AUTROL® AMERICA AUTOMATION CONTROL

ALT 6600

Smart Capacitance Level Transmitter

LEVEL

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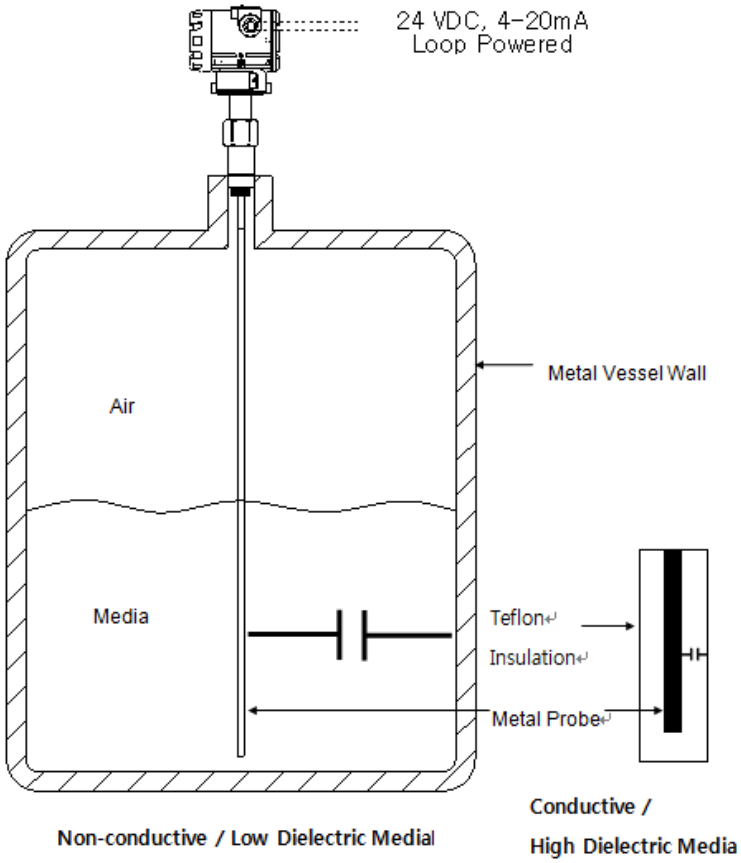
Overview

Autrol ALT6600 Capacitance Level Transmitter Is a microprocessor based transmitter that provides an optimal solution for measuring the level inside the tank using the permittivity of the measurement. The probe forms a capacitor through the walls of the tank and the medium (dielectric). Due to changes in the medium, a change corresponding to the capacity is generated, and the change amount is measured to output a value of 4 to 20 mA and the function of using the control system such as DCS or PLC is available.



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ALT6600 Smart Capacitance Level Transmitter

Features

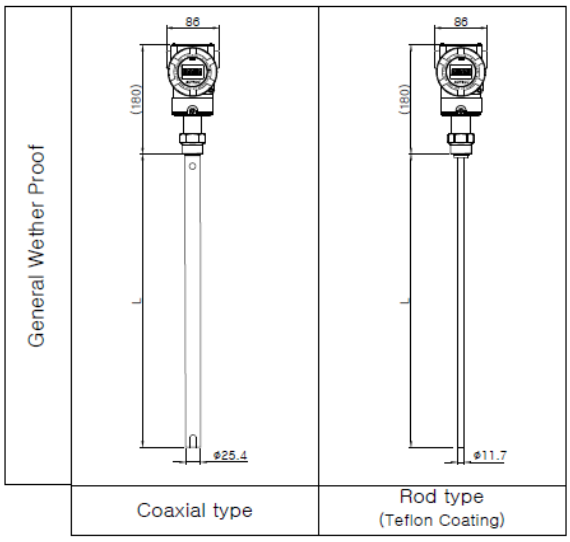
- Continuous level display possible
- 4~20mA Of current output and indicator can be displayed
- Easy on-site calibration and maintenance with a single instrument
- Process Media The shape of the probe varies depending on the nature of the probe.
- Coninuous self-diagnosis function.

