

# Network-Integrated Control Program for a Transducer-Rotating Mechanism to Measure Target Strength (TS) Pattern of Squid.

Ken Ishii <sup>\*1</sup>, and Kouichi Sawada <sup>\*1</sup>

<sup>\*1</sup> *National Research Institute of Fisheries Engineering, Fisheries Research Agency,  
7620-7, Hasaki, Kamisu Ibaraki 314-0408, Japan*

Received : July, 1, 2004. Accepted : June, 7, 2005

## Abstract

Target strength (TS) of squid is required to convert acoustic integration values to estimates of the existing biomass of squid. Squid are weak in both body and acoustic reflection compared to fish. We constructed a new TS measurement system for squid considering the above characteristics. Contrary to the usual TS measurement system for fish, a target is fixed and a transducer then rotates around the target in this system. A personal computer (PC) has been installed for automatic measurements including synchronization between rotation and acoustic data acquisition. A control program that consists of six sub-programs integrated via network has been developed for the TS measurement systems. The main concepts of the control program are 1) adaptability to other TS measurement system, 2) flexibility, 3) and a user-friendly man-machine interface. Any combinations within six sub-programs can be separately installed on different PCs connected to the same network or on the same PC. The six sub-programs work as one control program. The required functions of the TS measurement mechanism are classified into three command groups : 'Basic' commands used commonly in rotating systems, 'Network' commands related to the priority among PCs and 'Proprietary' commands on each mechanism. The network-integrated program has determined the precise positioning of a transducer and the easy synchronization with the echo data acquisition system. It also monitors the angle and the current status information of the rotating mechanism from several PCs connected to the network as monitors in addition to the control PC as a controller.