXX.X	-	
EL	Error Limit	%	3	-	
IF	Input Channel Filter	Secs	3	-	3-Term
XP	Prop Band Constant	%	4	-	Control
TI	Integral Time Constant	M/Sec	3	-	Settings
TD	Derivative Time Constant	M/Sec	3	-	
SP	Local Setpoint	Eng	-	4	Setpoint
FS	Flow Total Scaling Factor	-	XXX.X	-	4 DIGIT
FT	Flow Total (Computed)	Eng/Hr	XXXX	-	Totaliser
OP	3-Term Output	%	3	-	
PV	Computed Primary Variable	Eng	-	4	Monitor
ER	Error Value	Eng	-	4	Only
TS	Algorithm Sampling Period	M/Sec	3	-	Values
SW	Switch Bank S1 + S2 Settings	-	5	-	Status
DS	Digital IP/OP States	-	5	-	Words
MD	Controller Operating Mode	-	5	-	

TABLE 1 COMMAND PARAMETER FUNCTIONS AND THEIR RESPECTIVE MNEMONICS

COMMAND PARAMETERS (FORMAT 5 TYPES)

"SW" DIGIT	BIT WEIGHT	BIT NO.	SWITCH FUNCTION	SWITCH NO.	SWITCH BANK
(L.S)	1	0	2^0 bit	8	
D	2	1	2^1 bit } Group Identifier (GID) selection	7	
	4	2	2^2 bit	6	
	8	3	Binary Protocol Select	5	S1
C	10	4	Baud Rate Selection switches (See table 8)	4	
	20	5		3	
	40	6		2	
	80	7	Integral term bal on SP changes selection		
B	100	8	3-Term constant range select	8	S2
	200	9	CH3 output Function Select	7	
	400	10	SP Tracking Action Select	6	
	800	11	Power Fail Return Mode sel	5	
A	1000	12	Inverse 3-Term output select	4	
	2000	13	Low output on Hold select	3	
	4000	14	Density correction term square root select	2	
(M.S)	8000	15	Primary I/P sq.rt select	1	

TABLE 2 TABLE OF S1 AND S2 SWITCH POSITIONS WITHIN STATUS WORD PARAMETER "SW"

TYPE	"DS" DIGIT	BIT WEIGHT	BIT NO.	BIT FUNCTION	READ/WRITE STATUS
DIGITAL OUTPUTS	(L.S)	1	0	$\overline{\text{HIGH ALARM}}$	read only
	D	2	1	$\overline{\text{LOW ALARM}}$	read only
		4	2	$\overline{\text{HARDWARE ALARM}}$	read only
		8	3	BATTERY VOLTAGE $\overline{\text{LOW}}$	read only
	C	10	4	FLOW RATE PULSE STATUS	read only
		20	5	$\overline{\text{HOLD + MANUAL}}$ STATUS	read only
		40	6	$\overline{\text{COMPUTER AUTO}}$ STATUS	read only
		80	7	USER LOGIC BIT 1	read/write
DIGITAL INPUTS	B	100	8	ADD.1	read only
		200	9	ADD.2 Unit address	read only
		400	10	ADD.4	read only
		800	11	ADD.8	read only
	A	1000	12	COMPUTER ENABLE	read only
		2000	13	REMOTE SETPOINT LOWER	read only
		4000	14	REMOTE SETPOINT RAISE	read only
	(M.S)	8000	15	$\overline{\text{HOLD}}$ ENABLE	read only

TABLE 3 TABLE OF BIT FUNCTIONS WITHIN STATUS WORD PARAMETER "DS"

TYPE	"MD" DIGIT	BIT WEIGHT	BIT NO.	BIT FUNCTION	READ/WRITE STATUS
FRONT PANEL CONTROLS	(L.S)	1	0	MANUAL Button (M)	read only
	D	2	1	AUTO Button (A)	read only
		4	2	COMPUTER Button (C)	read only
		8	3	SETPOINT Button (SP)	read only
	C	10	4	HHT CONNECTED	read only
		20	5	FRONT PANEL LED TEST BIT	read/write
		40	6	RAISE/CHN 2/3 Butn (Δ^{2}_{3})	read only
		80	7	LOWER/CHN 1/3 Butn (∇^{3}_{1})	read only
6363 OPERATING MODE	B	100	8	MEMORY SUMCHECK FAIL	read/write
		200	9	PV 1 OPEN CIRCUIT	read only
		400	10	COMPUTER MODE ENABLE	read only
		800	11	COMPUTER AUTO	read only
	A	1000	12	AUTO	read/write
		2000	13	MANUAL	read/write
		4000	14	UNUSED	read only
	(M.S)	8000	15	HOLD	read only

TABLE 4 TABLE OF BIT FUNCTIONS WITHIN STATUS WORD PARAMETER "MD"