Applications

- Easy to use corrosive liquid (aqueous solution)
- Liquid in vacuum tank
- Liquid having a dielectric constant of 2 or more
- PVC, PE, PP, PC Tank

Specification

Accuracy	0.5% of full scale	
Output	Type	Analog 4 to 20mA (2wire) with Hart digital signal
	Diagnostic Alarm	Adjustable 3.78, 21.1mA
Power	12.5~45VDC (with Hart digital signal) 18~45VDC @ 250 Ω	
Operation temperature	-40 to + 80 ℃ (LCD temperature limits: -20 to + 80 ℃)	
Process temperature	-20 to 100 ℃ (High temperature probe) +200℃	
Process Pressure	20kg/㎠ .Max	
Humidity Limits	5% ~ 100% RH	
Response Time	< 1 second	
Zero/Span	Reed Switch	
Measuring Range	20-3000pF	
Damping	0 ~60 seconds	



ALT-6600 Ordering Information

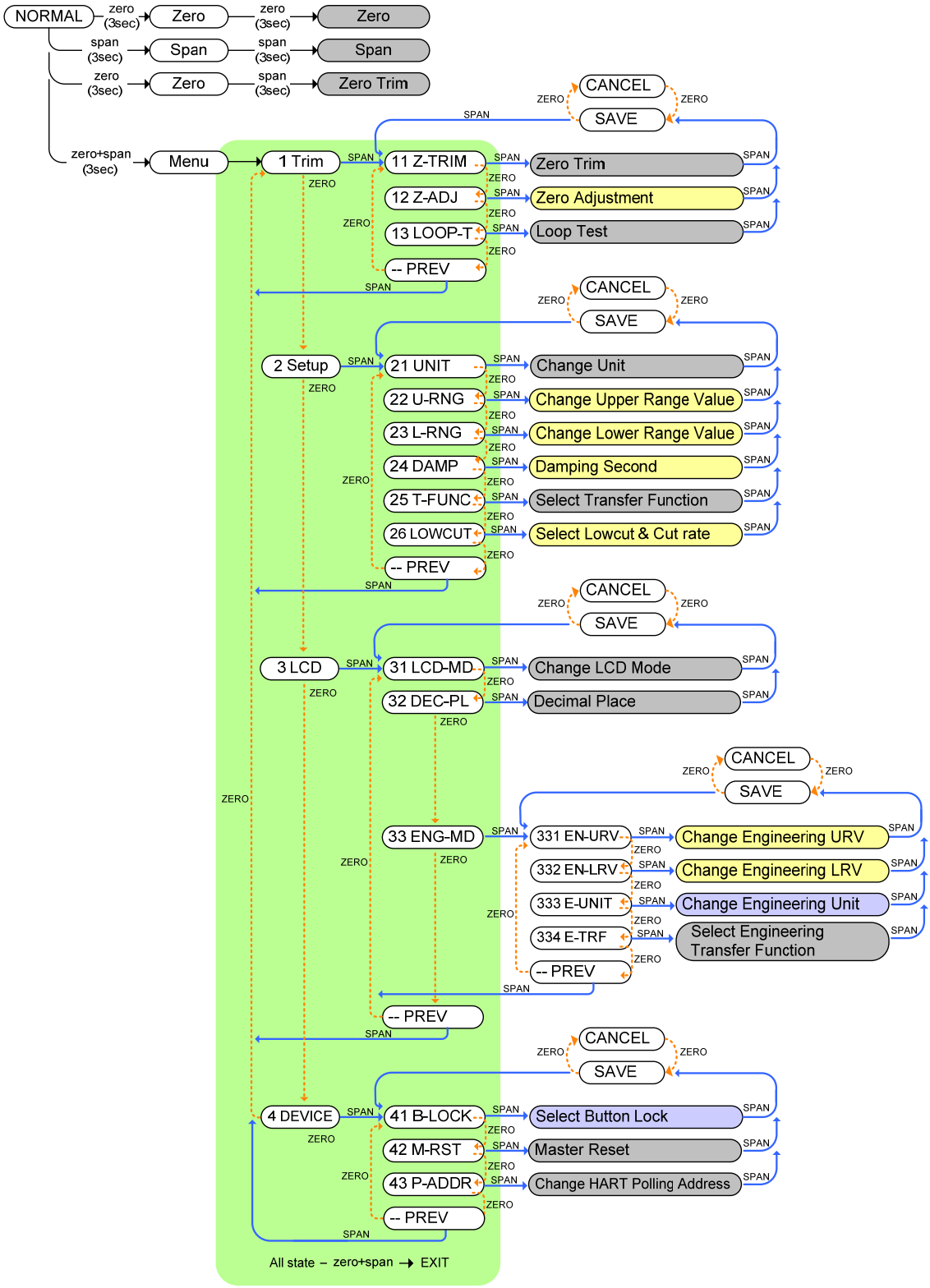
Model	Description	
ALT6600	Smart Capacitance Level Transmitter	
Code	**Measurement**	
-L	Level	
-X	Special (manufacture order)*	
Code	**Probe Type**	
S1	304SS Coaxial	
S2	316SS Coaxial	
S3	304SS ROD*	
S4	316SS ROD*	
Code	**Process Connection**	
A21	2” ANSI, #150	Flange
A23	2” ANSI, #300	
A26	2” ANSI, #600	
A29	2” ANSI, #900	
A31	3” ANSI, #150	
A33	3” ANSI, #300	
A36	3” ANSI, #600	
A39	3” ANSI, #900	
A41	4” ANSI, #150	
A43	4” ANSI, #300	
A46	4” ANSI, #600	
A49	4” ANSI, #900	
J51	JIS 50A, 10K	
J52	JIS 50A, 20K	
J81	JIS 80A, 10K	
J82	JIS 80A, 20K	
J10	JIS 100A, 10K	
J11	JIS 100A, 20K	
TN1	1 1/2” NPT	Thread
TN2	1” NPT	
TG1	G 1 1/2”	
TG2	G 1”	
S	Special*	
Code	**Output Signal**	
A0	4-20mA, HART	
Code	**Electrical Connection**	

