


Water Analysis & Automation  
**PC-BOD™**



Load. Start. Done.





Results you  
can  
depend on...  
year after  
year.

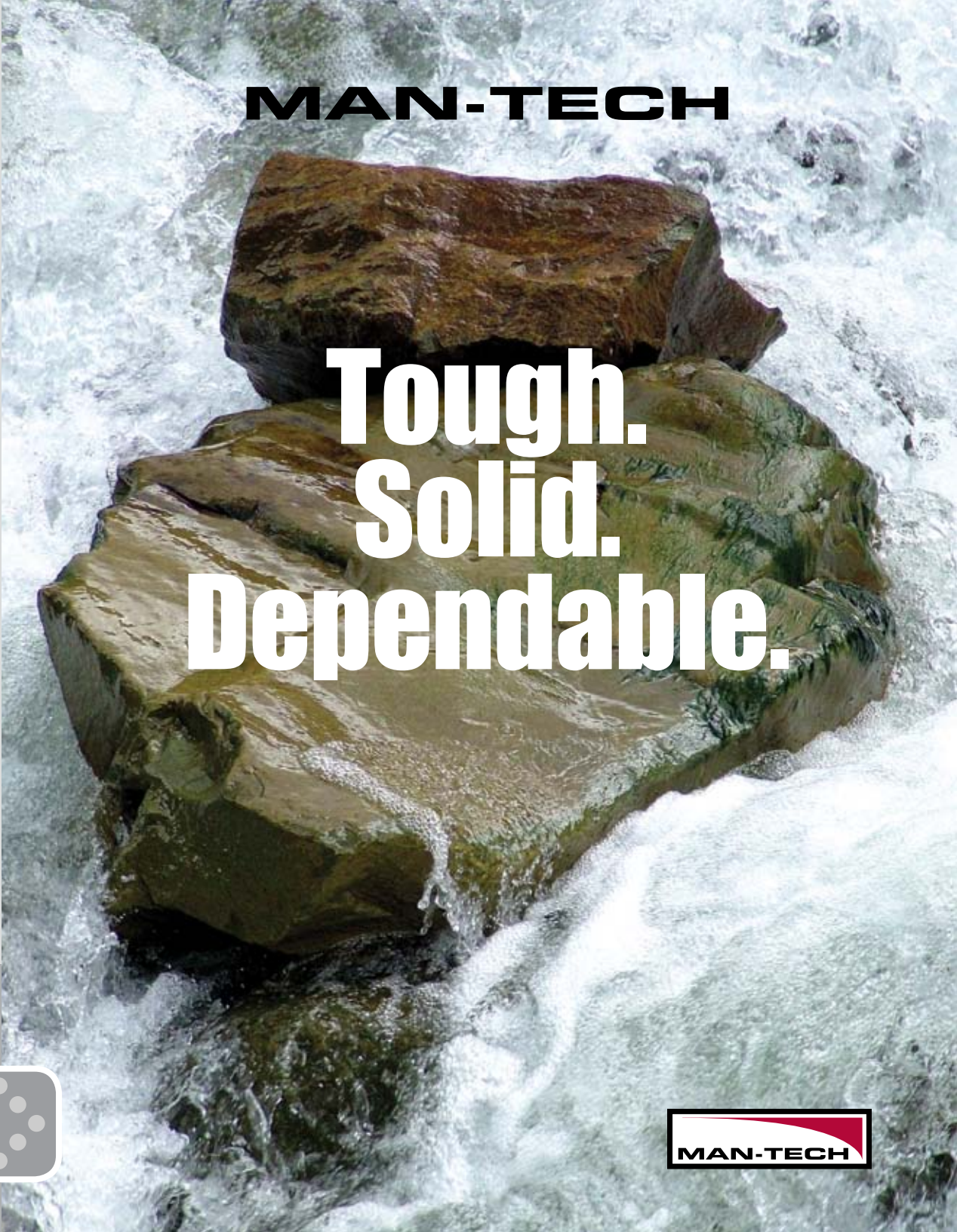
Man-Tech Associates Inc. was the first company to introduce a software-based auto-titration system which has since led to the development of specific systems for ion analysis, turbidity assays, BOD analysis and more. Man-Tech continuously focuses on automation, flexibility and durability, resulting in “workhorse” systems that stand the test of time.

