

Africa

Iso-Tech
1 & 2 Indianapolis Street
Kyalami Business Park
Kyalami, Midrand, South Africa

Asia

Iso-Tech
460 Alexandra Road, #15-01A
PSA Building
Singapore 119963

Europe

Iso-Tech
PO Box 99
Corby
Northamptonshire
NN17 9RS
United Kingdom

Japan

West Tower (12th Floor)
Yokohama Business Park
134 Godocho, Hodogaya
Yokohama, Kanagawa 240-0005 Japan

USA

7410 Pebble Drive
Fort Worth
Texas 76118-6961

Canada

1701 Woodward Drive
Ste 108 Ottawa
Ontario K2C 0R4, Canada

South America

Av. Pdte. Eduardo Frei M. 6001-71
Centro Empresas El Cortijo
Conchali, Santiago, Chile

Instruction Manual

300XP

Portable Thermal Printer

(EN) (FR) (IT) (DE) (ES)



1	Printer Description	1
2	Connection	3
2.1	Using the OP (optically isolated) connecting port (for connection to ISO-TECH instruments)	3
2.1.1	ISO-TECH IPM3005 Flexible Power Quality Tester	3
2.1.2	ISO-TECH 6200 Graphic Power Quality Analyzer	4
2.1.3	ISO-TECH 6300 Graphic Power Quality Analyzer	5
2.2	To use the RS232 connecting port.....	6
2.2.1	AVM-09 Anemometer.....	6
2.3	To Connect with Agilent® 34401A	7
2.3.1	Setting Agilent® 34401A	7
2.3.2	To Connect with Agilent® 34401A Multi-meter	9
2.3.3	Agilent Buttons Description	10
3	Operation Description	11
3.1	Setting the Printing Contrast	11
3.2	Dip Switch Description	12
3.3	Replacing the Batteries	14
3.4	Replacing the Thermal Paper roll	15
4	Software Installation and Operation	18
4.1	Software Installation	18
4.2	Setting the Connecting Port.....	19
4.3	Graphics Printing	19
4.4	Text Printing.....	20
4.5	Programming Text Header and Footer	21
5	Appendix	22
5.1	(Appendix I) PC Command for Printer	22
5.2	(Appendix II) Coding of Graphics Printing	23
5.3	(Appendix III) RS-232 Pin Connections	24
5.4	(Appendix IV) ASCII Code Tables.....	25
6	Specifications	32
6.1	Printing Mechanical specifications	32
6.2	Communication Specifications.....	32
6.3	Mechanical and Environmental Specifications	33

6.3 Mechanical and Environmental Specifications

Operating Temperature:	10 to +50°C
Storage Temperature:	20 to +60°C
Humidity:	0 to 90%RH (Non-condensing)
Battery:	8 x 1.5V (AA)
AC Power Adaptor:	Input: 100 to 240V a.c., 50 to 60 Hz, 0.2A Output: 12V d.c. 0.5A
Dimension:	W95 x D135 x H55mm
Weight:	440g (including 8 batteries)

6 Specifications

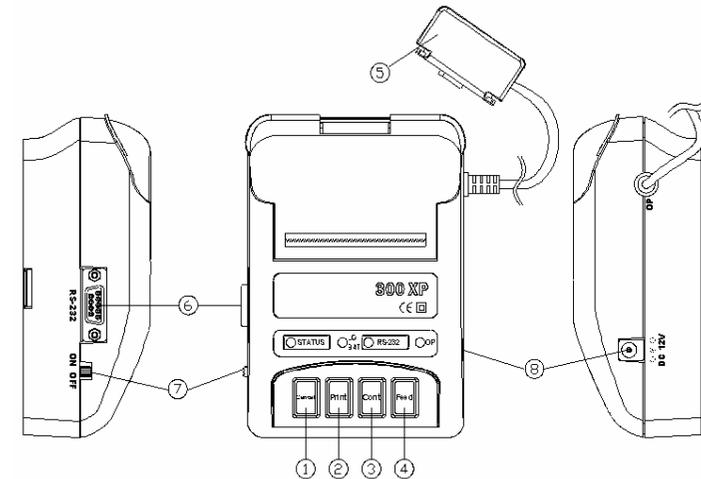
6.1 Printing Mechanical specifications

Method:	Thermal Dot-matrix Printing
Dot per Line:	8 (Vertical) x 166 (Horizontal)
Fonts:	5 x 7 and 10 x 15
Dot Pitch:	0.35mm (Vertical), 0.28mm (Horizontal)
Character Size:	1.4 x 2.4mm (5x7), 2.8 x 4.6mm (10x15)
Characters per Line:	27 (5x7), 16 (10x15)
Printing Contrast:	Automatic or user-selectable.
Printing Width:	46mm
Printing Speed:	0.8 lines / second
Printing Life:	500,000 lines
Paper roll size:	57mm wide x 28 mm ϕ