1	**1/2-14NPT Epoxy-Polyester Painted Aluminum**
2	**G1/2 Epoxy-Polyester Painted Aluminum**
X	**Special***
Code	**Hazardous Location Certifications**
K0	**Maker Standard (Waterproof:IP66)***
Code	**Option**
ST	**Stainless Steel Housing**
M1	**LCD Indicator(5digit)**
LPE	**Lightening Protector (External)**
LPI	**Lightening Protector (Internal)**
Code	**Probe Length (150~4,000mm)**
- □□□…□ (with unit)	**Probe Length (meter/ft/mm/inch…)**

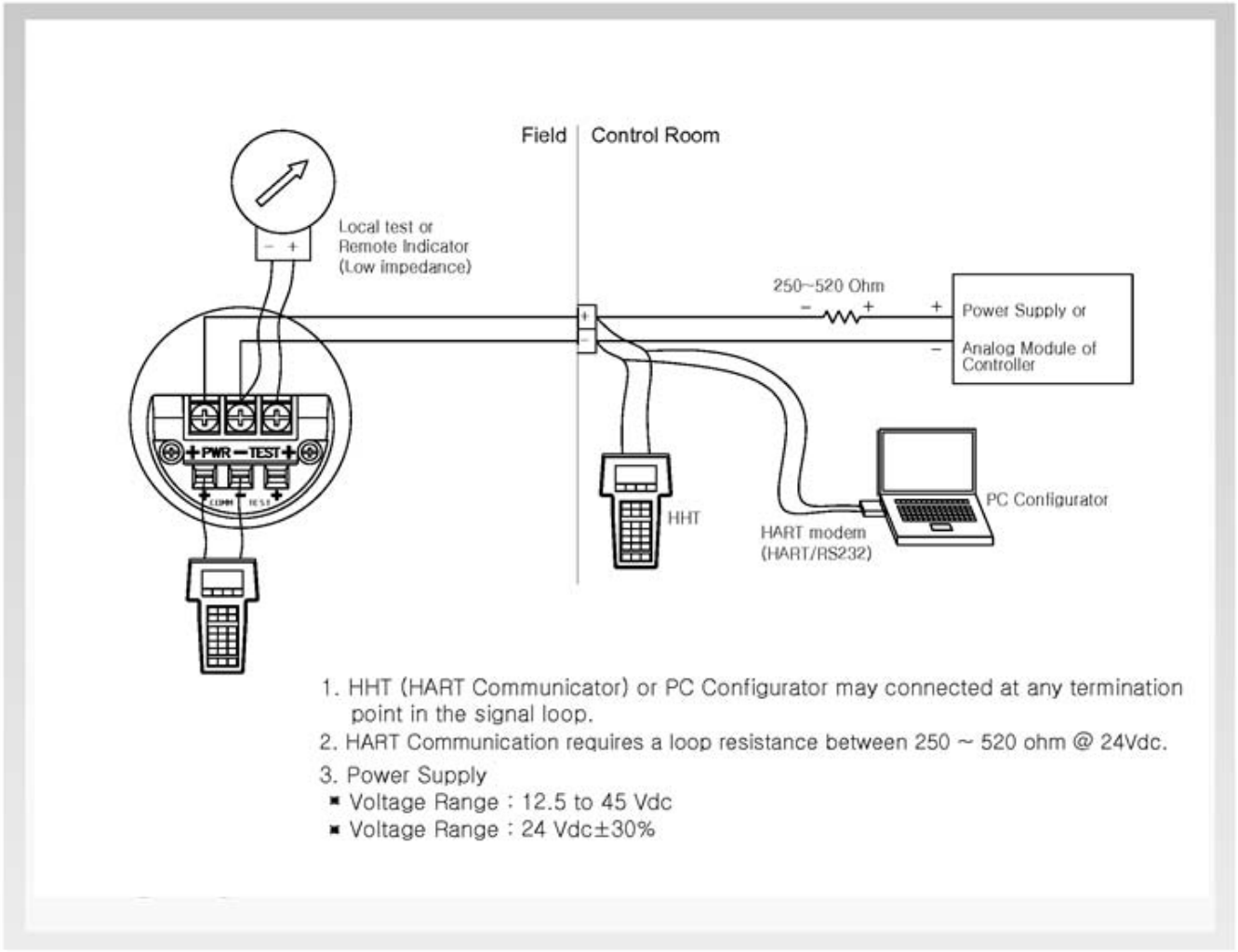
*** : ask before order**

Example : ALT6600-LS1J81A01K0M1-1M

SUS304SS, JIS 80A, 10K FLANGE, 4-20mA, HART,
1/2-14NPT Epoxy-Polyester Painted Aluminum, Maker Standard(Waterproof:IP:66),
LCD indicator(5digit), 0~1M


NORMAL
zero (3sec)
Zero
zero (3sec)
Zero
span (3sec)
Span
span (3sec)
Span
zero (3sec)
Zero
span (3sec)
Zero Trim
zero+span (3sec)
Menu
1 Trim
11 Z-TRIM
Zero Trim
12 Z-ADJ
Zero Adjustment
13 LOOP-T
Loop Test
-- PREV
CANCEL
SAVE
2 Setup
21 UNIT
Change Unit
22 U-RNG
Change Upper Range Value
23 L-RNG
Change Lower Range Value
24 DAMP
Damping Second
25 T-FUNC
Select Transfer Function
26 LOWCUT
Select Lowcut & Cut rate
3 LCD
31 LCD-MD
Change LCD Mode
32 DEC-PL
Decimal Place
33 ENG-MD
331 EN-URV
Change Engineering URV
332 EN-LRV
Change Engineering LRV
333 E-UNIT
Change Engineering Unit
334 E-TRF
Select Engineering Transfer Function
4 DEVICE
41 B-LOCK
Select Button Lock
42 M-RST
Master Reset
43 P-ADDR
Change HART Polling Address
ZERO
SPAN
All state – zero+span → EXIT