### Doing Our Part for the Environment

This is printed on FSC-certified paper that is acid-free, elemental chlorine-free (ECF) and contains a minimum of 10% post-consumer recycled fibre.

#### **What Does FSC Certified Mean?**

FSC (Forest Stewardship Council) is a forest certification and labeling system for paper and wood products that come from responsibly managed forests, and verified recycled sources. Under FSC certification, forests are certified against a set of strict environmental and social standards, and fibre from certified forests is tracked all the way to the consumer through the chain of custody certification system.



# MAN-TECH

# Tough. Solid. Dependable.





PC-BOD™

## Automated BOD Analysis System

PC-BOD is designed to automate the 5- and 7-Day BOD analysis methods approved for use in many countries around the world. Use of the PC-BOD will enable laboratories to conform to the following regulatory Norms:

- Standard Methods 5210B, 21st edition
- Standard Methods 5210B, 20th edition
- DIN EN 18991
- DIN EN 18992



## Flexible, Automated Solutions

- Designed to automate the 5- and 7-day BOD standard analysis methods
- BOD and CBOD analyses in the same run
- Control up to 4 pumps for rinsing, dilution water, seed and inhibitor/ATU
- Follows 21<sup>st</sup> edition of Standard Methods allowing seed to be added after  $\frac{2}{3}$  dilution water volume has been added

## Simple Operation

- Innovative "Autorun Buttons" simplify operation
- Easily add more samples to batch while running
- Separate park probe method for storing BOD probe between runs
- User definable run/results screen

## Dependable, Reproducible Results

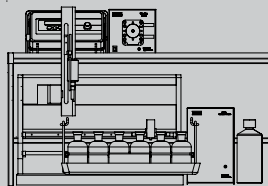
- Re-process data after BOD/CBOD set has been closed
- Re-analyze during and after run completion
- QC database for GGA's, blanks, etc.
- Automatic exporting of results to a LIMS

We can configure a system to your specific needs...

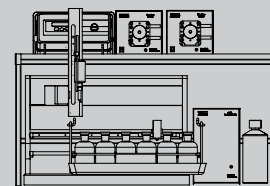
## Multiple Configurations

Possible PC-BOD configurations:

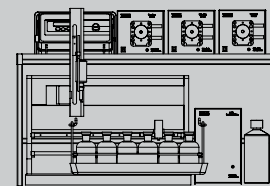
1. Stand Alone (SA) system, upgradeable to an automated system (see page 4)
2. Read-only automation with rinsing
3. Rinse and dilution water addition
4. Rinse, dilution water and seed addition
5. Rinse, dilution water, seed and inhibitor /ATU addition



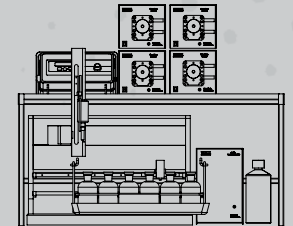
2



3



4



5

## PC-BOD™ SA

### Stand-Alone BOD Analysis System

The PC-BOD™ SA is designed for laboratories that have a limited number of samples. PC-BOD™ SA includes the COMPLETE BOD analysis software and has a simple upgrade path for adding an autosampler in the future.

### System Configuration

PC-BOD™ SA System includes:

- Man-Tech BOD Analysis software
- Man-Tech interface
- Two 11 x 300mL racks
- YSI Model 5100 dissolved oxygen meter
- YSI Model 5905 BOD probe

### Options

- Additional 11 x 300mL or 24 x 300mL racks
- Bar code scanner
- Bar code labels



### Does your laboratory already use a Man-Tech System?

PC-BOD™ SA may be connected to an existing Man-Tech system such as PC-Titrate™, AssayPlus™ or TitraSip™ SA. PC-BOD™ and Man-Tech packages may reside on the same computer with the same interface and operate independently of each other (they CANNOT be operated simultaneously). A separate interface allows for the simultaneous operation of PC-BOD™ SA with a Man-Tech titration/ion analysis system from the same computer.