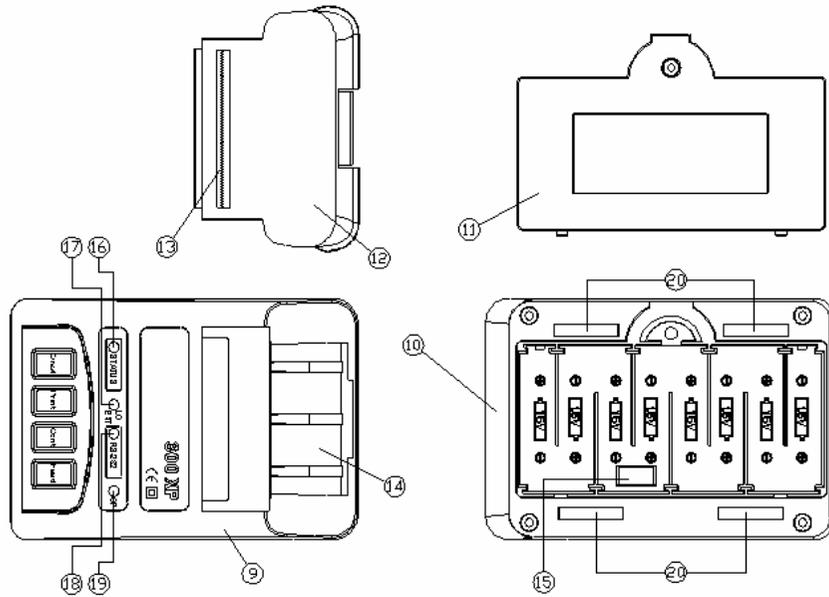
6.2 Communication Specifications

Interface:	RS-232C (9,600, 8, 1, N)
Receiving Buffer:	9K bytes
Character Set:	ASCII International
Graphics:	Bit Map (160*400)

1 Printer Description



1. **Cancel button:** When pressed, printing is stopped immediately.
2. **Print button:** When pressed, data is fetched from the instrument and printed, including the Header and Footer.
3. **Cont button:** When pressed, data is fetched from the instrument and printed automatically but without header and footer, depending on the selected print interval - refer to DIP Switches SW4 & SW5.
4. **Feed button:** Line-feed - paper moves up one line.
5. **Optically isolated connecting cable.**
6. **RS232 connecting port.**
7. **Power switch.**
8. **Socket:** 12V dc power socket – centre positive



- 9. **Printer upper cover.**
- 10. **Printer base.**
- 11. **Battery cover.**
- 12. **Paper cover.**
- 13. **Paper exit:** Printed paper will emerge from this exit and can be torn off against the serrated cutting edge.
- 14. **Paper trough:** Cavity for the roll of thermal paper.
- 15. **Dip switches:** Used to select printing interval, character size & input modes – refer to section 3.2 for details
- 16. **STATUS LED:** When the connection is via RS232 and this LED blinks, the printer is awaiting connection to the host instrument. When this LED is off, connection is established.
- 17. **Low battery LED:** When lit, the internal batteries are low and should be replaced - refer to section 3.3.
- 18. **RS232 Status LED:** When lit, connection is via the RS232 port.
- 19. **OP Status LED:** When lit indicates connection is via the optically isolated port.
- 20. **Rubber feet:** Prevent the printer sliding on smooth surfaces.

231 Decimal	E7 Hexadecimal	347 Octal	T ASCII
232	E8	350	Φ
233	E9	351	θ
234	EA	352	Ω
235	EB	353	δ
236	EC	354	∞
237	ED	355	φ
238	EE	356	€
239	EF	357	∩
240	F0	360	≡
241	F1	361	±
242	F2	362	W
243	F3	363	W
244	F4	364	W
245	F5	365	W
246	F6	366	W
247	F7	367	W
248	F8	370	W
249	F9	371	W
250	FA	372	W
251	FB	373	W
252	FC	374	W
253	FD	375	W
254	FE	376	W
255	FF	377	W

Decimal	Hexadecimal	Octal	ASCII
197	C5	305	†
198	C6	306	‡
199	C7	307	‡
200	C8	310	ℒ
201	C9	311	℞
202	CA	312	⌚
203	CB	313	⌚
204	CC	314	‡
205	CD	315	=
206	CE	316	‡
207	CF	317	⌚
208	D0	320	⌚
209	D1	321	⌚
210	D2	322	⌚
211	D3	323	ℒ
212	D4	324	ℒ
213	D5	325	F
214	D6	326	π
215	D7	327	‡
216	D8	330	‡
217	D9	331	∟
218	DA	332	Γ
219	DB	333	■
220	DC	334	■
221	DD	335	■
222	DE	336	■
223	DF	337	■
224	E0	340	α
225	E1	341	β
226	E2	342	Γ
227	E3	343	π
228	E4	344	Σ
229	E5	345	σ
230	E6	346	μ