HEXADECIMAL CHARACTER	PROCESSING ROUTINE FUNCTION
0	No processing
1	Square root function : Vout = $\sqrt{\text{Vin} \times 10\text{V}}$
2	Thermocouple type J (Iron-Constantan) 0 to 800°C
3	Thermocouple type K (Chromel-Alumel) 0 to 1280°C
4	Thermocouple type T (Copper-Constantan) -240 to +400°C
5	Thermocouple type S (Pt10%Rh-Pt) 0 to 1750°C
6	Thermocouple type R (Pt13%Rh-Pt) 0 to 1750°C
7	Thermocouple type E (Chromel-Constantan) 0 to 1000°C
8	Thermocouple type B (Pt30%Rh-Pt6%Rh) 0 to 1800°C
9	Platinum resistance thermometer (Pt100%) 0 to 1800°C
A	Reserved for user specified linearisation as required.
B	
C	
D	
E	
F	Inversion function :- Vout = 10V -Vin 0 to 10V

TABLE 5 LIST OF THE 16 POSSIBLE INPUT CHANNEL PROCESSING FUNCTIONS IC DIGITS A, B, C.

FORMAT	RANGE	POLARITY	DECIMAL POINT POSITION
1	0000 to ± 9999	BIPOLAR (±)	defined by "DP" status word
2	0000 to +9999	POSITIVE (+)	defined by "DP" status word
3	00.00 to +99.99	POSITIVE (+)	fixed
4	000.0 to +999.9	POSITIVE (+)	fixed
5	0000 to FFFF	4 HEXADECIMAL DIGITS	

TABLE 6 LIST OF COMMAND FUNCTION PARAMETER DATA FORMATS

SWITCH BANK	SWITCH NO	SWITCH ACTION		SWITCH FUNCTION
		ON (UP)	OFF (DOWN)	
S2 RIGHT	1	SQUARE ROOT	LINEAR	PRIMARY INPUT FUNCTION
	2	SQUARE ROOT	LINEAR	DENSITY CORRECTION
	3	OUTPUT SET TO LOW LIMIT (LO)	OUTPUT UNCHANGED	OUTPUT STATE IN HOLD MODE
	4	INVERSE OUTPUT	NORMAL OUTPUT	INVERSE 3-TERM OUTPUT SEL
	5	MANUAL WITH OUTPUT SET TO LOW LIMIT (LO)	PREVIOUS MODE	a) RETURN MODE AFTER POWER FAILURE
		MANUAL WITH OUTPUT SET TO LOW LIMIT (LO)	MANUAL WITH LAST CALCULATED VALUE OF 3-TERM OUTPUT	b) MODE SELECTED AFTER DETECTED OPEN CIRCUIT PV1 INPUT
	6	TRACK PROCESS VARIABLE	CONSTANT	SETPOINT ACTION WHEN NOT IN AUTO MODE
	7	DEVIATION (ERROR)	SETPOINT	CHANNEL 3 OUTPUT FUNCTION SELECT (PIN 34)
	8	MINUTES	SECONDS	3-TERM TIME CONSTANT RANGES (TI, TD)
S1 LEFT	1	ENABLE	DISABLE	INTEGRAL TERM BALANCE ON SP CHANGES
	2	(SEE TABLE 8)		) BAUD RATE SELECTION SWITCHES FOR RS422 DATA LINK
	3			
	4			
	5	BINARY	ASCII	BINARY PROTOCOL SELECT
	6	4	0	2^2 CONTROLLER GROUP IDENTIFIER BITS (GID)
	7	2	0	2^1
	8	1	0	2^0

TABLE 7 DIGITAL I/O BOARD INTERNAL STATUS SWITCHES S1 & S2 FUNCTIONS

SWITCH BANK	SWITCH NUMBER			BAUD RATE	NUMBER OF STOP BITS
	2	3	4		
1	OFF	OFF	OFF	110	2
	OFF	OFF	ON	300	1
	OFF	ON	OFF	600	1
	OFF	ON	ON	1200	1
	ON	OFF	OFF	2400	1
	ON	OFF	ON	3600	1
	ON	ON	OFF	4800	1
	ON	ON	ON	9600	1