STAND ALONE



## Hardware Components

### Pumps



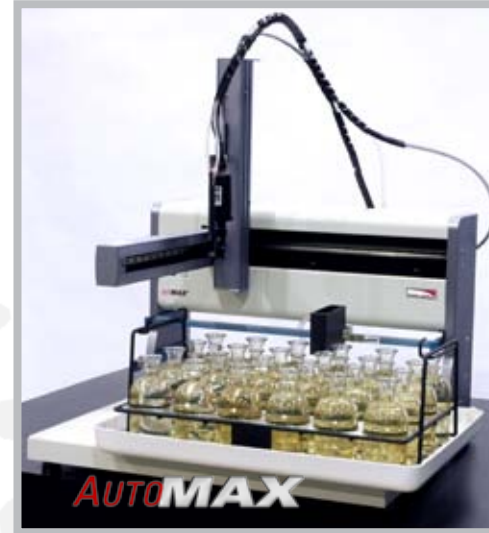
- Control up to 4 pumps for rinsing, dilution water, seed and ATU/inhibitor
- Man-Tech's durable and accurate pumps are individually designed with the specific reagent in mind
- Trouble-free operation for years
- Fast dilution pump! Fills 300mL bottle in 30 seconds or 15 seconds (with Duo configuration)

### Interface



- Connects to the PC and pumps
- Dissolved oxygen meter connects to the interface
- Allows for upgrade to titration, conductivity, pH and more

### AutoMax™ Samplers



- Rack capacity of 24 x 300mL bottles or 2 of 12 x 300mL bottles or 40 x 60mL
- Rugged, proven autosampler giving trouble-free operation for years
- Connects directly to the PC
- Complete control by PC-BOD™ software

### Dual Position Probe



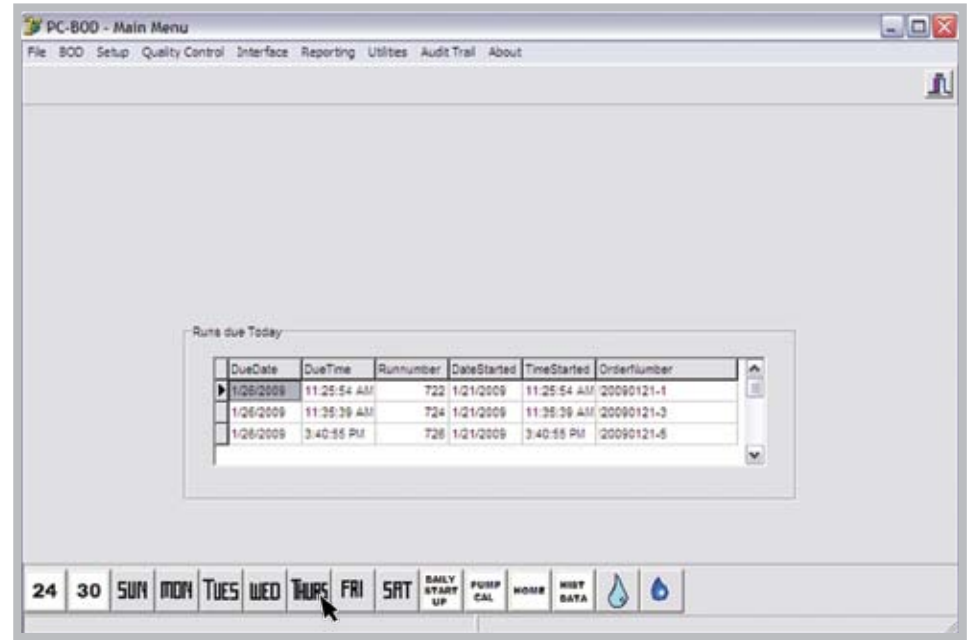
- Standard YSI probe
- Dual position probe holder
- Prepare bottle first, then immediately measure initial DO
- Standard (not modified) BOD probe

# Software

The powerful PC-BOD software is flexible enough to be setup to adapt to your protocol requirements, but simple enough to be used on a daily operational level by technicians.

- Innovative Man-Tech Autorun buttons simplify operation
- Automatic exporting of results to LIMS
- Real-time viewing of flags
- Auto-calibration using the air saturation method
- Customize results screen including user-defined fields

Main Screen for PC-BOD



Software designed for efficiency and simplicity, helping you achieve the results you need...



# Software Features

PC-BOD software meets the requirements of BOD analysis today and in the future. Simple to operate, yet flexible enough to meet the demands of busy laboratories with strict conformance requirements.