5*7 full
 5*4 top
 3*7 left
 3*7 right
 5*7 bottom

2 Connection

2.1 Using the OP (optically isolated) connecting port (for connection to ISO-TECH instruments)

2.1.1 ISO-TECH IPM3005 Flexible Power Quality Tester

1. Ensure the 300XP printer is turned off.
2. Set the DIP switch of the printer SW1 to ON.
3. Connect the OP cable of the printer to the optical port on the host instrument (Refer to the instructions for the host instrument for further information).
4. Turn the host instrument power on.
5. Turn on the printer.
6. Ensure the status LED of the printer is off.
7. Connection is now complete.
8. Press the **Print** button for single event printing (including Header and Footer), or Press the **Cont** button for continuous printing (excluding Header and Footer)
9. If the connection fails, turn off the printer and host instrument and then repeat steps 4~6 above.

Printing example:

Report
PF=0.606 951.3W
Signature

2.1.2 ISO-TECH 6200 Graphic Power Quality Analyzer

1. Ensure the 300XP printer is turned off.
2. Set the DIP switch of the printer: SW1 to ON.
3. Connect the OP cable of the printer to the optical port on the host instrument (Refer to the instructions for the host instrument for further information).
4. Turn the host instrument power on.
5. Turn on the printer.
6. Ensure the status LED of the printer is off.
7. Connection is now complete.
8. Press the **Print** button for single event printing (including Header and Footer), or Press the **Cont** button for continuous printing (excluding Header and Footer)
9. If the connection fails, turn off the printer and host instrument and then repeat steps 4~6 above.

Printing example:

```

Report
2006-02-26 04:08:06
■ φ: 10.5" lead PF
0.943
3.671 KW
Signature
    
```

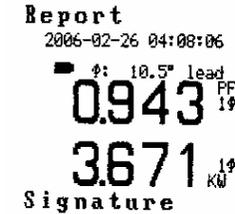
Decimal	Hexadecimal	Octal	ASCII
163	A3	243	(spare)
164	A4	244	(spare)
165	A5	245	(spare)
166	A6	246	(spare)
167	A7	247	(spare)
168	A8	250	(spare)
169	A9	251	(spare)
170	AA	252	(spare)
171	AB	253	(spare)
172	AC	254	(spare)
173	AD	255	(spare)
174	AE	256	(spare)
175	AF	257	(spare)
176	B0	260	(spare)
177	B1	261	(spare)
178	B2	262	(spare)
179	B3	263	|
180	B4	264	|
181	B5	265	|
182	B6	266	|
183	B7	267	|
184	B8	270	|
185	B9	271	|
186	BA	272	|
187	BB	273	|
188	BC	274	|
189	BD	275	|
190	BE	276	|
191	BF	277	|
192	C0	300	L
193	C1	301	L
194	C2	302	T
195	C3	303	T
196	C4	304	-

Decimal	Hexadecimal	Octal	ASCII
130	82	202	→
131	83	203	▲
132	84	204	▼
133	85	205	◀
134	86	206	▶
135	87	207	À
136	88	210	Δ
137	89	211	千
138	8A	212	万
139	8B	213	元
140	8C	214	丹
141	8D	215	×
142	8E	216	⌘
143	8F	217	⌘
144	90	220	⌘
145	91	221	ε
146	92	222	ι
147	93	223	λ
148	94	224	ν
149	95	225	π
150	96	226	ρ
151	97	227	Υ
152	98	230	Χ
153	99	231	Ψ
154	9A	232	⚡
155	9B	233	(spare)
156	9C	234	(spare)
157	9D	235	(spare)
158	9E	236	(spare)
159	9F	237	(spare)
160	A0	240	(spare)
161	A1	241	(spare)
162	A2	242	(spare)

2.1.3 ISO-TECH 6300 Graphic Power Quality Analyzer

1. Ensure the 300XP printer is turned off.
2. Set the DIP switch of the printer: SW1 to ON.
3. Connect the OP cable of the printer to the optical port on the host instrument (Refer to the instructions for the host instrument for further information).
4. Turn the host instrument power on.
5. Turn on the printer.
6. Ensure the status LED of the printer is off.
7. Connection is now complete.
8. Press the **Print** button for single event printing (including Header and Footer), or Press the **Cont** button for continuous printing (excluding Header and Footer)
9. If the connection fails, turn off the printer and host instrument and then repeat steps 4~6 above.