Connection Diagram of Signal, Power, HHT for Transmitter



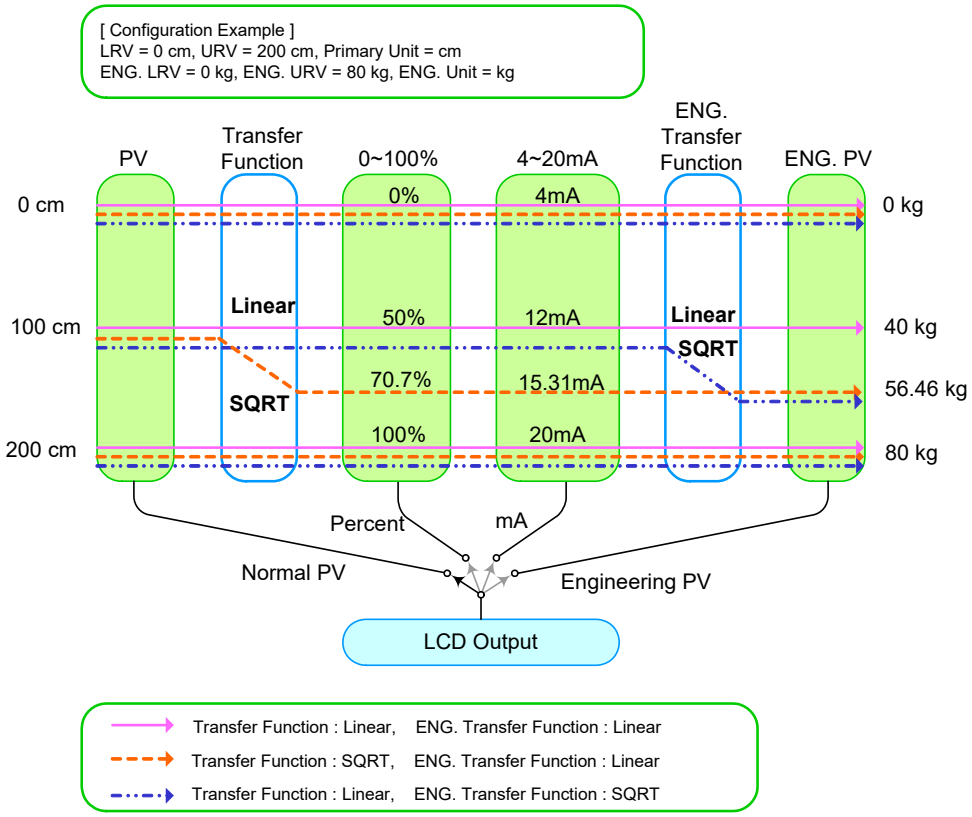
1. HHT (HART Communicator) or PC Configurator may connected at any termination point in the signal loop.
2. HART Communication requires a loop resistance between 250 ~ 520 ohm @ 24Vdc.
3. Power Supply
   - Voltage Range : 12.5 to 45 Vdc
   - Voltage Range : 24 Vdc±30%

Analog Output 4~ 20mA Analog Output converts the Primary Value to the current value corresponding to Range and outputs it. Primary Value can be selected as Distance or Level.

The range is set to LRV (Lower Range Value) to URV (Upper Range Value). When the Primary Value is equal to LRV, it is 4mA. When it is equal to URV, 20mA is output.

