On m-convexity of $C_b(X,A)$ and $C_p(X,A)$

Let X be a completely regular Hausdorff space and A be a topological algebra. We denote by C(X,A) the algebra of all continuous functions on X valued in a complex commutative unital m-convex algebra A. Let $C_b(X,A)$ be it subalgebra consisting of all bounded continuous functions and $C_p(X,A)$ is the subalgebra of $C_b(X,A)$ of all bounded continuous f such that the closure of its range in A is compact in A. A locally convex algebra is a topological algebra A wich is a locally convex space. In this case its topology can by a family $\{||\cdot||_\alpha:\alpha\in\Lambda\}$ of seminorms satisfying the following condition: for every $\alpha\in\Lambda$ there exist β such that $||xy||_\alpha\leq||x||_\beta||y||_\beta$ for all $x,y\in A$. A locally convex algebra is said to be m-convex (multiplicatively convex) if every seminorms is submultiplicative, i.e. the adove inequality can be replaced by $||xy||_\alpha\leq||x||_\alpha||y||_\alpha$ for all $\alpha\in\Lambda$ and all $x,y\in A$. We give conditions on the m-convexity of $C_b(X,A)$ and $C_p(X,A)$.