Printing example:



2.2 To use the RS232 connecting port

2.2.1 AVM-09 Anemometer

1. Ensure the 300XP printer and AVM-09 Anemometer are turned off.
2. Set the dip switches of the printer: SW1 to OFF and SW2 to ON.
3. Connect the RS232 cable to the anemometer and the printer.
4. Press and hold button "1" (HOLD/RS-232) on the anemometer and then press the power button to turn it on. After 1 second, release button "1" and the anemometer LCD should display "RS-232" to confirm the RS-232 mode is enabled (Refer to the anemometer instructions for further information).
5. Turn on the printer.
6. Ensure the status LED of the printer is off.
7. Connection is now complete.
8. Press the **Print** button for single event printing (including Header and Footer), or Press the **Cont** button for continuous printing (excluding Header and Footer)
9. If the connection fails, turn off the printer and the anemometer and then repeat steps 4~6 above.

Printing example:

```

Report
VEL
 26.34°C
 4.96 m/s
Signature
    
```

Decimal	Hexadecimal	Octal	ASCII
96	60	140	`
97	61	141	a
98	62	142	b
99	63	143	c
100	64	144	d
101	65	145	e
102	66	146	f
103	67	147	g
104	68	150	h
105	69	151	i
106	6A	152	j
107	6B	153	k
108	6C	154	l
109	6D	155	m
110	6E	156	n
111	6F	157	o
112	70	160	p
113	71	161	q
114	72	162	r
115	73	163	s
116	74	164	t
117	75	165	u
118	76	166	v
119	77	167	w
120	78	170	x
121	79	171	y
122	7A	172	z
123	7B	173	{
124	7C	174	|
125	7D	175	}
126	7E	176	~
127	7F	177	↑
128	80	200	↓
129	81	201	←

61	3D	75	=
62	3E	76	>
63	3F	77	?
64	40	100	@
65	41	101	A
66	42	102	B
67	43	103	C
68	44	104	D
69	45	105	E
70	46	106	F
71	47	107	G
72	48	110	H
73	49	111	I
74	4A	112	J
75	4B	113	K
76	4C	114	L
77	4D	115	M
78	4E	116	N
79	4F	117	O
80	50	120	P
81	51	121	Q
82	52	122	R
83	53	123	S
84	54	124	T
85	55	125	U
86	56	126	V
87	57	127	W
88	58	130	X
89	59	131	Y
90	5A	132	Z
91	5B	133	[
92	5C	134	\
93	5D	135]
94	5E	136	^
95	5F	137	-

2.3 To Connect with Agilent® 34401A

2.3.1 Setting Agilent® 34401A

1. Enter the Agilent 34401A MENU:
Press  then press  to enter MENU.

2. Enter E: I/O MENU
Press   to go to E: I/O MENU –  to enter.

3. Press   to select Setting 1: GPIB ADDR, its value = 31: TALK ONLY
Press  then press   to select setting position, then press  
to change the value = 31 (TALK ONLY), after  to save the setting.

4. Press   to select Setting 2: INTERFACE, its value = RS-232.
(First repeat steps 1~2)  then press   to change the setting value = RS-232,
then press  to save the settings.

5. Press   to select Setting 3: BAUD RATE, its value = 9600 BAUD.
(First repeat steps 1~2)  then press   to change the setting value = 9600 BAUD.
Then press  to save the settings.

6. Select Setting 4: PARITY, its value = NONE: 8 BITS (First repeat steps 1~2)

7. Select Setting 4: LANGUAGE to be the format for printing (First repeat steps 1~2).

Note:
Agilent is a trade mark of Agilent Technologies.

5.4 (Appendix IV) ASCII Code Tables

There are 199 fonts for printing selection.

Decimal	Hexadecimal	Octal	ASCII
32	20	40	(space)
33	21	41	!
34	22	42	"
35	23	43	#
36	24	44	\$
37	25	45	%
38	26	46	&
39	27	47	'
40	28	50	(
41	29	51)
42	2A	52	*
43	2B	53	+
44	2C	54	,
45	2D	55	-
46	2E	56	.
47	2F	57	/
48	30	60	0
49	31	61	1
50	32	62	2
51	33	63	3
52	34	64	4
53	35	65	5
54	36	66	6
55	37	67	7
56	38	70	8
57	39	71	9
58	3A	72	:
59	3B	73	;
60	3C	74	<

Decimal	Hexadecimal	Octal	ASCII
---------	-------------	-------	-------

2.3.3 Agilent Buttons Description

On/Off <	Select the setting sub-functions, or change the settings.
4 V	Enter the setting sub-functions, or change the settings.
6 Auto/ Man ENTER	Save the settings.
Recall >	Select the setting sub-functions, or change the settings.
5 ^	Exit the setting sub-functions, or change the settings.
Shift On/Off <	Enter / Exit the function table.