LCD Engineering Mode The ALT-6600 can output measured results to the LCD screen in various ways. LCD Engineering Mode is a function that converts the measured result into "numerical values with different weights" and outputs it to the LCD screen. In LCD Engineering Mode,

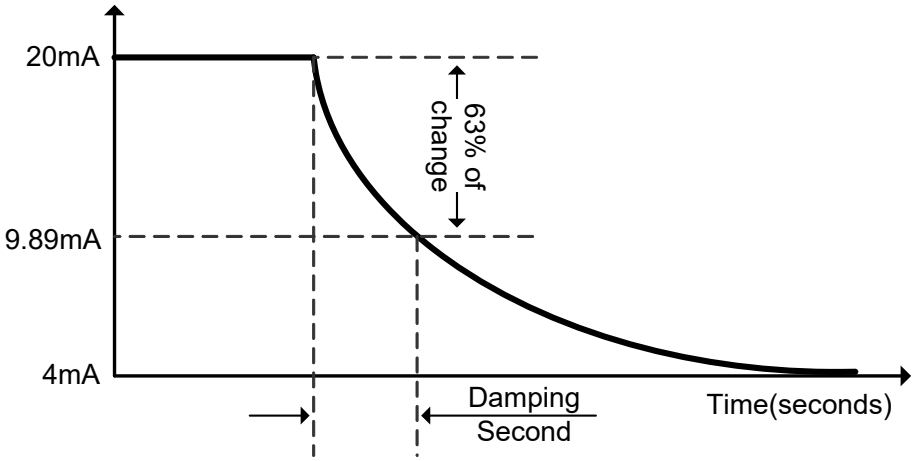
And map the measured result (0 ~ 100%) to Engineering Range and display it on LCD. Refer to [Figure 1-1] for the measurement value processing procedure in LCD Engineering Mode. Transfer Function and ENG. Note that the Transfer Function can not be set to SQRT at the same time.



[Figure 1-1] Measured value processing procedure

Damping Time of Set

Damping is a function that relaxes and outputs the sudden change (shock) of the input without reflecting it directly to the output. In addition, the periodic noise and vibration components included in the measurement And filtering. Damping Second is defined as the time it takes for the output to reach 63% of the change in instantaneous input change. Damping Second shall be established by reviewing the system's required response time, signal stability, and other requirements.



[Figure 1-4] Damping Second

Damping Second can be set to a value between 0 and 60 seconds, and it is set to 1 second when shipped from the factory. The set value (Second) should be regarded as a "coefficient indicating the degree of damping". In practice, the definition itself is defined as "time to reach 63%", but it should be understood as "degree of relaxation" rather than "time" in actual use. In particular, if Damping Second is set to 1 second, do not perform an operation such as updating the output once every second.

Item	Setting history	HART	button	Affected output items when changing settings
Basic setting	Range Change	O	O	All outputs except PV displayed on LCD
	Unit Change	O	O	PV displayed on the LCD
	Damping Second Change	O	O	All outputs
	Transfer Function Change	O	O	LCD Output except PV displayed in
	Low-cut change	O	O	LCD Output except PV displayed in
	Loop Test	O	O	LCD Output except PV displayed in
	High and Low Alarm Change value	O	O	Alarm Change output

Correction	Zero Trim	O	O	All outputs
	Zero Adjustment	O	O	All outputs
	Full Trim	O	X	All outputs
	D/A Trim	O	X	4~20mA
Telautograph information setting	Polling Address change	O	O	4~20mA
	Set transmitter default information (Tag, Date, Descriptor, Message Etc...)	O	X	-
LCD display	LCD Change mode	O	O	LCD Display All
	Decimal Place change	O	O	LCD Display All
	LCD Engineering Mode change (Eng Range, Eng Unit, Eng Transfer Function Etc...)	O	O	LCD Engineering Value
Other	Button Lock Set	△	O	
	Master Reset	O	O	All outputs

Customer Service and Support

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