TABLE 8 RS422 SUPERVISORY DATA LINK BAUD RATE SELECTIONS

PIN NO	DESIGNATION	FUNCTION	
1	0VR	0V REFERENCE	
2	0VP	0V POWER	
3			
4			
5			
6			
7			
8	DC.SUPP.IN	DC SUPPLY INPUT (20-30V)	
9	W.DOG.OUT(1)	WATCHDOG TIMER OUTPUT	
10	PV1.IN(1-5V)	PROCESS VARIABLE (FLOW)	4-20mA OR 1-5V
11	PV2.IN(1-5V)	PROCESS VARIABLE (TEMPERATURE)	CONDITIONED
12	PV3.IN(1-5V)	PROCESS VARIABLE (PRESSURE/DENSITY)	ANALOG INPUTS
13	PV1.IN(0-10V)	PROCESS VARIABLE (FLOW)	
14	PV2.IN(0-10V)	PROCESS VARIABLE (TEMPERATURE)	0-10V DIRECT
15	PV3.IN(0-10V)	PROCESS VARIABLE (PRESSURE/DENSITY)	ANALOG INPUTS
16	HI.ALM.OUT(0)	$\overline{\text{HIGH ALARM}}$ OUTPUT	
17	LO.ALM.OUT(0)	$\overline{\text{LOW ALARM}}$ OUTPUT	
18	HW.ALM.OUT	$\overline{\text{HARDWARE ALARM}}$ OUTPUT	8-WAY
19	BAT.LOW.OUT(0)	BATTERY VOLTAGE $\overline{\text{LOW}}$	0-15V
20	FL.RT.PUL.OUT(1)	FLOW RATE PULSE OUTPUT (COMPUTED)	DIGITAL
21	HLD+MAN.OUT(0)	$\overline{\text{(HOLD + MANUAL)}}$ STATUS OUTPUT	OUTPUTS
22	COMP AUTO(0)	$\overline{\text{COMPUTER AUTO}}$ STATUS OUTPUT	
23	BIT.1.OUT(1)	USER LOGIC BIT 1	
24	ADD.1.IN(1)	$2^0 = 1$	
25	ADD.2.IN(1)	$2^1 = 2$	
26	ADD.4.IN(1)	$2^2 = 4$ UNIT ADDRESS INPUTS	8-WAY
27	ADD.8.IN(1)	$2^3 = 8$	0-15V
28	COMP.EN.IN(1)	COMPUTER ENABLE INPUT	DIGITAL
29	REM.SP.LOW.IN(1)	REMOTE SETPOINT LOWER	INPUTS
30	REM.SP.RAI.IN(1)	REMOTE SETPOINT RAISE	
31	HOLD.EN.IN(0)	$\overline{\text{HOLD}}$ ENABLE INPUT	
32	3T.OUT	3-TERM CONTROL OUTPUT	0-10V NON-ISOL
33	PV.OUT	PROCESS VARIABLE OUTPUT (COMPUTED)	ANALOGUE
34	SP/DEV	SETPOINT/DEVIATION OUTPUT	OUTPUTS
35	XMT.OUT(-)	TRANSMIT OUTPUTS	RS422
36	XMT.OUT(+)		SUPERVISORY
37	RCV.IN(-)	RECEIVE INPUTS	SERIAL
38	RCV.IN(+)		DATA BUS
39			
40	TX.SUPP(-)	TRANSMITTER SUPPLY	
41	TX.SUPP(+)		
42			
43	3T.OUT.ISOL(-)	ISOLATED 4-20mA	
44			
45	3T.OUT.ISOL(+)	3-TERM CONTROL OUTPUT	
46			
47			
48			

TX SUPP (+)	PV1 IN 4-20mA	PV2 IN 4-20mA	PV3 IN 4-20mA	3T OUT ISOL (+)	3T OUT	PV OUT (COMP)	SP/DEV OUT	XMT OUT (-)	XMT OUT (+)
41	10*	11*	12*	45	32	33	34	35	36
1	2	3	4	5	6	7	8	9	10
← CURRENT I/O →					← VOLTAGE I/O →			← COMMS →	
TX SUPP (-)	0V R	0V R	0V R	3T OUT ISOL (-)	PV1 IN 0-10V	PV2 IN 0-10V	PV3 IN 0-10V	RCV IN (-)	RCV IN (+)
40	2*	2*	2*	43	13	14	15	37	38
11	12	13	14	15	16	17	18	19	20

HI ALM OUT (0)	LO ALM OUT (0)	HW ALM OUT (0)	BAT LO OUT (0)	FLOW RATE PULSE	HLDMAN OUT (0)	COMP AUTO OUT(1)	BIT 1 OUT (1)	W.DOG OUT (1)	24V DC
16	17*	18	19	20	21	22	23	9	8
21	22	23	24	25	26	27	28	29	30
← DIGITAL I/O →								← SUPPLY →	
ADD 1 IN (1)	ADD 2 IN (1)	ADD 4 IN (1)	ADD 8 IN (1)	COMP EN IN (1)	REM SP LOW (1)	REM SP RAISE (1)	HOLD EN IN (0)	0 VR	0 VP
24	25	26	27	28	29	30	31	2*	3*
31	32	33	34	35	36	37	38	39	40

HIGH ALARM		
NC	W	NO
*	*	*
41	42	43

LOW ALARM		
NC	W	NO
*	*	*
44	45	46

NOTE: RELAY CONTACT DESIGNATIONS INDICATE THE POWERED/NON-ALARM STATES

MAINS		
E	N	L
*	*	*
47	48	49

3T OUT	← FUNCTION
32	← MODULE PIN NUMBER
6	← SLEEVE TERMINAL NO.

PINS MARKED * APPEAR ON BLOCK DIAGRAM
ALL OTHER CONNECTIONS ARE DIRECT FROM MODULE TO SLEEVE

TABLE 9 7363 SELF POWERED SLEEVE TERMINAL INTERCONNECTION FUNCTIONS