5.2 (Appendix II) Coding of Graphics Printing

YY 0001 07	YY 002 07	YY 0003 07	YY 004 07	.....	YY 0157 07	YY 0158 07	YY 0159 07	YY 0160 07
YY 0001 06	YY 002 06	YY 0003 06	YY 004 06	.....	YY 0157 06	YY 0158 06	YY 0159 06	YY 0160 06
YY 0001 05	YY 002 05	YY 0003 05	YY 004 05	.....	YY 0157 05	YY 0158 05	YY 0159 05	YY 0160 05
YY 0001 04	YY 002 04	YY 0003 04	YY 004 04	.....	YY 0157 04	YY 0158 04	YY 0159 04	YY 0160 04
YY 0001 03	YY 002 03	YY 0003 03	YY 004 03	.....	YY 0157 03	YY 0158 03	YY 0159 03	YY 0160 03
YY 0001 02	YY 002 02	YY 0003 02	YY 004 02	.....	YY 0157 02	YY 0158 02	YY 0159 02	YY 0160 02
YY 0001 01	YY 002 01	YY 0003 01	YY 004 01	.....	YY 0157 01	YY 0158 01	YY 0159 01	YY 0160 01
YY 0001 00	YY 002 00	YY 0003 00	YY 004 00	.....	YY 0157 00	YY 0158 00	YY 0159 00	YY 0160 00
.....
YY 7841 07	YY 7842 07	YY 7843 07	YY 7844 07	.....	YY 7997 07	YY 7998 07	YY 7999 07	YY 8000 07
YY 7841 06	YY 7842 06	YY 7843 06	YY 7844 06	.....	YY 7997 06	YY 7998 06	YY 7999 06	YY 8000 06
YY 7841 05	YY 7842 05	YY 7843 05	YY 7844 05	.....	YY 7997 05	YY 7998 05	YY 7999 05	YY 8000 05
YY 7841 04	YY 7842 04	YY 7843 04	YY 7844 04	.....	YY 7997 04	YY 7998 04	YY 7999 04	YY 8000 04
YY 7841 03	YY 7842 03	YY 7843 03	YY 7844 03	.....	YY 7997 03	YY 7998 03	YY 7999 03	YY 8000 03
YY 7841 02	YY 7842 02	YY 7843 02	YY 7844 02	.....	YY 7997 02	YY 7998 02	YY 7999 02	YY 8000 02
YY 7841 01	YY 7842 01	YY 7843 01	YY 7844 01	.....	YY 7997 01	YY 7998 01	YY 7999 01	YY 8000 01
YY 7841 00	YY 7842 00	YY 7843 00	YY 7844 00	.....	YY 7997 00	YY 7998 00	YY 7999 00	YY 8000 00

5 Appendix

5.1 (Appendix I) PC Command for Printer

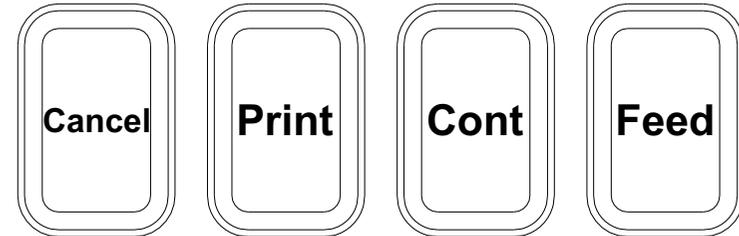
	Command	Remark
1	00 ₍₁₆₎ (Text String) 0D ₍₁₆₎	Text printing
2	07 ₍₁₆₎ XXXX 0D ₍₁₆₎ YY ^(XXXX)	Graphics printing
3	01 ₍₁₆₎ (Head String) FF ₍₁₆₎ FF ₍₁₆₎ 0D ₍₁₆₎	Text setting (printing) of header
4	06 ₍₁₆₎ (Foot String) FF ₍₁₆₎ FF ₍₁₆₎ 0D ₍₁₆₎	Text setting (printing) of Footer
5	02 ₍₁₆₎	Inquiry of printer availability
6	09 ₍₁₆₎	Inquiry of how many bytes left to be printed
7	0A ₍₁₆₎	Line-feed (Skip a line)

Remark:

1. For text printing, the **Text String** is the text for printing.
2. For graphics printing, it is necessary to code the printing file first. The file should be 160*400-dot black/white graphics.
The coding is as below: (refer to Appendix II)
 - (1) The coding of graphics is from left to right and from top to bottom.
 - (2) 8 dots are shown as 1 byte (YY) for coding.
 - (3) The maximum printed file size is a coded black/white graphics file of 160 * (400 / 8) = 8000 bytes
 - (4) XXXX is the data byte after coding.
 - (5) For example:
07₍₁₆₎ 0320 0D₍₁₆₎ 3d⁽⁰⁰⁰¹⁾ 0C⁽⁰⁰⁰²⁾ 22⁽⁰⁰⁰³⁾ 49⁽⁰⁰⁰⁴⁾ 00⁽⁰³¹⁷⁾ ff⁽⁰³¹⁸⁾
3d⁽⁰³¹⁹⁾ 1a⁽⁰³²⁰⁾
3. The **Head String** is the head text for printing.
4. The **Foot String** is the foot text for printing.
5. The printer will only respond to an enquiry if it is idle. If the printer is busy, it will respond 02₍₁₆₎. When printing is finished and await further commands.
6. If queried, the printer will advise how many bytes remain to be printed.
7. Line feed (The printer skips a line).