## Results you can count on

- Quick and easy sample set creation
- Fast viewing of batches due today
- Pre-defined sample sets including blanks, seeds and GGAs
- Calculations for seeded and un-seeded dilution water
- Customized results screens including order of results and user-defined fields
- Flexibility: Add bottles to initial run, during run, or after run has been completed
- Automated toxicity checks and flag
- Automated spike addition and calculation
- Capability to re-analyze samples during initials and finals

**D - Post-Run BOD Analysis**

System: 20080822-7

Run	Num	Sample Name	Sample ID	Comments	Sample Vol (mL)	Seed Vol (mL)	Sub. Vol (mL)	W	Initial DO	Final DO	Deplete BOD	BOD Average
1	1	Blank	Blank Sample		0.00	0.00	0.0	No	0.00	0.44	0.16	
1	2	Seed	Seed sample-1		0.00	15.00	0.0	No	0.01	0.51	2.10	
1	3	Seed	Seed sample-2		0.00	20.00	0.0	No	0.00	0.50	2.00	
1	4	Seed	Seed sample-3	re-read on final	0.00	25.00	0.0	No	0.02	0.09	0.53	
1	5	GGA_BOD	GGA sample-1	passed	0.00	3.00	0.0	No	0.47	4.50	3.97	177.44
1	6	GGA_BOD	GGA sample-2	passed	0.00	3.00	0.0	No	0.49	4.41	4.00	182.94 150.19
1	7	PC-BOD Effluent	Dilution 1-1		80.00	3.00	0.0	No	0.00	0.19	2.41	9.94
1	8	PC-BOD Effluent	Dilution 1-2		75.00	3.00	0.0	No	0.07	0.40	0.27	11.40
1	9	PC-BOD Effluent	Dilution 1-3	re-read on final	90.00	3.00	0.0	No	0.05	4.05	3.97	11.03 11.00
1	10	Blank Sample	Blank check		0.00	0.00	0.0	No	0.05	0.05	0.00	

Correction Factor - BOD: 0.140    Seed Correction Factor - CBOD: 0.000    Blank Average Depletion: 0.160    CBOD Blank Average Depletion: 0.000

Standards result -> 180.190  
Standards limits -> 190.000 +/- 30.500

Use Original Method  
Select Method: BOD5 20TH SEEDED - 050307 Version 15

Run Results    Run Method

To Complete

Date Started	Date Finished	Time Finished	Order Number	Run Number
09/22/2008 11:21:36 AM	09/22/2008 11:22:41 AM		System:20080822-5	696
09/22/2008 11:24:21 AM	09/22/2008 11:25:39 AM		System:20080822-6	667

Load Selected    Flags Legend

Run/Results Screen



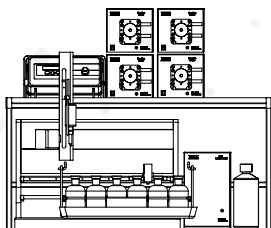
Quality Control (QC) chart for GGA Standard



Load. Start. Done.

## System Ordering Information

System	Part Number	Description
PC-BOD Automated System	PBM-271BOD/40	PC-BOD™, DO Meter, BOD Probe, Software, autosampler, 2 x 24 place rack, rinse pump, dilution pump, seed pump, inhibitor pump
	PBM-271BOD/30	PC-BOD™, DO Meter, BOD Probe, Software, autosampler, 2 x 24 place rack, rinse pump, dilution pump, seed pump
	PCM-271BOD/20	PC-BOD™, DO Meter, BOD Probe, Software, autosampler, 2 x 24 place rack, rinse pump, dilution pump
	PBM-271BOD/10	PC-BOD™, DO Meter, BOD Probe, Software, autosampler, 2 x 24 place rack, rinse pump
PC-BOD SA (Stand Alone) System	PBM-BOD/SA	PC-BOD™ Stand Alone, software, interface, DO Meter, BOD Probe, 1 rack
	PBM-BOD/SA/NM	PC-BOD™, software, interface, 1 rack
	PBM-BOD/SA/NI	PC-BOD™ for use with PC-T/AssayPlus/TitraSip SA, software, DO Meter, BOD Probe, 1 rack (Man-Tech interface already owned)
	PBM-BOD/SA/NI/NM	PC-BOD™ for use with PC-T/AssayPlus/TitraSip SA, software, 1 rack (Man-Tech interface already owned)



[www.mantech-inc.com](http://www.mantech-inc.com)



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