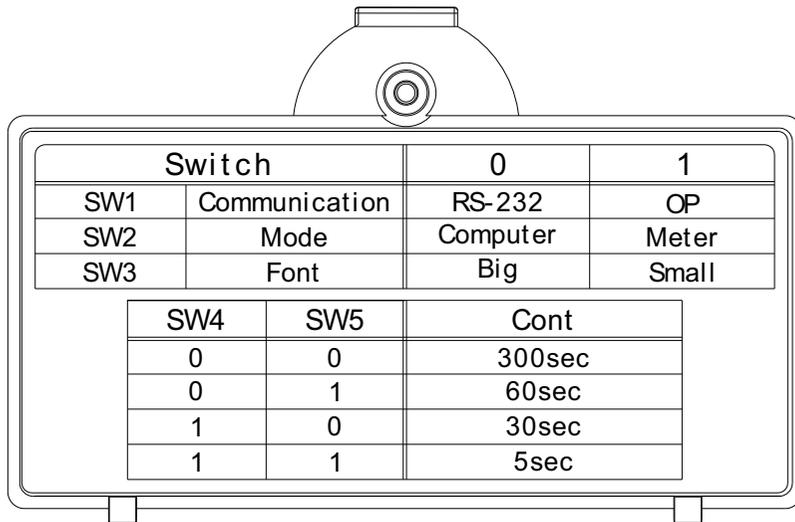
3 Operation Description

3.1 Setting the Printing Contrast



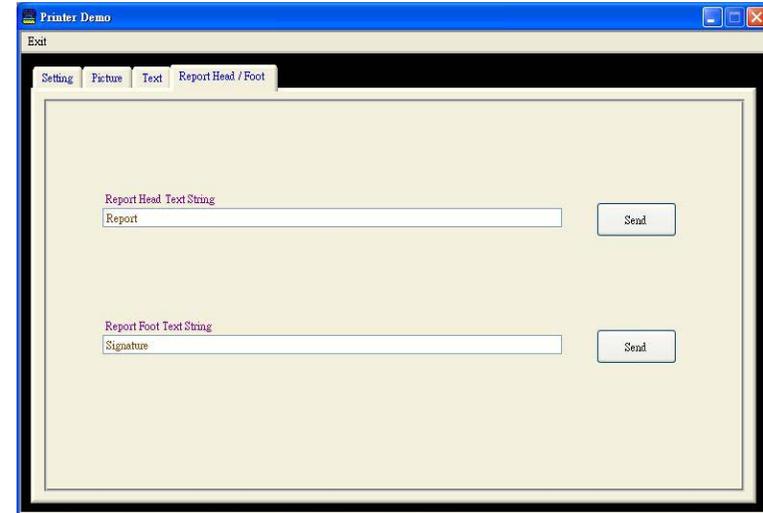
1. Ensure the 300XP printer is turned off.
2. To select the contrast:
Press and hold the following button(s) for 1 second while turning the printer power on.
 - (1) Press **Cont** and **Feed** buttons at the same time: the contrast is the strongest.
 - (2) Press **Cont** button: the contrast is stronger (+2).
 - (3) Press **Feed** button: the contrast is strong (+1).
 - (4) Press nothing: the contrast is normal (0).
 - (5) Press **Print** button: the contrast is light (-1).
 - (6) Press **Cancel** button: the contrast is lighter (-2).
 - (7) Press **Cancel** and **Print** buttons at the same time: the contrast is the lightest (-3).
3. When the button(s) are released, the contrast setting is complete.

3.2 Dip Switch Description



1. SW1 Communication: select the communication method.
 - OP: use the optically isolated connecting cable of the 300XP printer to connect to some models of ISO-TECH Instruments.
 - RS232: use the RS232 port/cable of the 300XP printer to connect to a PC, Agilent 34401A multimeter and some models of RS instruments.
2. SW2 Mode: Select the connecting device.
 - Computer: Use the application program supplied with the 300XP printer to produce text or graphics.
 - Meter: Other instruments, including some ISO-TECH and RS instruments mentioned in this manual as well as the Agilent 34401A Multi-meter.

4.5 Programming Text Header and Footer

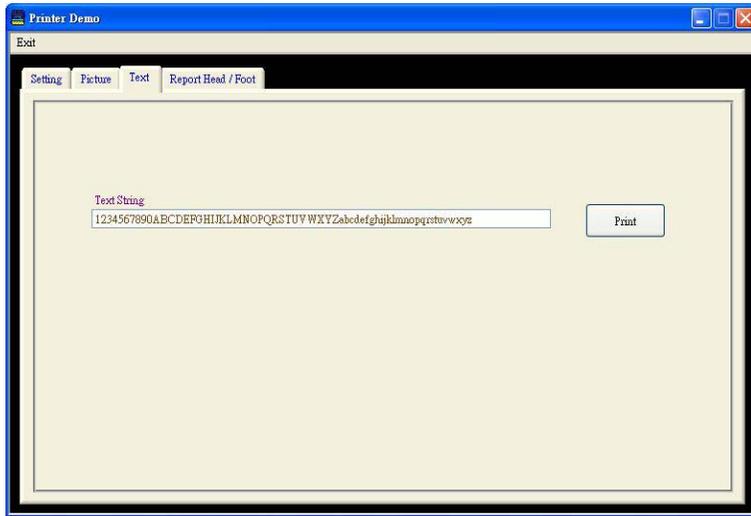


1. Type in the text for Header under **Report Head Text String**.
2. Click on the **Send** button to finish the setting.
3. Type in the text for Footer under **Report Foot Text String**.
4. Click on the **Send** button to finish the setting.

2. Preview the graphics file under **Picture preview**.
3. Click on the **Print** button to print the graphics files.

Note: The graphics files for printing should be single-colour Monochrome Bitmap (.bmp) only.

4.4 Text Printing



1. Type in the text for printing under **Text String**. (Refer to Appendix IV)
2. Click on the **Print** button to print the text.

3. SW3 Font : Select the font size required.
 - Small Font: 5*7 dots
 - Big Font: 10*15 dots
4. SW4 and SW5: Select the printing interval for continuous printing.
 - 5s: 1 print operation every 5 seconds.
 - 30s: 1 print operation every 30 seconds.
 - 60s: 1 print operation every 1 minute.
 - 300s: 1 print operation every 5 minutes.

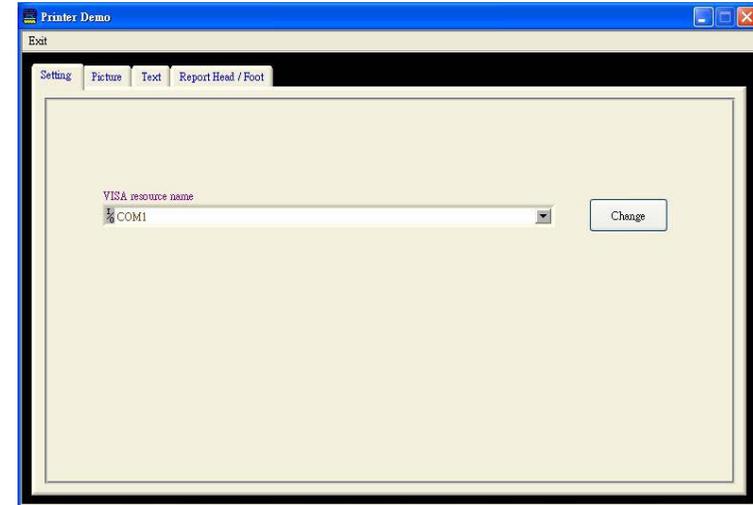
Note: Set the dip switches with the printer power turned off. The new settings will be applied when the printer power is next turned on.

3.3 Replacing the Batteries

When the **LO BAT** LED is lit, replace the exhausted batteries with new ones as follows. Do not leave exhausted batteries in the printer as they may leak and cause damage to the printer.

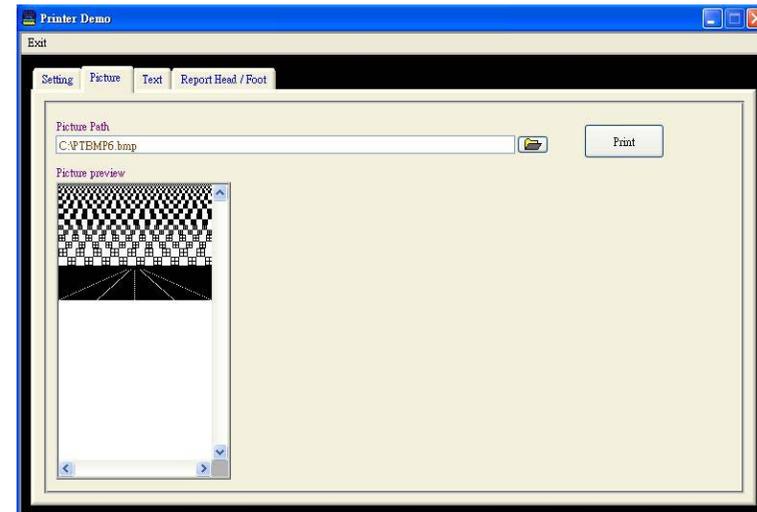
1. Use a screwdriver to remove the screw from the battery cover.
2. Remove the battery cover. Retain the screw and cover.
3. Remove the exhausted batteries.
4. Fit Qty. 8 new batteries (1.5V, AA type) into the battery compartment. Ensure they are fitted correctly.
5. Refit the battery cover and screw. Tighten the screw.
6. Turn the printer power on and check for correct operation.
7. Dispose of the exhausted batteries in accordance with local regulations.

4.2 Setting the Connecting Port



1. Under the **VISA resource name**, click on the drop-down box and select the required connecting port.
2. Click on the **Change** button to confirm (modify) the connecting port.

4.3 Graphics Printing



1. Select the required graphics file for printing under **Picture Path**.

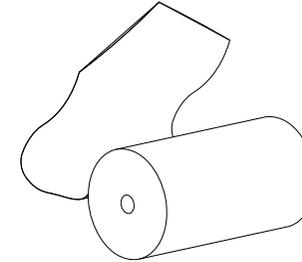
4 Software Installation and Operation

4.1 Software Installation

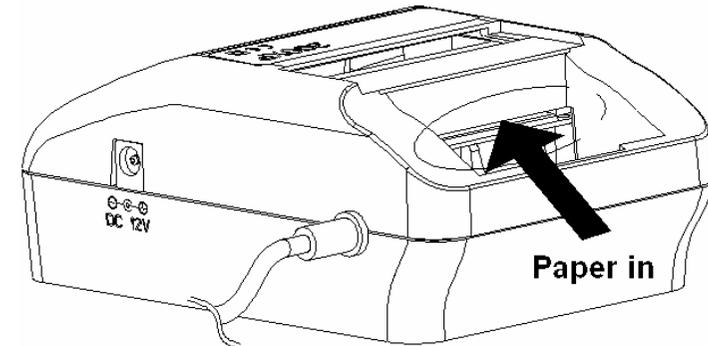
Place the CD-ROM in the CD drive on the computer and close the tray. The installation program should run automatically. If the installation does not start automatically, click on "Start", then "Run", then "Browse". Locate the CD drive. Double click on the CD drive and view the contents. Click on "Setup", then click on "Open", then click on "OK" and the installation process should start. Follow the on-screen instructions. You must accept the license terms and conditions to install and run the software. Once the installation is complete, double click on the icon to run the software.

3.4 Replacing the Thermal Paper roll

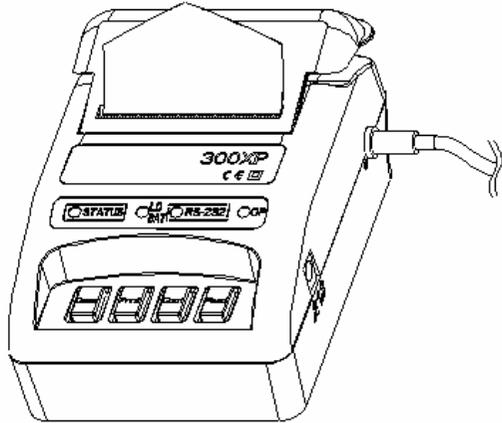
1. To ensure the paper enters the print mechanism easily, cut the end of the thermal paper roll into a triangle shape as shown in the following diagram:



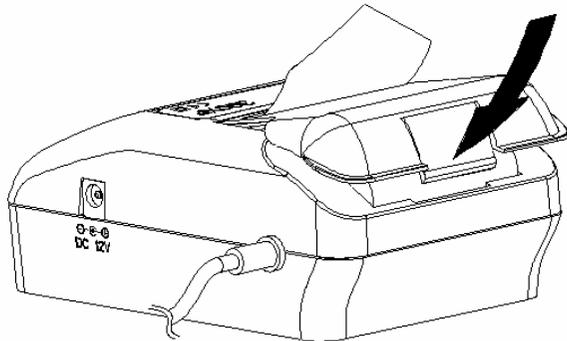
2. Place the paper roll in the trough and feed the paper centrally and squarely into the print mechanism as shown by the arrow direction in the following diagram:



3. Press the Feed button as required to move the paper through the print mechanism until it appears at the top of the printer as shown below:



4. Pass the paper through the paper cover and gently press the cover down to lock it in place as shown in the following diagram:



5. When replaced and located correctly, the printer should appear as follows:

